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1 Billing Period

1.1 Cosem objects

1.1.1 BillingPeriodInitParameters

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;137;0;2;255	1	0	1	0	False	False	False

Logical devices:

Management	Electricity	End customer	
True	False	False	

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	BillingPeriodInitParametersOBISCode
A2. value	UNSIGNED8	See below

■ Attribute 2: value

This object defines the preset value of the number of EOB. It is taken into account immediately after programming (not at the end of session).

Access rights (clients)

	Electricity laboratory Get/Set	Electricity utility Get/Set	Electricity reader	End customer Get	Manufacturer Get/Set	Resources upgrader	•
L	Gersei	Gel/Set	Get	Get	Gel/Set	-	Get
Α	ttribute description						
	BillingPeriodInit	tValue					
	BillingPeriodInitValu	<u>e</u>					
	Data type: UNSIGNI	ED8					

Default value: 0

Authorized value: 0 to 99

1.1.2 BillingPeriodParameters

This object defines the periodical end of billing period parameters.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;137;0;1;255	1	0	2	0	True	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	BillingPeriodParametersOBISCode
A2. value	UNSIGNED16	See below

■ Attribute 2: value

Defines the hour where the daily EOB is triggered.

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get	Get	Get/Set	-	Get

Attribute description

DailyBillingHour

DailyBillingHour

Range: 0 .. 23 and 65535

65535 is the inhibition value for this function (default value)

Data type: UNSIGNED16

Authorized value: 0 to 23 and 65535

Default value: 65535

1.1.3 EOBStatus

This data contains the EOB date and status. It is used to allow capture in a profile.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
1;0;98;134;1;255	4	0	3	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	EOBStatusOBISCode
A2. value	UNSIGNED16	See below
A3. scaler_unit	SEQUENCE	See below
A4. status	SEQUENCE	See below
A5. capture_time	OCTETSTRING	See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
-	-	-	-	-	-	-

Attribute description

NbDays

<u>NbDays</u>

Number of days since last EOB.

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

Data type: INTEGER8

Authorized value: 0

Default value: 0

<u>Unit</u>

Data type: ENUMERATED

Authorized value: 4: day

Default value: day (4)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description SEQUENCE // 2 elements NumberOfEOB SourceOfLastEOB **NumberOfEOB** Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0 **SourceOfLastEOB** Data type: UNSIGNED8 Authorized values: 0: By communication 1: By push button 2: By Control input 20: Internal, by end of period

■ Attribute 5: capture_time

Default value: By communication (0)

Access rights (clients)

1.1.4 NumberOfAvailableHistoricalSets

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;0;1;1;255	3	0	1	0	False	False	False

Logical devices:

 Management
 Electricity
 End customer

 True
 False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	NumberOfAvailableHistoricalSetsOBISCode
A2. value	UNSIGNED8	See below
A3. scaler_unit	SEQUENCE	See below

■ Attribute 2: value

Access rights (clients)

	Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
	Get	Get	Get	Get	Get	-	Get
	Attribute description						
NumberOfAvailableHistoricalSets							

<u>NumberOfAvailableHistoricalSets</u>

Name of Wallabler Hotorical Cet

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory	•	Electricity reader			Resources upgrader						
Get	Get	Get	Get	Get	-	Get					
Attribute description											
SEQUENCE // 2 { Scaler Unit }	2 elements										
<u>Scaler</u>											
No scaler											
Data type: INTEGER	₹8										
Authorized value: 0											
Default value: 0											
<u>Unit</u>											
Data type: ENUMER	RATED										
Authorized value: 25	55: No unit										
Default value: No ur	nit (255)										

1.2 Cosem profiles

1.2.1 EOBData

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Object table	Max object	Periode	Entries	Min Ent.	Max Ent.
0;1;98;1;0;255	7	1	12	7fff	ROM	66	0	1	1	1

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	EOBDataOBISCode
A2. buffer	ARRAY	See below
A3. capture_objects	ARRAY	See below

■ Attribute 2: buffer

```
Electricity laboratory
                   Electricity utility
                                  Electricity reader
                                                End customer Manufacturer Resources upgrader Engineer
       Get
                        Get
                                       Get
                                                    Get
                                                              Get
                                                                                       Get
Attribute description
 SEQUENCE OF
                 // 1 elements
   SEQUENCE
                // 66 elements
     EOBStatus (Att. Id: 0, Abs. Number: 3)
     AllTotalEnergies (Att. Id: 2, Abs. Number: 4)
     AllEnergyRates (Att. Id: 2, Abs. Number: 7)
     MaximumDemand1 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand1 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand2 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand2 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand3 (Att. Id: 1, Abs. Number:
     MaximumDemand3 (Att. Id: 2, Abs. Number:
     MaximumDemand4 (Att. Id: 1, Abs. Number:
     MaximumDemand4 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand5 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand5 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand6 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand6 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand7 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand7 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand8 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand8 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand9 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand9 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand10 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand10 (Att. Id: 2, Abs. Number: 1)
     MaximumDemandl1 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand11 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand12 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand12 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand13 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand13 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand14 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand14 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand15 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand15 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand16 (Att. Id: 1, Abs. Number:
     MaximumDemand16 (Att. Id: 2, Abs. Number:
     MaximumDemand17 (Att. Id: 1, Abs. Number:
     MaximumDemand17 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand18 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand18 (Att. Id: 2, Abs. Number: 1)
     MaximumDemand19 (Att. Id: 1, Abs. Number: 1)
     MaximumDemand19 (Att. Id: 2, Abs. Number: 1)
```

```
MaximumDemand20 (Att. Id: 1, Abs. Number: 1)
    MaximumDemand20 (Att. Id: 2, Abs. Number: 1)
    MaximumDemand21 (Att. Id: 1, Abs. Number: 1)
    MaximumDemand21 (Att. Id: 2, Abs. Number: 1)
    MaximumDemand22 (Att. Id: 1, Abs. Number: 1)
    MaximumDemand22 (Att. Id: 2, Abs. Number: 1)
    MaximumDemand23 (Att. Id: 1, Abs. Number: 1)
    MaximumDemand23 (Att. Id: 2, Abs. Number: 1)
    MaximumDemand24 (Att. Id: 1, Abs. Number: 1)
    MaximumDemand24 (Att. Id: 2, Abs. Number: 1)
    AllCumulativeMaxDemands (Att. Id: 2, Abs. Number: 4)
    MinimumPowerFactorSinceLastEOB (Att. Id: 0, Abs. Number: 1)
    AveragePowerFactor (Att. Id: 1, Abs. Number: 2)
    AveragePowerFactor (Att. Id: 2, Abs. Number: 2)
    AveragePowerFactor (Att. Id: 4, Abs. Number: 2)
    MinFrequency (Att. Id: 0, Abs. Number: 2)
    MaxFrequency (Att. Id: 0, Abs. Number: 2)
    AllRmsMaxValues (Att. Id: 2, Abs. Number: 1)
    MinTemperature (Att. Id: 0, Abs. Number: 1)
    MaxTemperature (Att. Id: 0, Abs. Number: 1)
    ImportActivePowerAggregate (Att. Id: 0, Abs. Number: 1)
    ExportActivePowerAggregate (Att. Id: 0, Abs. Number: 1)
    ImportReactivePowerAggregate (Att. Id: 0, Abs. Number: 1)
    ExportReactivePowerAggregate (Att. Id: 0, Abs. Number: 1)
    ExcessDemandProfile (Att. Id: 2, Abs. Number: 2)
}
```

■ Attribute 3: capture_objects

Data index = 0

```
Here below, the details of each index in the array:
Index 1 (EOBStatus): Obis code = 1:0:98:134:1:255, Class id = 4, Attribute index = 0, Data index = 0
Index 2 (AllTotalEnergies): Obis code = 0:0:98:133:2:255, Class id = 7, Attribute index = 2, Data index = 0
Index 3 (AllEnergyRates): Obis code = 0;0;98;133;1;255, Class id = 7, Attribute index = 2, Data index = 0
Index 4 (MaximumDemand1): Obis code = 0;0;98;133;61;255, Class id = 7, Attribute index = 1, Data index
Index 5 (MaximumDemand1): Obis code = 0;0;98;133;61;255, Class id = 7, Attribute index = 2, Data index
Index 6 (MaximumDemand2): Obis code = 0;0;98;133;62;255, Class id = 7, Attribute index = 1, Data index
Index 7 (MaximumDemand2): Obis code = 0;0;98;133;62;255, Class id = 7, Attribute index = 2, Data index
Index 8 (MaximumDemand3): Obis code = 0;0;98;133;63;255, Class id = 7, Attribute index = 1, Data index
Index 9 (MaximumDemand3): Obis code = 0;0;98;133;63;255, Class id = 7, Attribute index = 2, Data index
Index 10 (MaximumDemand4): Obis code = 0;0;98;133;64;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 11 (MaximumDemand4): Obis_code = 0;0;98;133;64;255, Class_id = 7, Attribute_index = 2,
Data index = 0
Index 12 (MaximumDemand5): Obis_code = 0;0;98;133;65;255, Class_id = 7, Attribute_index = 1,
Data index = 0
Index 13 (MaximumDemand5): Obis code = 0;0;98;133;65;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 14 (MaximumDemand6): Obis code = 0;0;98;133;66;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 15 (MaximumDemand6): Obis code = 0;0;98;133;66;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 16 (MaximumDemand7): Obis_code = 0;0;98;133;67;255, Class_id = 7, Attribute_index = 1,
Data index = 0
Index 17 (MaximumDemand7): Obis code = 0;0;98;133;67;255, Class id = 7, Attribute index = 2,
```

```
Index 18 (MaximumDemand8): Obis code = 0;0;98;133;68;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 19 (MaximumDemand8): Obis code = 0;0;98;133;68;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 20 (MaximumDemand9): Obis code = 0;0;98;133;69;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 21 (MaximumDemand9): Obis code = 0;0;98;133;69;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 22 (MaximumDemand10): Obis code = 0;0;98;133;70;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 23 (MaximumDemand10): Obis code = 0:0:98:133:70:255. Class id = 7, Attribute index = 2.
Data index = 0
Index 24 (MaximumDemand11): Obis code = 0;0;98;133;71;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 25 (MaximumDemand11): Obis code = 0;0;98;133;71;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 26 (MaximumDemand12): Obis code = 0;0;98;133;72;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 27 (MaximumDemand12): Obis_code = 0;0;98;133;72;255, Class_id = 7, Attribute_index = 2,
Data index = 0
Index 28 (MaximumDemand13): Obis code = 0:0:98:133:73:255. Class id = 7, Attribute index = 1,
Data index = 0
Index 29 (MaximumDemand13): Obis code = 0;0;98;133;73;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 30 (MaximumDemand14): Obis code = 0;0;98;133;74;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 31 (MaximumDemand14): Obis code = 0;0;98;133;74;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 32 (MaximumDemand15): Obis code = 0;0;98;133;75;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 33 (MaximumDemand15): Obis code = 0;0;98;133;75;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 34 (MaximumDemand16): Obis code = 0;0;98;133;76;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 35 (MaximumDemand16): Obis code = 0;0;98;133;76;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 36 (MaximumDemand17): Obis code = 0;0;98;133;77;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 37 (MaximumDemand17): Obis code = 0;0;98;133;77;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 38 (MaximumDemand18): Obis code = 0;0;98;133;78;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 39 (MaximumDemand18): Obis code = 0;0;98;133;78;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 40 (MaximumDemand19): Obis code = 0;0;98;133;79;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 41 (MaximumDemand19): Obis code = 0;0;98;133;79;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 42 (MaximumDemand20): Obis_code = 0;0;98;133;80;255, Class_id = 7, Attribute_index = 1,
Data index = 0
Index 43 (MaximumDemand20): Obis code = 0;0;98;133;80;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 44 (MaximumDemand21): Obis code = 0;0;98;133;81;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 45 (MaximumDemand21): Obis_code = 0;0;98;133;81;255, Class_id = 7, Attribute_index = 2,
Data index = 0
Index 46 (MaximumDemand22): Obis_code = 0;0;98;133;82;255, Class_id = 7, Attribute_index = 1,
Data_index = 0
```

```
Index 47 (MaximumDemand22): Obis code = 0:0:98:133:82:255. Class id = 7, Attribute index = 2,
Data index = 0
Index 48 (MaximumDemand23): Obis code = 0;0;98;133;83;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 49 (MaximumDemand23): Obis code = 0;0;98;133;83;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 50 (MaximumDemand24): Obis code = 0;0;98;133;84;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 51 (MaximumDemand24): Obis code = 0;0;98;133;84;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 52 (AllCumulativeMaxDemands): Obis code = 0;0;98;133;90;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 53 (MinimumPowerFactorSinceLastEOB): Obis code = 1;1;13;3;0;255, Class id = 4, Attribute index =
0, Data index = 0
Index 54 (AveragePowerFactor): Obis code = 1;1;13;4;0;255, Class id = 5, Attribute index = 1, Data index
Index 55 (AveragePowerFactor): Obis code = 1;1;13;4;0;255, Class id = 5, Attribute index = 2, Data index
Index 56 (AveragePowerFactor): Obis_code = 1;1;13;4;0;255, Class_id = 5, Attribute_index = 4, Data_index
Index 57 (MinFrequency): Obis code = 1;1;14;3;0;255, Class id = 4, Attribute index = 0, Data index = 0
Index 58 (MaxFrequency): Obis code = 1;1;14;6;0;255, Class id = 4, Attribute index = 0, Data index = 0
Index 59 (AllRmsMaxValues): Obis code = 1;1;98;134;3;255, Class id = 7, Attribute index = 2, Data index
= 0
Index 60 (MinTemperature): Obis code = 0:0:128:3:0:255, Class id = 4, Attribute index = 0, Data index = 0
Index 61 (MaxTemperature): Obis code = 0;0;128;6;0;255, Class id = 4, Attribute index = 0, Data index = 0
Index 62 (ImportActivePowerAggregate): Obis code = 1;1;1;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 63 (ExportActivePowerAggregate): Obis code = 1;1;2;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 64 (ImportReactivePowerAggregate): Obis code = 1;1;3;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 65 (ExportReactivePowerAggregate): Obis code = 1;1;4;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 66 (ExcessDemandProfile): Obis code = 0;0;98;133;7;255, Class id = 7, Attribute index = 2,
Data index = 0
Access rights (clients)
  Electricity laboratory
                       Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                             Get
                                                           Get
                                                                                                   Get
                                                                       Get
Attribute description
 SEQUENCE OF
                    // 66 elements
   SEQUENCE
                   // 4 elements
      Class_id
      Obis_code
      Attribute_index
      Data_index
 }
 Class id
 Data type: UNSIGNED16
```

Authorized value: 0 to 65535

Default value: 0

Obis code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

1.2.2 LightEOBData

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Object table	Max object	Periode	Entries	Min Ent.	Max Ent.
0;1;98;2;0;255	7	1	5	7fff	ROM	5	0	18	18	18

Logical devices:

Management	Electricity	End customer
True	True	True

Electricity utility

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content	
A1. logical_name	OCTETSTRING	LightEOBDataOBISCode	
A2. buffer	ARRAY	See below	
A3. capture_objects	ARRAY	See below	

End customer Manufacturer Resources upgrader Engineer

Electricity reader

■ Attribute 2: buffer

Access rights (clients)

Electricity laboratory

Get	Get	Get	Get	Get	-	Get
Attribute description	on					
SEQUENCE OF {	// 18 elements					
SEQUENCE	// 5 elements					
{						
	per (Att. Id: 0, Ak		.)			
	(Att. Id: 0, Abs.	•	1 . 0)			
_	Energies (Att. Id:	·				
AllEnergyR	Rates (Att. Id: 2,	Abs. Number:	7)			
AllMaximum	nDemands (Att. Id:	2, Abs. Numb	er: 1)			
}						
}						

■ Attribute 3: capture_objects

```
Here below, the details of each index in the array:
```

```
Index 1 (SerialNumber): Obis_code = 0;0;96;1;0;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 2 (EOBStatus): Obis_code = 1;0;98;134;1;255, Class_id = 4, Attribute_index = 0, Data_index = 0 Index 3 (LightTotalEnergies): Obis_code = 0;0;98;133;3;255, Class_id = 7, Attribute_index = 2, Data_index = 0
```

Index 4 (AllEnergyRates): Obis_code = 0;0;98;133;1;255, Class_id = 7, Attribute_index = 2, Data_index = 0

Index 5 (AllMaximumDemands): Obis_code = 0;0;98;133;6;255, Class_id = 7, Attribute_index = 2, Data index = 0

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                            Get
                                                           Get
                                                                        Get
                                                                                                    Get
Attribute description
 SEQUENCE OF
                   // 5 elements
                  // 4 elements
   SEQUENCE
   {
     Class_id
     Obis_code
     Attribute_index
     Data_index
Class id
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
Obis_code
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
 Default value: 0;0;0;0;0;0;0;
Attribute_index
 Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
Data_index
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
```

2 Communication

2.1 Cosem objects

2.1.1 CommProgrammingAuthorizationParameters

This object allows all programming through communication links (excepted date and time programming) when the reset push button is sealed (security issue).

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;143;0;12;255	1	0	1	0	True	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	CommProgrammingAuthorizationParametersOBISCode
A2. value	UNSIGNED8	See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get/Set	Get/Set	Get

Attribute description

CommProgrammingAuthorization

CommProgrammingAuthorization

Data type: UNSIGNED8

Authorized values:

0: ALWAYS_AUTHORIZED

15: AUTHORIZED_BY_RESET_BUTTON
Default value: ALWAYS_AUTHORIZED (0)

2.1.2 CommunicationTypeParameters

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;143;0;16;255	1	0	2	0	False	False	False

Logical devices:

J		
Management	Electricity	End customer
True	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	CommunicationTypeParametersOBISCode
A2. value	SEQUENCE	See below

■ Attribute 2: value

Here is fixed, types of communication managed by the customer port and by the utility port. The IEC1107 configuration is only available on one channel (means that the configuration of both channels with IEC1107 is prohibited).

Electricity laboratory Get/Set	Electricity utility Get/Set	Electricity reader Get/Set	End customer Get	Manufacturer Get/Set	Resources upgrader	Engineer Get
Attribute description SEQUENCE // 2 { CustomerCommunic UtilityCommunic }						
CustomerCommunion Specifies the communication of th	unication type for t	•		RUE".		
Data type: ENUMER Authorized values: 0: TCP 1: HDLC 2: IEC1107	RATED					
Default value: HDLC <u>UtilityCommunicatio</u> Specifies the communicatio - TCP is not available - IEC1107 is only available	nType unication type for the on this port.	• •	^P arameter = 1	「RUE".		
Data type: ENUMER Authorized values: 1: HDLC 2: IEC1107	RATED					
Default value: HDLC	C (1)					

2.1.3 ConnectionUserNameParameters

The ConnectionUserNameParameters object holds the name of the author of the connection at each COSEM connection.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;96;12;4;255	1	0	1	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	ConnectionUserNameParametersOBISCode
A2. value	VISIBLESTRING	See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get/Set	Get/Set	Get/Set	Get/Set

Attribute description

ConnectionUsername

ConnectionUsername

This parameter is independant from restrictive programmation conditions.

Data type: VISIBLESTRING Authorized value: Size = 8 Default value: username

2.1.4 COSEMLogicalDeviceName

This object contains the current COSEM logical device name

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;42;0;0;255	1	0	2	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	True	True

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	COSEMLogicalDeviceNameOBISCode
A2. value	OCTETSTRING	See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	Get	Get

Attribute description

COSEMLogicalDeviceName

COSEMLogicalDeviceName

Indicates the current logical device name

Composed of:

- Meter type (6 first digits) : Value = "SLB761"
- Logical device type (2 digits) : Value ="MA" for Management logical device or "EL" for Electricity logical device
- Serial Number (8 last digits)

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 16)

Default value: 83;76;66;55;54;49;77;65;115;110;48;48;48;48;48;48;(SLB761MAsn000000)

2.1.5 CurrentAssociationID

This object allows modeling of application associations between a meter and a system, using the application context short name referencing. The short name of the current "Association SN" object is preset to 0xFA00.

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;0;40;0;0;255	15	0	5	7055	False	False	False

Logical devices:

Management	Electricity	End customer	
True	True	True	

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	CurrentAssociationIDOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	NULL	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

Electricity laboratory	<u> </u>	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	Get	Get
Attribute description						
SEQUENCE OF	// 165535 ele	ements				
{ SEQUENCE	// 4 elements					
{	,					
class_id Version						
logical_name	2					
	// 2 elements					
{ SEQUENCE (OF // 1655	35 elements				
{						
SEQUENCE {	E // 3 eleme	ents				
	oute_id					
access						
CHOICE {	<u>u</u>					
SEQU	JENCE OF //	11 elements				
{						
}						
١						
}						
}						
SEQUENCE (OF // 0655	35 elements				
•	Z // 2 eleme	ents				
{ method	1 14					
	s_mode					
}						
} }						
}						
}						
class_id						
Data type: UNSIGN	NED16					
Authorized value: 0) to 65535					
Default value: 0						
<u>Version</u>						

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 logical_name

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

attribute id

Contains all implemented attributes.

Data type: INTEGER8
Authorized value: 0 to 127

Default value: 0 access mode

Data type: ENUMERATED

Authorized values: 0: No access 1: Read only

2: Write only

3: Read and write

Default value: No access (0)

Data type: INTEGER8
Authorized value: 1
Default value: 1

Data type: NULL
Authorized value:
Default value:
method_id

Contains all implemented methods.

Data type: INTEGER8
Authorized value: 1 to 127

Default value: 1 access_mode

Data type: BOOLEAN
Authorized values:

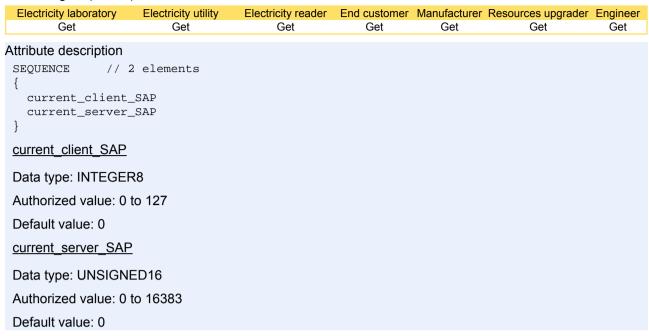
0: FALSE 1: TRUE

Default value: 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)



■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

Electricity laboratory Get	Electricity utility Get	Electricity reader Get	End customer Get	Manufacturer Get	Resources upgrader Get	Engineer Get
Attribute description						
	ement nization-eleme text-element	ent:				
}						
joint-iso-ctt-element						
Data type: UNSIGNE	:D8					
Authorized value: 0 to	o 255					
Default value: 0						
country-element						
Data type: UNSIGNE	ED8					
Authorized value: 0 to	o 255					
Default value: 0						
country-name-eleme	<u>nt</u>					
Data type: UNSIGNE	ED16					
Authorized value: 0 to	o 65535					

Default value: 0

identified-organization-element:

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

DLMS-UA-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

application-context-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

<u>context-id-element</u>

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	Get	Get

Attribute description

```
SEQUENCE  // 6 elements
{
  conformance
  max_receive_pdu_size
  max_send_pdu_size
  dlms_version_number
  quality_of_service
  cyphering_info
```

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max receive pdu size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

max_send_pdu_size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green

Book Clause 9.4.4).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0
quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	Get	Get
Attribute description						
SEQUENCE // '	7 elements					
joint-iso-ctt-	element					
country-element	t					
country-name-e	lement					
identified-orga	anization-eleme	ent:				
DLMS-UA-element	t					
authentication-	-mechanism-name	e-element				
mechanism-id-e	lement					
}						
joint-iso-ctt-element						

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 country-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

country-name-element

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

identified-organization-element:

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

<u>DLMS-UA-element</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

authentication-mechanism-name-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

mechanism-id-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process. Not used.

Access rights (clients)

■ Attribute 8: association status

To be inserted by the meter.

	Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer		
	Get	Get	Get	Get	Get	Get	Get		
,	Attribute description								
	association status								
	<u>association status</u>								
	Indicates the current status of the association, which is modeled by the object.								
	Data type: ENUMERATED								
	Authorized values:								

0: Non-associated

1: Association-pending

2: Associated

Default value: Non-associated (0)

2.1.6 CustomerHDLCParameters

Interface

Logical name	gical name Class Id Class version Absolute Local Id		Configuration	Restrictive	MID		
			number		parameter	programming	compliance
0;2;22;0;0;255	23	1	2	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	CustomerHDLCParametersOBISCode
A2. comm_speed	ENUMERATED	See below
A3. window_size_transmit	UNSIGNED8	See below
A4. window_size_receive	UNSIGNED8	See below
A5. max_info_field_length_transmit	UNSIGNED16	See below
A6. max_info_field_length_receive	UNSIGNED16	See below
A7. inter_octet_time_out	UNSIGNED16	See below
A8. inactivity_time_out	UNSIGNED16	See below
A9. device_address	UNSIGNED16	See below

■ Attribute 2: comm_speed

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get	Get	Get/Set	-	Get
A theile of a selection						

Attribute description

comm_speed

comm_speed

Data type: ENUMERATED

Authorized values:

- 2: 1200 bauds
- 3: 2400 bauds
- 4: 4800 bauds
- 5: 9600 bauds
- 6: 19200 bauds

Default value: 9600 bauds (5)

■ Attribute 3: window_size_transmit

End customer Manufacturer Resources upgrader Engineer Electricity laboratory **Electricity utility** Electricity reader Get/Set Get Get/Set Attribute description window_size_transmit window_size_transmit Data type: UNSIGNED8 Authorized value: 1 to 7 Default value: 7

■ Attribute 4: window_size_receive

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	-	Get
Attribute description						

Attribute description

window_size_receive

window_size_receive

Data type: UNSIGNED8 Authorized value: 0 to 1

Default value: 1

■ Attribute 5: max_info_field_length_transmit

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer			
Get	Get	Get	Get	Get	-	Get			
Attribute description max info field length transmit									
max_info_field_length_transmit									
Data type: UNSIGNED16									
Authorized value: 76	38								

■ Attribute 6: max_info_field_length_receive

Access rights (clients)

Default value: 768

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	-	Get
Attribute description						
•						
max_info_field_le	ength_receive					
max_info_field_leng	th_receive					
Data type: UNSIGNI	ED16					
Authorized value: 24	10					
Default value: 240						

■ Attribute 7: inter_octet_time_out

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get	Get	Get/Set	-	Get

Attribute description

inter_octet_time_out

inter octet time out

Defines the time, expressed in ms, over which, when any character is received from the primary station, the device will treat the already received data as a complete frame.

Data type: UNSIGNED16 Authorized value: 1 to 1000

Default value: 110

■ Attribute 8: inactivity_time_out

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get	Get	Get	Get/Set	-	Get

Attribute description

inactivity_time_out

inactivity time out

Defines the time, expressed in seconds over which, when any frame is received from the primary station, the device will process a disconnection.

Data type: UNSIGNED16
Authorized value: 1 to 65535

Default value: 30

■ Attribute 9: device_address

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get	Get	Get/Set	-	Get
Attribute description						

device_address

device_address

Contains the physical device address of a device :

- 0x01 .. 0x0F : Reserved for future use
- 0x10 .. 0x03FFD : Usable address space
- 0x03FFE : CALLER Physical Device Address

Data type: UNSIGNED16 Authorized value: 1 to 16382

Default value: 17

2.1.7 CustomerModemDiagnosticParameters

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;144;2;0;255	1	0	1	0	False	False	False

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	CustomerModemDiagnosticParametersOBISCode
A2. value	SEQUENCE	See below

■ Attribute 2: value

Access rights (clients)

<u> </u>	,							
Electricity laboratory	Electricity utility	Electricity reader	End customer		Resources upgrader	Engineer		
Get/Set	Get/Set	Get	Get	Get/Set	-	Get		
Attribute description								
SEQUENCE // 2	2 elements							
{ MadamDiagnosti	anowi od							
_	ModemDiagnosticPeriod ModemDiagnosticType							
}	71							
ModemDiagnosticPe	<u>eriod</u>							
Period in second be	tween two GSM/0	SPRS customer r	nodem diagno	ostic.				
Data type: UNSIGNI	ED32							
Authorized value: 10	to 86400							
Default value: 3600								
ModemDiagnosticTy	<u>/pe</u>							
Define which type of	f diagnostic frame	must be used.						
Data type: ENUMERATED								
Authorized values:								
0: NO_DIAGNOSTIC								
1: SIEMENS_TC65_	_DIAGNOSTIC							

2.1.8 CustomerModemDiagnosticRegister

Default value: NO_DIAGNOSTIC (0)

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;144;2;1;255	1	0	1	0	False	False	False
Logical device	s:						

Attuibutes / Meti			
True	False	False	
Management	Electricity	End customer	

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	CustomerModemDiagnosticRegisterOBISCode
A2. value	SEQUENCE	See below

■ Attribute 2: value

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
-	-	-	-	-	-	-
Attribute description						
SEQUENCE //	7 elements					
{						
DiagDateTime						
rs						
MNC						
PWR						
dBm						

```
RXLev
  ModemStatus
DiagDateTime
Date of this diagnoctic
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
<u>rs</u>
Received signal strength indication.
Data type: UNSIGNED8
Authorized value: 0 to 63
Default value: 0
MNC
Mobile Network Code, it corresponds to the operator.
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
PWR
Current power level in dBm
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
<u>dBm</u>
Receiving level of the BCCH carrier (in dBm)
Data type: INTEGER16
Authorized value: -32768 to 32767
Default value: 0
RXLev
Minimal receiving level (in dBm) to allow registration
Data type: INTEGER16
Authorized value: -32768 to 32767
Default value: 0
ModemStatus
Modem status regarding network and dedicated channel.
The possible values are:
"Searching" (modem is searching a cell)
"Cell Rese" (modem is reselecting a cell)
"Low Serv" (only emergency calls are allowed)
"No Conn" (modem is not connected to a distant device)
```

Data type: VISIBLESTRING Authorized value: Size = 9

Default value:

2.1.9 CustomerModemParameters

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;2;2;2;0;255	28	0	2	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	CustomerModemParametersOBISCode
A2. mode	ENUMERATED	See below
A3. listening_window	ARRAY	See below
A4. status	ENUMERATED	See below
A5. number_of_calls	UNSIGNED8	See below
A6. number_of_rings	NULL	See below

■ Attribute 2: mode

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get	Get	Get/Set	-	Get

Attribute description

Mode

Mode

Complementary informations:

- 1 : Once the number of calls is reached, the window status becomes inactive until the next start date, whatever the result of the call.
- 2 : Once the number of successful communications is reached, the window status becomes inactive until next start date.
- 3 : No modem to manage.
- 204: The modem power supply is "ON", without modem management.
- 205: The modem power supply is "OFF", without modem management.

Data type: ENUMERATED

Authorized values:

- 0: Dedicated line to the device
- 1: Share line management with limited number of calls allowed
- 2: Share line management with limited number of successful calls allowed
- 3: Direct line

204: APS ON

205: APS OFF

Default value: Dedicated line to the device (0)

■ Attribute 3: listening_window

Electricity laboratory	/ Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get	Get	Get/Set	-	Get
Attribute description	n					
SEQUENCE OF {	// 5 elements					
SEQUENCE {	// 2 elements					
start_time						
end_time						

start time

Only the fields hour and minutes are managed in these UTC. Other fields are not significative:

- when programmed, they are not taken into account.

- when read, they are equal to 255, excepted 'deviation highbyte' (=128) and 'deviation lowbyte' (=0).

Default value: 0h00.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 255;255;255;255;255;0;0;255;255;128;0;255;

end time

Only the fields hour and minutes are managed in these UTC. Other fields are not significative:

- when programmed, they are not taken into account.

- when read, they are equal to 255, excepted 'deviation highbyte' (=128) and 'deviation lowbyte' (=0).

Default value: 0h00.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 255;255;255;255;255;0;0;255;255;128;0;255;

■ Attribute 4: status

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	-	Get

Attribute description

Status

Status

Complementary informations:

- 0: The device will manage no new incoming call. This status is automatically reset to Active when the next listening window starts.
- 1: The device can answer to the next incoming call.
- 2: No new incoming call will be accepted in the currend window until next window be opened.

Data type: ENUMERATED

Authorized values:

0: Inactive

1: Active

2: Locked

Default value: Inactive (0)

■ Attribute 5: number_of_calls

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get	Get	Get/Set	-	Get
Attribute description						

number_of_calls

number_of_calls

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

■ Attribute 6: number_of_rings

Not used.

Access rights (clients)

3 ()	,					
Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
-	-	-	-	-	-	-
Attribute description						

Data type: NULL Authorized value: Default value:

2.1.10 CustomerModemSetup

These parameters allow to define if a modem can be activated or not on the customer link, the initialisation string for the modem and the modem baudrate.

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;2;2;0;0;255	27	0	2	0	False	False	False

Logical devices:

-		
Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	CustomerModemSetupOBISCode
A2. comm_speed	ENUMERATED	See below
A3. initialization_string	ARRAY	See below
A4. modem_profile	ARRAY	See below

■ Attribute 2: comm_speed

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get	Get	Get/Set	-	Get
Attribute description						
comm_speed						
comm_speed						

Data type: ENUMERATED

Authorized values:

2: 1200 bauds

3: 2400 bauds

4: 4800 bauds

5: 9600 bauds

6: 19200 bauds

Default value: 2400 bauds (3)

■ Attribute 3: initialization_string

"initialization_string" is an ordered array to send to the modem for its initialization.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get	Get	Get/Set	-	Get

Attribute description

```
SEQUENCE OF
                  // 5 elements
                    // 2 elements ("Array Of" view as "Sequence" in get only)
  SEQUENCE OF
    RequestAndResponse
RequestAndResponse
Request
Default value of request in the first init string: "ATX3&D0S0=2"
Default value of request for other init strings: ""
Init string responses are not managed by the meter => the response is always equal to 'NOT USED' when
reading the CustomerModemSetup object.
Size octet string = 9
Data type: OCTETSTRING
```

Authorized value: Decoded as ASCII (Size = 27)

■ Attribute 4: modem profile

"modem profile" is an ordered array of octet-strings, which position allows to determine the answer of the modem.

Access rights (clients)

Electricity laboratory Get/Set	Electricity utility Get/Set	Electricity reader Get	End customer Get	Manufacturer Get/Set	Resources upgrader	Engineer Get
Attribute description SEQUENCE OF { modem_profile } modem_profile Default values are I location 0 : OK location 1 : CONN location 2 : RING location 3 : NO C location 4 : ERRC location 5 : NOT I location 7 : BUSY location 8 : NO AI location 9 to 16	isted below : NECT ARRIER OR USED IALTONE NSWER					
Data type: OCTETS	STRING					
Authorized value: D	Decoded as ASCII (Size = 27)				
Default value: 78;79	9;84;32;85;83;69;68	8;0;0;0;0;0;0;0;0;	0;0;0;0;0;0;0;	0;0;0;0; (NO	T USED)	

2.1.11 CustomerRemoteReportParameters1

This object holds the parameters relative to remote address when meter customer modem is used to send out a given alarm. It allows to select the alarm notification mode(s) (email, SMS and/or PSTN auto dialing). The format is the same for each of three possible remote addresses.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;4;2;1;0;255	29	0	2	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	CustomerRemoteReportParameters1OBISCode
A2. mode	ENUMERATED	See below
A3. repetitions	UNSIGNED8	See below
A4. repetition_delay	UNSIGNED16	See below
A5. calling_window	NULL	See below
A6. phone_list	ARRAY	See below

■ Attribute 2: mode

Defines the alarm notification mode.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get

Attribute description

Mode

Mode

Complementary information:

- 0 : => Erasing of the current remote address parameters (no selected mode)
- 3 : PSTN auto dialing used for alarm notification is not allowed.

Data type: ENUMERATED

Authorized values:

- 0: No selected mode
- 4: SMS used for alarm notification
- 6: Email used for alarm notification

Default value: No selected mode (0)

■ Attribute 3: repetitions

Not used (used only in PSTN mode).

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	-	Get

Attribute description

repetitions

repetitions

Not used (used only in PSTN mode).

Data type: UNSIGNED8
Authorized value: 0

Default value: 0

■ Attribute 4: repetition_delay

Delay between two consecutive attempts when the former attempt failed.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get

Attribute description

```
repetition_delay

repetition_delay

This delay is common to the 3 alarm notification media and is not linked to the channel:
- Unit: sec; default value: 6h

Data type: UNSIGNED16

Authorized value: 1 to 65535
```

■ Attribute 5: calling_window

Not used.

Access rights (clients)

Default value: 21600

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
-	-	-	-	_	-	-
Attribute description						
Data type: NULL						
Authorized value:						
Default value:						

■ Attribute 6: phone_list

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get

Attribute description

```
SEQUENCE OF // 0..3 elements {
   Address
}
```

Address

PROGRAMMATION

Only one address can be programmed at once (1 element in the array).

This address is relative to the mode programmed in the same programming sequence (ended by a validate) and not to the current mode of the device.

Several addresses can take place in the same programming sequence.

LECTURE

When read, this array will contain all the valid programmed addresses

related to the concerned channel, whatever the mode is => 3 elements max (one per mode).

When no mode is selected, an array of 0 element is read.

According to the corresponding mode, max length of the address is :

- 15 characters for PSTN and SMS

- 63 characters for email Default value : empty array

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 63)

Default value:

2.1.12 CustomerRemoteReportParameters2

This object holds the parameters relative to remote address when meter customer modem is used to send out a given alarm. It allows to select the alarm notification mode(s) (email, SMS and/or PSTN auto dialing). The format is the same for each of three possible remote addresses.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;5;2;1;0;255	29	0	2	0	False	False	False

Logical devices:

Management	Electricity	End customer	
True	True	False	

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	CustomerRemoteReportParameters2OBISCode
A2. mode	ENUMERATED	See below
A3. repetitions	UNSIGNED8	See below
A4. repetition_delay	UNSIGNED16	See below
A5. calling_window	NULL	See below
A6. phone_list	ARRAY	See below

■ Attribute 2: mode

Defines the alarm notification mode.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get

Attribute description

Mode

Mode

Complementary information:

- 0 : => Erasing of the current remote address parameters (no selected mode)
- 3 : PSTN auto dialing used for alarm notification is not allowed.

Data type: ENUMERATED

Authorized values:

- 0: No selected mode
- 4: SMS used for alarm notification
- 6: Email used for alarm notification

Default value: No selected mode (0)

■ Attribute 3: repetitions

Not used (used only in PSTN mode).

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	-	Get

Attribute description

repetitions

repetitions

Not used (used only in PSTN mode).

Data type: UNSIGNED8
Authorized value: 0

Default value: 0

■ Attribute 4: repetition_delay

Delay between two consecutive attempts when the former attempt failed.

Access rights (clients)

Electricity reader Electricity laboratory Electricity utility End customer Manufacturer Resources upgrader Engineer Get/Set Get/Set Get/Set Get Get/Set Get Attribute description repetition_delay repetition delay This delay is common to the 3 alarm notification media and is not linked to the channel: - Unit : sec ; default value : 6h Data type: UNSIGNED16 Authorized value: 1 to 65535

■ Attribute 5: calling_window

Not used.

Access rights (clients)

Default value: 21600

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

Data type: NULL
Authorized value:
Default value:

■ Attribute 6: phone list

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get

Attribute description

```
SEQUENCE OF // 0..3 elements {
   Address
}
```

Address

PROGRAMMATION

Only one address can be programmed at once (1 element in the array).

This address is relative to the mode programmed in the same programming sequence (ended by a validate) and not to the current mode of the device.

Several addresses can take place in the same programming sequence.

LECTURE

When read, this array will contain all the valid programmed addresses

related to the concerned channel, whatever the mode is => 3 elements max (one per mode).

When no mode is selected, an array of 0 element is read.

According to the corresponding mode, max length of the address is :

- 15 characters for PSTN and SMS
- 63 characters for email
 Default value : empty array

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 63)

Default value:

2.1.13 CustomerRemoteReportParameters3

This object holds the parameters relative to remote address when meter customer modem is used to send out a given alarm. It allows to select the alarm notification mode(s) (email, SMS and/or PSTN auto dialing). The format is the same for each of three possible remote addresses.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0:6:2:1:0:255	29	0	2	0	False	False	False

0,0,2,1,0,200	20	·		U	0 1 0100	t disc Talse
Logical devices	2 .					
Logical devices	.					
Management	Electrici	tv End custome	er			
True	True	False				

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	CustomerRemoteReportParameters3OBISCode
A2. mode	ENUMERATED	See below
A3. repetitions	UNSIGNED8	See below
A4. repetition_delay	UNSIGNED16	See below
A5. calling_window	NULL	See below
A6. phone_list	ARRAY	See below

■ Attribute 2: mode

Defines the alarm notification mode.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get

Attribute description

Mode

Mode

Complementary information:

- 0 : => Erasing of the current remote address parameters (no selected mode)
- 3 : PSTN auto dialing used for alarm notification is not allowed.

Data type: ENUMERATED

Authorized values:

- 0: No selected mode
- 4: SMS used for alarm notification
- 6: Email used for alarm notification

Default value: No selected mode (0)

■ Attribute 3: repetitions

Not used (used only in PSTN mode).

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	-	Get

Attribute description

repetitions

repetitions

Not used (used only in PSTN mode).

Data type: UNSIGNED8 Authorized value: 0 Default value: 0

■ Attribute 4: repetition_delay

Delay between two consecutive attempts when the former attempt failed.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get
Attribute description repetition_delay						
repetition_delay This delay is commo - Unit : sec ; default		notification media	and is not lin	ked to the cl	nannel :	
Data type: UNSIGN	ED16					
Authorized value: 1	to 65535					

■ Attribute 5: calling_window

Not used.

Access rights (clients)

Default value: 21600

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
-	-	-	-	-	-	-
Attribute description						
Data type: NULL						
Authorized value:						

■ Attribute 6: phone_list

Access rights (clients)

Default value:

Electricity laboratory Get/Set	Electricity utility Get/Set	Electricity reader Get/Set	End customer Get	Manufacturer Get/Set	Resources upgrader	Engineer Get
Attribute description						
SEQUENCE OF	// 03 element	.s				
{ Address						
}						
<u>Address</u>						
PROGRAMMATION	l					
Only one address ca	an be programme	d at once (1 elem	nent in the arr	ay).		
This address is related	•	•		amming seq	uence	
(ended by a validat	,					
Several addresses	can take place in t	he same progran	nming sequer	nce.		
LECTURE						
When read, this arra	ay will contain all t	he valid program	med address	es		

related to the concerned channel, whatever the mode is => 3 elements max (one per mode).

When no mode is selected, an array of 0 element is read.

According to the corresponding mode, max length of the address is :

- 15 characters for PSTN and SMS

 - 63 characters for email Default value : empty array
 Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 63)

Default value:

2.1.14 DataPushAuthorizationParameters

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;143;0;18;255	1	0	1	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	DataPushAuthorizationParametersOBISCode
A2. value	ENUMERATED	See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get/Set	Get/Set	Get

Attribute description

DataPushAuthorization

DataPushAuthorization

Not authorized: Not allow the programming of DataPush parameters

Authorized : Allow the programming of DataPush parameters

Data type: ENUMERATED

Authorized values:
0: NOT_AUTHORIZED
1: AUTHORIZED

Default value: NOT_AUTHORIZED (0)

2.1.15 DataPushListParameters

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;21;0;5;255	1	0	1	0	False	False	False

Logical devices:

_			
Management	Electricity	End customer	
True	False	False	

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	DataPushListParametersOBISCode
A2. value	ARRAY	See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get	Get	Get	Get/Set	-	Get

Attribute description

<u>ClassID</u>

Data type: UNSIGNED16

Authorized value: 4 Default value: 4

LogicalName

The logical name authorized are only those are configured in Load profile channel 2.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

AttributeId

Data type: UNSIGNED8 Authorized value: 0 Default value: 0

2.1.16 DataPushParameters

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;7;2;1;0;255	29	0	2	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	DataPushParametersOBISCode
A2. mode	ENUMERATED	See below
A3. repetitions	UNSIGNED8	See below
A4. repetition_delay	UNSIGNED16	See below
A5. calling_window	ARRAY	See below
A6. phone_list	ARRAY	See below

■ Attribute 2: mode

Electricity laboratory Get/Set	Electricity utility Get/Set	Electricity reader Get/Set	End customer Get	Manufacturer Get/Set	Resources upgrader	Engineer Get
Attribute description						
Mode Complementary infor - 0 : => Erasing of the - 3 : PSTN auto dialir - 4 : SMS used for al	e current remote ng used for alarm	notification is no	,	ted mode)		
Data type: ENUMER	ATED					
Authorized values: 0: No selected mode 201: FTP						
Default value: No sel	lected mode (0)					

■ Attribute 3: repetitions

Access rights (clients)

	Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
	Get	Get	Get	Get	Get	-	Get
A	Attribute description						
	Repetitions						
	Repetitions						
	Data type: UNSIGNE	ED8					
	Authorized value: 0 t	o 255					
	Default value: 6						

■ Attribute 4: repetition_delay

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	-	Get
Attribute description repetition_delay						
repetition_delay Delay between two c - Unit : sec	onsecutive atten	npts when the for	mer attempt fa	ailed :		
Data type: UNSIGNE	D16					
Authorized value: 1 to	o 65535					
Default value: 3600						

■ Attribute 5: calling_window

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                         End customer Manufacturer Resources upgrader Engineer
        Get
                                                              Get
                                                                          Get
                                                                                                        Get
                                              Get
                            Get
Attribute description
 SEQUENCE OF
                  // 0..7 elements
   SEQUENCE
                   // 2 elements
      start_time
```

```
end_time
}
```

start time

UTC format with only hour and minute fields significant and other fields always 0xff, except second field always equal to 0.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

end time

Not used: always 0xFF for each octet string.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

■ Attribute 6: phone_list

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get
Attribute description						
SEQUENCE OF { AddressIP	// 1 elements					
}						
<u>AddressIP</u>						
63 characters for e	mail. Default value	: empty array.				
Data type: OCTETS	STRING					
Authorized value: [Decoded as ASCII ((Size = 63)				
Default value: 255;255;255;255;2 55;255;255;255;25 5;255;25	5;255;255;255;255 ;255;255;255;255;2	;255;255;255;25 255;255;255;255	5;255;255;255 ;255;255;	5;255;255;25		

2.1.17 ElecElectricityFieldAssociation

Remarks about "Association":

COSEM logical devices able to establish application associations within a COSEM context using logical name referencing, model the associations through instances of the "Association LN" class.

A COSEM logical device has one instance of this IC for each association the device is able to support.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;40;0;13;255	15	0	2	7055	False	False	False

Logical devices:

Management	Electricity	End customer
False	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	ElecElectricityFieldAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

Access rights (clients		Electricit	Final acceptance	N.4	D	E
Electricity laboratory Get	Electricity utility Get	Electricity reader	End customer	Manufacturer Get	Resources upgrader	Engineer Get
Attribute description SEQUENCE OF	// 1 65525 0]	monta				
SEQUENCE OF	// 105555 EIG	emerics				
SEQUENCE /	/ 4 elements					
{ class_id						
Version						
logical_name						
SEQUENCE {	// 2 elements					
•	F // 1655	335 elements				
{	// 2 -1					
SEQUENCE {	// 3 eleme	ents				
attrib						
access CHOICE	_mode					
{						
	ENCE OF //	11 elements				
{						
}						
}						
}						
}	F // O 655	in alamanta				
SEQUENCE OF	F // 0655	oss elements				
SEQUENCE	// 2 eleme	ents				
{ method_	id					
access						
}						
}						
}						
}						
class_id						
Data type: UNSIGN	ED16					
Authorized value: 0	to 65535					
Default value: 0						
<u>Version</u>						

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 logical_name

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

attribute id

Contains all implemented attributes.

Data type: INTEGER8
Authorized value: 0 to 127

Default value: 0 access_mode

Data type: ENUMERATED

Authorized values:
0: No access
1: Read only
2: Write only

3: Read and write

Default value: No access (0)

Data type: INTEGER8
Authorized value: 1
Default value: 1

Data type: NULL
Authorized value:
Default value:
method_id

Contains all implemented methods.

Data type: INTEGER8
Authorized value: 1 to 127

Default value: 1 access_mode

Data type: BOOLEAN
Authorized values:

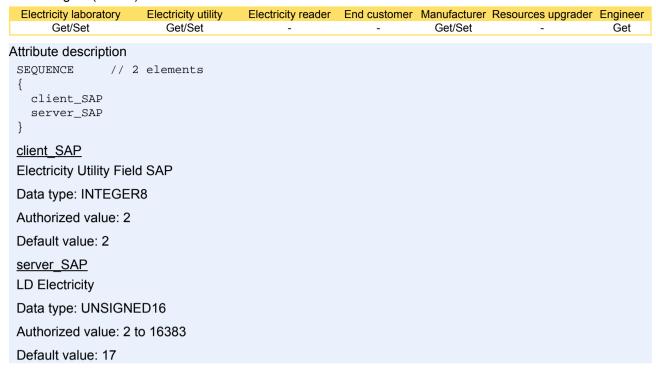
0: FALSE 1: TRUE

Default value: 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)



■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

Electricity laboratory Get	Electricity utility Get	Electricity reader -	End customer	Manufacturer Get	Resources upgrader -	Engineer Get
Attribute description						
·	7 elements					
joint-iso-ctt-e						
country-element						
country-name-el		- - •				
identified-orga DLMS-UA-element		nı				
application-cor						
context-id-elem						
}						
joint-iso-ctt-element						
Data type: UNSIGNE	ED8					
Authorized value: 0	to 255					
Default value: 0						
country-element						
Data type: UNSIGNE	ED8					
Authorized value: 0	to 255					
Default value: 0						
country-name-eleme	<u>ent</u>					
Data type: UNSIGNE	ED16					

Authorized value: 0 to 65535

Default value: 0

identified-organization-element:

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

<u>DLMS-UA-element</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

application-context-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

<u>context-id-element</u>

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

bytes that the client may send.

Green Book Clause 9.4.4.).

Contains all the necessary information on the xDLMS context for the given association.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Get Get Attribute description SEOUENCE // 6 elements conformance max_receive_pdu_size max_send_pdu_size dlms_version_number quality_of_service cyphering_info conformance The conformance element contains the xDLMS conformance block supported by the server. Data type: BITSTRING Authorized values: Size = 24ViewAsType = BitString max receive pdu size

The max receive pdu size element contains the maximum length for an xDLMS APDU, expressed in

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

max_send_pdu_size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green

Book Clause 9.4.4).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering_info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

```
Electricity laboratory
                      Electricity utility
                                                      End customer Manufacturer Resources upgrader Engineer
                                       Electricity reader
        Get
                           Get
                                                                                                  Get
Attribute description
 SEOUENCE
                // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DLMS-UA-element
   authentication-mechanism-name-element
   mechanism-id-element
 }
```

joint-iso-ctt-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 country-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

country-name-element

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

identified-organization-element:

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

<u>DLMS-UA-element</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

authentication-mechanism-name-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

mechanism-id-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Set - - Set - -

Attribute description

LLS_secret

LLS secret

Default value at first power up.

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)

Default value: 48;48;48;48;48;48;48; (00000000)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

	Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
	Get	Get	-	-	Get	-	Get
,	Martin at a salar a salar tira						
F	Attribute description						
	association statu	ıs					
	acceptation status						

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

- 0: Non-associated
- 1: Association-pending
- 2: Associated

Default value: Non-associated (0)

2.1.18 ElecElectricityLaboratoryAssociation

Remarks about "Association":

COSEM logical devices able to establish application associations within a COSEM context using logical name referencing, model the associations through instances of the "Association LN" class.

A COSEM logical device has one instance of this IC for each association the device is able to support.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;40;0;12;255	15	0	2	7055	False	False	False

Logical devices:

Management	Electricity	End customer
False	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	ElecElectricityLaboratoryAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

```
Electricity laboratory Get - - - Get - Get

Attribute description

SEQUENCE OF // 1..65535 elements
{
    SEQUENCE // 4 elements
    {
        class_id
```

```
Version
    logical_name
    SEQUENCE // 2 elements
      SEQUENCE OF
                     // 1..65535 elements
        SEQUENCE
                      // 3 elements
          attribute_id
          access_mode
          CHOICE
            SEQUENCE OF // 1..1 elements
      SEQUENCE OF
                      // 0..65535 elements
        SEQUENCE // 2 elements
          method_id
          access_mode
  }
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Version
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
logical_name
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
attribute id
Contains all implemented attributes.
Data type: INTEGER8
Authorized value: 0 to 127
Default value: 0
access_mode
Data type: ENUMERATED
Authorized values:
```

```
0: No access
1: Read only
2: Write only
3: Read and write
Default value: No access (0)
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
Data type: NULL
Authorized value:
Default value:
method_id
Contains all implemented methods.
Data type: INTEGER8
Authorized value: 1 to 127
Default value: 1
access_mode
Data type: BOOLEAN
Authorized values:
0: FALSE
1: TRUE
Default value: 1: TRUE
```

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

	•					
Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	-	-	-	Get/Set	-	Get
Attribute description						
SEQUENCE //: { client_SAP	2 elements					
server_SAP }						
client_SAP						
Electricity Utility Lab	oratory SAP					
Data type: INTEGER	₹8					
Authorized value: 1						
Default value: 1						
server_SAP						
LD Electricity						
Data type: UNSIGN	ED16					
Authorized value: 2	to 16383					

Default value: 17

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

```
Electricity utility
 Electricity laboratory
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
        Get
                                                                                                  Get
Attribute description
 SEOUENCE
               // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DLMS-UA-element
   application-context-element
   context-id-element
joint-iso-ctt-element
Data type: UNSIGNED8
Authorized value: 0 to 255
 Default value: 0
country-element
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
country-name-element
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
identified-organization-element:
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
DLMS-UA-element
 Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
 application-context-element
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
 context-id-element
```

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
Get - - Get - Get

Attribute description

```
SEQUENCE  // 6 elements
{
  conformance
  max_receive_pdu_size
  max_send_pdu_size
  dlms_version_number
  quality_of_service
  cyphering_info
}
```

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max receive pdu size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

max send pdu size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms version number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

quality of service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Access rights (clients)

Data type: UNSIGNED8

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Get Attribute description SEQUENCE // 7 elements joint-iso-ctt-element country-element country-name-element identified-organization-element: DIMS-UA-element authentication-mechanism-name-element mechanism-id-element joint-iso-ctt-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0 country-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0 country-name-element Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 identified-organization-element:

Authorized value: 0 to 255

Default value: 0

<u>DLMS-UA-element</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

authentication-mechanism-name-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

mechanism-id-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
Get - - Get - Get

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values: 0: Non-associated

1: Association-pending

2: Associated

Default value: Non-associated (0)

2.1.19 ElecElectricityReaderAssociation

Remarks about "Association":

COSEM logical devices able to establish application associations within a COSEM context using logical name referencing, model the associations through instances of the "Association LN" class.

A COSEM logical device has one instance of this IC for each association the device is able to support.

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;0;40;0;14;255	15	0	2	7055	False	False	False

Logical devices:

Management	Electricity	End customer
False	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	ElecElectricityReaderAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	-	Get	-	Get
Attribute description	,					
	// 165535 ele	ments				
{						
SEQUENCE	// 4 elements					
{						
class_id						
Version						
logical_nam						
SEQUENCE	// 2 elements					
(CEOLIENCE	OF // 1 CFF	25 -1				
SEQUENCE	OF // 1655	35 erements				
(CEOHENC	E // 3 eleme	n+a				
\ 2F\(\rightarrow\)	E // 3 eleme	IICS				
l attri	bute_id					
	s_mode					
CHOIC	_					
{						
SEO	UENCE OF //	11 elements				
{	,,	_,,_				
·						
}						
,						
}						
}						
}						
SEQUENCE	OF // 0655	35 elements				
{						
SEQUENC	E // 2 eleme	nts				
{						
metho	d_id					

```
SL761 (International) - 6.21
            access_mode
  }
}
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Version
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
logical name
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
attribute_id
Contains all implemented attributes.
Data type: INTEGER8
Authorized value: 0 to 127
Default value: 0
access_mode
Data type: ENUMERATED
Authorized values:
0: No access
1: Read only
2: Write only
3: Read and write
Default value: No access (0)
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
Data type: NULL
Authorized value:
Default value:
```

Data type: INTEGER8 Authorized value: 1 to 127

Contains all implemented methods.

method id

```
Default value: 1

access_mode

Data type: BOOLEAN

Authorized values:
0: FALSE
1: TRUE

Default value: 1: TRUE
```

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)

```
Electricity laboratory
                        Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
       Get/Set
                           Get/Set
                                             Get/Set
                                                                          Get/Set
                                                                                                         Get
Attribute description
 SEOUENCE
                 // 2 elements
   client_SAP
   server_SAP
 client SAP
 Electricity Reader SAP
 Data type: INTEGER8
 Authorized value: 3
 Default value: 3
 server SAP
LD Electricity
 Data type: UNSIGNED16
 Authorized value: 2 to 16383
 Default value: 17
```

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
                           Get
                                            Get
                                                                       Get
                                                                                                    Get
Attribute description
 SEOUENCE
                // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DIMS-UA-element
   application-context-element
   context-id-element
joint-iso-ctt-element
```

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 country-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

country-name-element

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

identified-organization-element:

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

<u>DLMS-UA-element</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

application-context-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 context-id-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

```
Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Get - Get

Attribute description

SEQUENCE // 6 elements {
    conformance max_receive_pdu_size max_send_pdu_size dlms_version_number quality_of_service cyphering_info }
```

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max receive pdu size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

max_send_pdu_size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Electricity laboratory	Electricity utility		End customer		Resources upgrader	
Get	Get	Get	-	Get	-	Get
Attribute description SEQUENCE //	7 elements					
{						
joint-iso-ctt- country-elemen						
<pre>country-name-e identified-org</pre>	lement anization-eleme	ent:				
DLMS-UA-elemen	t mechanism-name	lement				
mechanism-id-e		. CICIICITE				
}						
joint-iso-ctt-element						
Data type: UNSIGN						
Authorized value: 0	to 255					
Default value: 0						
country-element						
Data type: UNSIGN						
Authorized value: 0	to 255					
Default value: 0						
country-name-elem	<u>ent</u>					
Data type: UNSIGN	ED16					
Authorized value: 0	to 65535					
Default value: 0						
identified-organizati	on-element:					
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					
Default value: 0						
DLMS-UA-element						
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					
Default value: 0						
authentication-mech	nanism-name-elen	<u>nent</u>				
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					
Default value: 0						
mechanism-id-elem	<u>ent</u>					
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					
Default value: 0						

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Set - Set - Set - -

Attribute description

LLS_secret

LLS secret

Default value at first power up.

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)
Default value: 48;48;48;48;48;48;48;48; (00000000)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	-	Get	-	Get

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

- 0: Non-associated
- 1: Association-pending
- 2: Associated

Default value: Non-associated (0)

2.1.20 ElecEngineerAssociation

Remarks about "Association":

COSEM logical devices able to establish application associations within a COSEM context using logical name referencing, model the associations through instances of the "Association LN" class.

A COSEM logical device has one instance of this IC for each association the device is able to support.

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;0;40;0;15;255	15	0	2	7055	False	False	False

Logical devices:

Management	Electricity	End customer
False	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	ElecEngineerAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

```
Electricity laboratory
                     Electricity utility
                                    Electricity reader
                                                   End customer Manufacturer Resources upgrader Engineer
                                                                   Get
                                                                                             Get
Attribute description
 SEQUENCE OF
                  // 1..65535 elements
                 // 4 elements
   SEQUENCE
     class_id
     Version
     logical_name
     SEQUENCE
                // 2 elements
       SEQUENCE OF
                       // 1..65535 elements
                       // 3 elements
         SEQUENCE
            attribute_id
            access_mode
            CHOICE
              SEQUENCE OF
                              // 1..1 elements
              }
                        // 0..65535 elements
       SEQUENCE OF
                        // 2 elements
         SEQUENCE
           method_id
            access_mode
class_id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
Version
Data type: UNSIGNED8
Authorized value: 0 to 255
 Default value: 0
logical_name
Data type: OCTETSTRING
```

Authorized value: Decoded as Decimal (Size = 6) Default value: 0;0;0;0;0;0;0; attribute id Contains all implemented attributes. Data type: INTEGER8 Authorized value: 0 to 127 Default value: 0 access mode Data type: ENUMERATED Authorized values: 0: No access 1: Read only 2: Write only 3: Read and write Default value: No access (0) Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 Data type: NULL Authorized value: Default value: method id Contains all implemented methods. Data type: INTEGER8 Authorized value: 1 to 127 Default value: 1 access mode Data type: BOOLEAN Authorized values: 0: FALSE 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)

Default value: 1: TRUE

```
Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - - - - - - - - - - Get/Set - Get/Set

Attribute description

SEQUENCE // 2 elements
{
    client_SAP
```

```
Server_SAP
}
client_SAP
Engineer SAP
Data type: INTEGER8
Authorized value: 122
Default value: 122
server_SAP
LD Electricity
Data type: UNSIGNED16
Authorized value: 2 to 16383
Default value: 17
```

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
                                                                                                  Get
                                                                      Get
Attribute description
 SEQUENCE
               // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DLMS-UA-element
   application-context-element
   context-id-element
joint-iso-ctt-element
Data type: UNSIGNED8
Authorized value: 0 to 255
 Default value: 0
country-element
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
country-name-element
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
identified-organization-element:
Data type: UNSIGNED8
Authorized value: 0 to 255
```

Default value: 0

DLMS-UA-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

application-context-element
Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 context-id-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - - Get - Get

Attribute description

```
SEQUENCE // 6 elements

{
   conformance
   max_receive_pdu_size
   max_send_pdu_size
   dlms_version_number
   quality_of_service
   cyphering_info
```

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max receive pdu size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0 max send pdu size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0 quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Attribute description SEQUENCE // 7 elements joint-iso-ctt-element country-element country-name-element identified-organization-element: DLMS-UA-element authentication-mechanism-name-element mechanism-id-element } joint-iso-ctt-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0

country-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

country-name-elementData type: UNSIGNED16Authorized value: 0 to 65535

Default value: 0

identified-organization-element:

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

DLMS-UA-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

authentication-mechanism-name-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

mechanism-id-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
Set

- - - Set

Attribute description

LLS_secret

LLS_secret

Default value at first power up.

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)

Default value: 48;48;48;48;48;48;48;(00000000)

■ Attribute 8: association status

To be inserted by the meter.

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer Get	Resources upgrader	Engineer Get				
Attribute description association statu	ıs									
association status Indicates the current	association status Indicates the current status of the association, which is modeled by the object.									
Data type: ENUMER	RATED									
Authorized values: 0: Non-associated 1: Association-pendi 2: Associated	ing									
Default value: Non-a	associated (0)									

2.1.21 ElecManufacturerAssociation

Remarks about "Association":

COSEM logical devices able to establish application associations within a COSEM context using logical name referencing, model the associations through instances of the "Association LN" class.

A COSEM logical device has one instance of this IC for each association the device is able to support.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance	
0;0;40;0;11;255	15	0	2	7055	False	False	False	
Logical device	Logical devices :							
Management	Ele	ectricity	End customer					
False		True	False					

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	ElecManufacturerAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

```
SEQUENCE // 3 elements
         {
           attribute_id
           access_mode
           CHOICE
             SEQUENCE OF
                           // 1..1 elements
             {
             }
      SEQUENCE OF
                       // 0..65535 elements
         SEQUENCE
                       // 2 elements
           method_id
           access_mode
  }
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Version
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
logical_name
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;
attribute_id
Contains all implemented attributes.
Data type: INTEGER8
Authorized value: 0 to 127
Default value: 0
access_mode
Data type: ENUMERATED
Authorized values:
0: No access
1: Read only
2: Write only
3: Read and write
```

Default value: No access (0)

Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 Data type: NULL Authorized value: Default value: method id Contains all implemented methods. Data type: INTEGER8 Authorized value: 1 to 127 Default value: 1 access_mode Data type: BOOLEAN Authorized values: 0: FALSE 1: TRUE Default value: 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                        End customer Manufacturer Resources upgrader Engineer
                                                                        Get/Set
                                                                                                      Get
Attribute description
 SEQUENCE
              // 2 elements
   client SAP
   server_SAP
 client SAP
 Manufacturer SAP
 Data type: INTEGER8
 Authorized value: 120
 Default value: 120
 server SAP
LD Electricity
 Data type: UNSIGNED16
 Authorized value: 2 to 16383
 Default value: 17
```

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
                                                                      Get
                                                                                                  Get
Attribute description
 SEQUENCE
              // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DLMS-UA-element
   application-context-element
   context-id-element
 }
joint-iso-ctt-element
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
country-element
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
 country-name-element
 Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
identified-organization-element:
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
 DLMS-UA-element
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
 application-context-element
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
 context-id-element
Data type: UNSIGNED8
```

Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

Access rights (clients)

Attribute description

```
SEQUENCE  // 6 elements
{
  conformance
  max_receive_pdu_size
  max_send_pdu_size
  dlms_version_number
  quality_of_service
  cyphering_info
}
```

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max receive pdu size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

max_send_pdu_size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 quality of service

Not used.

Get

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering info

The cyphering info, in an active association, contains the dedicated key parameter of the

DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Electricity utility

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication mechanism name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

> Electricity reader End customer Manufacturer Resources upgrader Engineer Get

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Access rights (clients) Electricity laboratory

identified-organization-element:

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

Attribute description SEQUENCE // 7 elements joint-iso-ctt-element country-element country-name-element identified-organization-element: DLMS-UA-element authentication-mechanism-name-element mechanism-id-element } joint-iso-ctt-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0 country-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0 country-name-element Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0

DLMS-UA-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

authentication-mechanism-name-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

mechanism-id-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

- - - Set - -

Attribute description

LLS_secret

LLS secret

Default value at first power up defined in confidential document.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 0)

Default value:

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

- 0: Non-associated
- 1: Association-pending
- 2: Associated

Default value: Non-associated (0)

2.1.22 ElectricityObjectList

This object allows the programming of the access rights of a set of Cosem configurable objects, inside the Electricity logical device.

Interface

	Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
				number		parameter	programming	compliance
0	;0;143;0;10;255	1	0	1	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	ElectricityObjectListOBISCode
A2. value	ARRAY	See below

■ Attribute 2: value

Non used elements are set to 0.

```
Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
Get/Set - - Get/Set - Get
```

```
Attribute description
SEQUENCE OF
              // 30 elements
              // 4 elements
  SEQUENCE
    logicalName
    attributeId
    classId
    SEQUENCE // 10 elements
      SEQUENCE // 2 elements
        ClientId
        AccessMode
      SEQUENCE
                  // 2 elements
        ClientId
        AccessMode
      SEQUENCE
                  // 2 elements
        ClientId
        AccessMode
      SEQUENCE
                  // 2 elements
        ClientId
        AccessMode
      SEQUENCE
                  // 2 elements
        ClientId
        AccessMode
                   // 2 elements
      SEQUENCE
        ClientId
        AccessMode
                   // 2 elements
      SEQUENCE
        ClientId
        AccessMode
```

```
SEQUENCE
                  // 2 elements
         ClientId
        AccessMode
      SEQUENCE // 2 elements
         ClientId
         AccessMode
      SEQUENCE // 2 elements
         ClientId
         AccessMode
  }
}
<u>logicalName</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
attributeId
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
classId
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
ClientId
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
<u>AccessMode</u>
Data type: UNSIGNED8
Authorized values:
0: No access
1: Read only
2: Write only
3: Read and write
Default value: No access (0)
```

Data type: UNSIGNED8 Authorized value: 0 to 255

ClientId

Default value: 0

<u>AccessMode</u>

Data type: UNSIGNED8

Authorized values:

0: No access

1: Read only

2: Write only

3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

0: No access

1: Read only

2: Write only

3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

0: No access

1: Read only

2: Write only

3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

- 0: No access
- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

- 0: No access
- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

- 0: No access
- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

- 0: No access
- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

0: No access 1: Read only

2: Write only

3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

0: No access

- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

2.1.23 FTPParameters

For IEC7, programmed only if DataPushAuthorizationParameters is AUTHORIZED

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;25;128;0;255	1	0	1	0	False	False	False

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	FTPParametersOBISCode
A2. value	SEQUENCE	See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get	Get	Get	Get/Set	-	Get

Attribute description

```
SEQUENCE // 2 elements
{
   UserName
   Password
}
```

<u>UserName</u>

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 32)

Default value:

Password

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 16)

2.1.24 GPRSModemSetup

Here are defined the parameters allowing the usage of the GPRS network. Main parameters are the pin code and the access point name.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;25;4;0;255	45	0	2	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	GPRSModemSetupOBISCode
A2. APN	OCTETSTRING	See below
A3. PIN_code	UNSIGNED16	See below
A4. quality_of_service	SEQUENCE	See below

■ Attribute 2: APN

Defines the access point name of the network.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get
A thuilet. al a a a minati a .a						
Attribute description						
APN						
ADAL						
<u>APN</u>						
Defines the access p	point name of the	network.				
Data type: OCTETS	TRING					

Authorized value: Decoded as ASCII (Size = 32)

7 Id. 101120d Taldo: 2000d0d d07 (0120 02)

■ Attribute 3: PIN_code

Defines the personal identification number used by the SIM card.

Electricity laboratory Get/Set	Electricity utility Get/Set	Electricity reader Get/Set	End customer Get	Manufacturer Get/Set	Resources upgrader	Engineer Get						
Attribute description												
PIN_code												
PIN_code	PIN code											
Defines the persor	al identification nu	mber used by the	SIM card.									
Data type: UNSIGI	NED16											
Authorized value: (Authorized value: 0 to 65535											
Default value: 0												

■ Attribute 4: quality_of_service

- Specifies the quality of service parameters. It is a structure of 2 elements :
 the first one defines the default or minimum characteristics of the concerned network. These parameters have to be set to best effort value.
- the second element defines the requested parameters.

Electricity laboratory	Electricity utility	Electricity reader			Resources upgrader	
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get
Attribute description						
	2 elements					
{ SEQUENCE //	/ 5 elements					
{						
precedence delay						
reliability						
peak throughr mean throughr						
}	, de C					
SEQUENCE //	/ 5 elements					
{ precedence						
delay						
reliability peak throughp	out.					
mean throughp						
}						
<u>precedence</u>						
Data type: UNSIGNE	ED8					
Authorized value: 0	to 255					
Default value: 0						
<u>delay</u>						
Data type: UNSIGNE	ED8					
Authorized value: 0	to 255					
Default value: 0						
<u>reliability</u>						
Data type: UNSIGNE	=D8					
Authorized value: 0	10 255					
Default value: 0						

peak throughput

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 mean throughput

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 precedence

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

<u>delay</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

reliability

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0 peak throughput

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0 mean throughput

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

2.1.25 IdentificationRequest

This object allows the set of the identification command the device have to respond. The data is a string of one or three characters length.

The meter will respond if the received string match the first character or all the three.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;143;0;7;255	1	0	2	0	False	False	False

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	IdentificationRequestOBISCode
A2. value	OCTETSTRING	See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get	Get	Get	Get/Set	-	Get

Attribute description

IdentificationRequest

IdentificationRequest

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 5)

Default value: 73;0;0;0;0; (I)

2.1.26 IdentificationResponse

This object allows the set of the identification response to the 'l' command or any other identification. The data is a string of 80 length maximum.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;143;0;8;255	1	0	1	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	IdentificationResponseOBISCode
A2. value	OCTETSTRING	See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get	Get	Get	Get/Set	-	Get

Attribute description

IdentificationResponse

<u>IdentificationResponse</u>

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 80)

Default value:

2.1.27 IEC1107DataParameters

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;143;0;2;255	1	0	1	0	False	False	False

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content	
A1. logical_name	OCTETSTRING	IEC1107DataParametersOBISCode	
A2. value	SEQUENCE	See below	

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Get/Set	Electricity utility Get	Electricity reader Get	End customer Get	Manufacturer Get/Set	Resources upgrader -	Engineer Get
Attribute description						
SEQUENCE // 2	2 elements					
<pre>Identification(NumbersOfHistor }</pre>						
IdentificationCodeDe	<u>elimiters</u>					
Data type: UNSIGNI	ED8					
Authorized values: 0: OBIS delimiters 1: Dots delimiters 2: No delimiters						
Default value: OBIS	delimiters (0)					
NumbersOfHistorica	<u>llSetToRead</u>					
Data type: UNSIGNI	ED8					
Authorized value: 0	to 18					
Default value: 0						

2.1.28 IEC1107Parameters

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;0;20;0;0;255	19	0	5	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	IEC1107ParametersOBISCode
A2. default_mode	ENUMERATED	See below
A3. default_baud	ENUMERATED	See below
A4. prop_baud	ENUMERATED	See below
A5. response_time	ENUMERATED	See below
A6. device_addr	OCTETSTRING	See below

■ Attribute 2: default_mode

Electricity laboratory	Electricity utility	Electricity reader			Resources upgrader	9
Get	Get	Get	Get	Get/Set	-	Get
Attribute description						
default_mode						
default_mode						
Data type: ENUMER	RATED					
Authorized values: 0: IEC - Mode C (7 1: HDLC (8 bits, no		ou Mode E (8 bits	s, no parity, H	DLC)		
Default value: HDL0	C (8 bits, no parity) (1)				

■ Attribute 3: default_baud

Access rights (clients)

	Electricity laboratory	Electricity utility	Electricity reader			Resources upgrader	0
L	Get	Get	Get	Get	Get	<u>-</u>	Get
Α	ttribute description						
	default_baud						
	default_baud						
	Not used if 'default_ı	mode' = 1					
	Data type: ENUMER	RATED					
	Authorized values: 0: Fixed to 300 baud 1: Not used	ds					

■ Attribute 4: prop_baud

Default value: Fixed to 300 bauds (0)

Access rights (clients)

Electricity laboratory Get/Set	Electricity utility Get/Set	Electricity reader Get	End customer Get	Manufacturer Get/Set	Resources upgrader	Engineer Get
Attribute description prop_baud prop_baud						
Data type: ENUMER Authorized values: 2: 1200 bauds 3: 2400 bauds 4: 4800 bauds 5: 9600 bauds	RATED					
Default value: 9600	bauds (5)					

■ Attribute 5: response_time

3 (,					
Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get	Get	Get/Set	-	Get
A their cate of a societies						
Attribute description						
response_time						
_						
response_time						
Not used if 'default	mode' = 1					

Data type: ENUMERATED

Authorized values:

0: 20 ms 1: 200 ms

Default value: 200 ms (1)

■ Attribute 6: device_addr

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	Get	Get	-	Get

Attribute description

device addr

device addr

This attribute contains the IEC 1107 device address to which the device will respond if included in the sign on message.

This attribute is on READ ONLY.

Meter will respond with the client serial number (8 digits).

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)

Default value: 115;110;48;48;48;48;48;48; (sn000000)

2.1.29 IPCMInitializationTimeoutParameters

This object defines the duration which, when elapsed, triggers the reset of the IPCM.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;25;128;5;255	1	0	1	0	False	False	False

Logical devices:

Management	Electricity	End customer	
True	True	False	

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	IPCMInitializationTimeoutParametersOBISCode
A2. value	UNSIGNED16	See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	_	Get

Attribute description

IPCMInitializationTimeout

IPCMInitializationTimeout

Unit = minutes

Data type: UNSIGNED16 Authorized value: 1 to 65535

Default value: 360

2.1.30 IPDeviceTypeParameters

Here is fixed the type of the IPCM selection.

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;0;25;128;1;255	1	0	2	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	IPDeviceTypeParametersOBISCode
A2. value	ENUMERATED	See below

■ Attribute 2: value

Access rights (clients)

El	ectricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
	Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get
	bute description DeviceType						
<u>IPI</u>	<u>DeviceType</u>						
Sp	ecifies the supplie	r type of the devi	ce.				
Da	ta type: ENUMER	ATED					
0: 1:	thorized values: Sparklet(Ethernet) eDevice (Ethernet Sparklett(GPRS)						

Default value: Sparklet(Ethernet) (0) 2.1.31 IPMediationParameters

Here is fixed, the mediation parameter needed if ever a mediation server is available.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;25;128;4;255	1	0	1	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content	
A1. logical_name	OCTETSTRING	IPMediationParametersOBISCode	
A2. value	SEQUENCE	See below	

■ Attribute 2: value

Electricity laborato	ry	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set		Get/Set	Get/Set	Get	Get/Set	-	Get
Attribute descripti	on						
SEQUENCE { Method ServerAddre		elements					

ServerPort

Method

Indicates which mediation method will be used.

Data type: ENUMERATED

Authorized values:
0: No Mediation
1: Cosem Mediation

Default value: No Mediation (0)

ServerAddress

IP address or domain name string of the mediation server.

Data type: VISIBLESTRING Authorized value: Size = 56

Default value: ServerPort

Port number of the registration service.

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 10705

2.1.32 IPMediumTypeParameters

Here is fixed, the type of medium used. Three kind of medium can be selected.

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;0;25;128;2;255	1	0	2	0	False	False	False

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content	
A1. logical_name	OCTETSTRING	IPMediumTypeParametersOBISCode	
A2. value	ENUMERATED	See below	

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get

Attribute description

IPMediumType

<u>IPMediumType</u>

Specifies the medium use by the device.

Data type: ENUMERATED

Authorized values:

0: Ethernet 1: GPRS

Default value: Ethernet (0)

2.1.33 IPRegistrationParameters

Here is fixed, the registration parameter needed if ever a registration server is available.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;25;128;3;255	1	0	1	0	False	False	False

Logical devices:

Management	Electricity	End customer
True	True	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	IPRegistrationParametersOBISCode
A2. value	SEQUENCE	See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get

Attribute description

Method

Indicates which registration method will be used.

Data type: ENUMERATED

Authorized values:

- 0: No Registration
- 1: Cosem Registration
- 2: String Registration

Default value: No Registration (0)

ServerAddress

IP address or domain name string of the registration server.

Data type: VISIBLESTRING Authorized value: Size = 56

Default value: ServerPort

Port number of the registration service.

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 10706
RegistrationString

When the corresponding method is activated, this string will be send after the connection to the server.

A parameters tag is define to dynamically insert the current ip address in the string.

Max length: 300 characters IP address tag: <ipaddress>.

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 255)

Default value:

2.1.34 IPv4Setup

The following parameters define for any media, the internet lpv4 parameters.

When the DHCP flag is set, the related network assigns the proper value for the IP address. When this flag is not set, the IP address, the gateway address, and the subnet mask need to be configured.

For the DNS, at least the primary DNS has to be set.

For the moment, the multi cast purpose is not used. The value of this attribute has to be let void.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;25;1;0;255	42	0	1	0	False	False	False

Logical devices:

-			
	Management	Electricity	End customer
	Truo	Truo	Falco

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	IPv4SetupOBISCode
A2. DL_reference	NULL	See below
A3. IP_address	UNSIGNED32	See below
A4. multicast_IP_address	ARRAY	See below
A5. IP_options	NULL	See below
A6. subnet_mask	UNSIGNED32	See below
A7. gateway_IP_address	UNSIGNED32	See below
A8. use_DHCP_flag	BOOLEAN	See below
A9. primary_DNS_address	UNSIGNED32	See below
A10. secondary_DNS_address	UNSIGNED32	See below

■ Attribute 2: DL_reference

Not used.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
-	-	-	-	-	-	-
Attribute description						
Data type: NULL						

■ Attribute 3: IP_address

IP address

Authorized value: Default value:

1	Access rights (clients)						
	Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
	Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get
,	Attribute description						
	IP_address						

Contains the Ipv4 address of the device.

Default value: 0x0 (not defined).

When the DHCP_flag is set, this value is not used.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 4: multicast_IP_address

Access rights (clients)

Electricity laboratory	Electricity utility	•			Resources upgrader	
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get
Attribute description						
SEQUENCE OF {	// 4 elements					
multicast_IP_ac	ddress					
multicast_IP_addres	<u>ss</u>					
Not used.						
Min value : 0xE0000 Max value : 0xEFFF	FFFF (239.255.25	,				
Default value in the Default value for pro	,	,				
Data type: UNSIGN	ED32					
Authorized value: 37	758096384 to 402	6531839				
Default value: 37580	096384					

■ Attribute 5: IP_options

Not used.

Access rights (clients)

Engineer
-

■ Attribute 6: subnet_mask

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get

Attribute description

Subnet_mask

Default value:

Subnet_mask

Defines the subnet mask when the device is used on an Ethernet network.

Default value: 0xFFFFF00 (255.255.255.0) When the DHCP_flag is set, this value is not used.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967040

■ Attribute 7: gateway_IP_address

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
Get/Set Get/Set Get Get/Set - Get

Attribute description

Gateway_IP_address

Gateway IP address

Defines the gateway IP address when the device is used on an Ethernet network.

Default value: 0x0 (not defined).

When the DHCP flag is set, this value is not used.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 8: use_DHCP_flag

Access rights (clients)

Electricity laboratoryElectricity utilityElectricity readerEnd customerManufacturerResources upgraderEngineerGet/SetGet/SetGet/Set-Get

Attribute description

Use_DHCP_flag

Use DHCP flag

Activates (or not) the DHCP.

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 1: TRUE

■ Attribute 9: primary_DNS_address

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
Get/Set Get/Set Get Get/Set - Get

Attribute description

Primary_DNS_address

Primary_DNS_address

Defines the IP address of the primary Domain Name Server (DNS).

Default value: 0x0 (not defined).

When the DHCP_flag is set, this value is not used.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 10: secondary_DNS_address

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer			
Get/Set	Get/Set	Get/Set	Get	Get/Set	-	Get			
Attribute description Secondary_DNS_address									
Secondary DNS ac	ddress								
Defines the IP addre	ess of the second	ary Domain Nam	e Server (DNS	3)					
Default value : 0x0 (ary Domain Ham	C CCIVCI (DIV	3).					
`	· ,	a ia maturaad							
When the DHCP_fla	ig is set, this valu	e is not used.							
Data type: UNSIGNI	Data type: UNSIGNED32								
Authorized value: 0 to 4294967295									
Default value: 0									

2.1.35 ManagementObjectList

This object allows the programming of the access rights of a set of Cosem configurable objects, inside the Management logical device.

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;143;0;9;255	1	0	1	0	False	False	False
Logical devices :							

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	ManagementObjectListOBISCode
A2. value	ARRAY	See below

■ Attribute 2: value

Non used elements are set to 0.

	Electricity laboratory Get/Set	Electricity utility -	Electricity reader	End customer	Manufacturer Get/Set	Resources upgrader	Engineer Get			
Α	Attribute description									
	SEQUENCE OF	// 30 elements								
	SEQUENCE /	// 4 elements								
	logicalName									
	attributeId									
	classId SEOUENCE	// 10 elements								
	{									
	SEQUENCE {	// 2 elements	5							
	ClientIo	i								
	AccessMo	ode								
	} SEOUENCE	// 2 elements	5							
	{									
	ClientId									
	AccessMo	oue								
	SEQUENCE	// 2 elements	3							
	{ ClientIo	3								
	Clientic	1								

Data type: UNSIGNED8

```
AccessMode
                  // 2 elements
      SEQUENCE
        ClientId
        AccessMode
      SEQUENCE // 2 elements
        ClientId
        AccessMode
      SEQUENCE // 2 elements
        ClientId
        AccessMode
      SEQUENCE
                  // 2 elements
        ClientId
        AccessMode
                  // 2 elements
      SEQUENCE
        ClientId
        AccessMode
                 // 2 elements
      SEQUENCE
        ClientId
        AccessMode
      SEQUENCE // 2 elements
        ClientId
        AccessMode
    }
<u>logicalName</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
attributeId
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
classId
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
ClientId
```

Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

- 0: No access
- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

- 0: No access
- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

- 0: No access
- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

- 0: No access
- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

- 0: No access
- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

- 0: No access
- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

- 0: No access
- 1: Read only
- 2: Write only
- 3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

0: No access

1: Read only

2: Write only

3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

0: No access

1: Read only

2: Write only

3: Read and write

Default value: No access (0)

ClientId

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0
AccessMode

Data type: UNSIGNED8

Authorized values:

0: No access

1: Read only

2: Write only

3: Read and write

Default value: No access (0)

2.1.36 MngtElectricityFieldAssociation

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;40;0;2;255	15	0	2	7055	False	False	False

Logical devices:

Management	Electricity	End customer	
True	False	False	

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	MngtElectricityFieldAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

Electricity laboratory Get	Electricity utility Get	Electricity reader	End customer	Manufacturer Get	Resources upgrader	Engineer Get
	Gel	<u>-</u>	-	Gel	-	Gei
Attribute description						
SEQUENCE OF {	// 165535 ele	ments				
SEQUENCE { class_id Version logical_name SEQUENCE { SEQUENCE	e // 2 elements OF // 1655 C // 3 eleme oute_id s_mode	nts				
{						

class id

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

Version

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 logical name

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

attribute id

Contains all implemented attributes.

Data type: INTEGER8
Authorized value: 0 to 127

Default value: 0 access_mode

Data type: ENUMERATED

Authorized values:
0: No access
1: Read only
2: Write only
3: Read and write

Default value: No access (0)

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

Data type: NULL
Authorized value:
Default value:
method_id

Contains all implemented methods.

Data type: INTEGER8
Authorized value: 1 to 127

Default value: 1 access_mode

Data type: BOOLEAN Authorized values:

0: FALSE
1: TRUE

Default value: 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)

```
Electricity laboratory
                        Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
       Get/Set
                           Get/Set
                                                                          Get/Set
                                                                                                         Get
Attribute description
 SEOUENCE
                 // 2 elements
   client_SAP
   server_SAP
 client SAP
 Electricity Utility Field SAP
 Data type: INTEGER8
 Authorized value: 2
 Default value: 2
 server SAP
 LD Management (it cannot be changed).
 Data type: UNSIGNED16
 Authorized value: 1
 Default value: 1
```

■ Attribute 4: application context name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
        Get
                                                                       Get
Attribute description
 SEQUENCE
               // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DLMS-UA-element
   application-context-element
   context-id-element
joint-iso-ctt-element
 Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
```

country-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

country-name-elementData type: UNSIGNED16Authorized value: 0 to 65535

Default value: 0

identified-organization-element:

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

DLMS-UA-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

application-context-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0
context-id-element
Data type: UNSIGNED8

Authorized value: 0 to 255 Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

Electricity laboratory Get	Electricity utility Get	Electricity reader -	End customer	Manufacturer Get	Resources upgrader -	Engineer Get
Attribute description						
SEQUENCE // 6 { conformance max_receive_pdu max_send_pdu_si dlms_version_nu quality_of_serv cyphering_info }	ize umber					
conformance The conformance el	ement contains th	ne xDLMS confor	mance block s	supported by	the server.	
Data type: BITSTRII	NG					
Authorized values:						

Size = 24

ViewAsType = BitString

max_receive_pdu_size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16

Authorized value: 0 to 65535 Default value: 0

max send pdu size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	-	-	Get	-	Get
N (('						

Attribute description

```
SEQUENCE
            // 7 elements
  joint-iso-ctt-element
  country-element
  country-name-element
  identified-organization-element:
  DLMS-UA-element
  authentication-mechanism-name-element
  mechanism-id-element
joint-iso-ctt-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 2
country-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 16
country-name-element
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 756
identified-organization-element:
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 5
DLMS-UA-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 8
authentication-mechanism-name-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 1
mechanism-id-element
```

■ Attribute 7: LLS_secret

Data type: UNSIGNED8

Authorized value: 0 to 255

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Default value: 1

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Set	Set	-	-	Set	-	-

Attribute description

LLS_secret

LLS secret

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)
Default value: 48;48;48;48;48;48;48;(00000000)

■ Attribute 8: association status

To be inserted by the meter. Access rights (clients)

Electricity laborat	ory Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	-	-	Get	-	Get

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

- 0: Non-associated
- 1: Association-pending
- 2: Associated

Default value: Non-associated (0)

2.1.37 MngtElectricityLaboratoryAssociation

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;0;40;0;1;255	15	0	2	7055	False	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	MngtElectricityLaboratoryAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	-	-	-	Get	-	Get

Attribute description

```
SEQUENCE OF // 1..65535 elements
              // 4 elements
  SEQUENCE
  {
    class_id
    Version
    logical_name
    SEQUENCE
              // 2 elements
      SEQUENCE OF // 1..65535 elements
        SEQUENCE
                    // 3 elements
          attribute_id
          access_mode
          CHOICE
                            // 1..1 elements
            SEQUENCE OF
             }
        }
      SEQUENCE OF
                     // 0..65535 elements
                      // 2 elements
        SEQUENCE
          method_id
          access_mode
    }
}
class id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Version
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
logical_name
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
attribute_id
Contains all implemented attributes.
Data type: INTEGER8
Authorized value: 0 to 127
Default value: 0
```

access mode Data type: ENUMERATED Authorized values: 0: No access 1: Read only 2: Write only 3: Read and write Default value: No access (0) Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 Data type: NULL Authorized value: Default value: method id Contains all implemented methods. Data type: INTEGER8 Authorized value: 1 to 127 Default value: 1 access mode Data type: BOOLEAN Authorized values: 0: FALSE 1: TRUE Default value: 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

```
Electricity laboratory
                        Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
       Get/Set
                                                                          Get/Set
                                                                                                          Get
Attribute description
 SEQUENCE
              // 2 elements
   client_SAP
   server_SAP
 client SAP
 Electricity Utility Laboratory SAP
 Data type: INTEGER8
 Authorized value: 1
 Default value: 1
 server SAP
```

LD Management (it cannot be changed).

Data type: UNSIGNED16

Authorized value: 1
Default value: 1

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

Electricity laboratory Get	Electricity utility -	Electricity reader	End customer	Manufacturer Get	Resources upgrader	Engineer Get
Attribute description						
	elements					
<pre>country-element country-name-el</pre>						
identified-orga	nization-elemen	nt:				
DLMS-UA-element application-con						
<pre>context-id-elem }</pre>	ient					
joint-iso-ctt-element						
	-D0					
Data type: UNSIGNE Authorized value: 0 t						
Default value: 0	.0 255					
country-element						
	-D0					
Data type: UNSIGNE Authorized value: 0 t						
Default value: 0	0 233					
country-name-eleme	ent					
Data type: UNSIGNE						
Authorized value: 0 t						
Default value: 0	0 00000					
identified-organization	on-element:					
Data type: UNSIGNE						
Authorized value: 0 t						
Default value: 0						
DLMS-UA-element						
Data type: UNSIGNE	ED8					
Authorized value: 0 t						
Default value: 0						
application-context-e	<u>element</u>					
Data type: UNSIGNE	ED8					

Authorized value: 0 to 255

Default value: 0
context-id-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Get - - Get - Get

Attribute description

```
SEQUENCE  // 6 elements
{
  conformance
  max_receive_pdu_size
  max_send_pdu_size
  dlms_version_number
  quality_of_service
  cyphering_info
}
```

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max receive pdu size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

max send pdu size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms version number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering_info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Attribute description SEQUENCE // 7 elements joint-iso-ctt-element country-element country-name-element identified-organization-element: DLMS-UA-element authentication-mechanism-name-element mechanism-id-element joint-iso-ctt-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 2 country-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 16 country-name-element Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 756

identified-organization-element:

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 5

<u>DLMS-UA-element</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 8

authentication-mechanism-name-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 2

mechanism-id-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 1

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Set - - Set - -

Attribute description

LLS_secret

LLS_secret

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)
Default value: 48;48;48;48;48;48;48; (00000000)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

0: Non-associated

1: Association-pending

2: Associated

Default value: Non-associated (0)

2.1.38 MngtElectricityReaderAssociation

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;0;40;0;6;255	15	0	2	7055	False	False	False

Logical devices:

Management	Electricity	End customer	
True	False	False	
Attributes / Metl	nods		

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	MngtElectricityReaderAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

```
Electricity laboratory
                    Electricity utility
                                                  End customer Manufacturer Resources upgrader Engineer
                                         Get
       Get
                         Get
                                                                  Get
                                                                                            Get
Attribute description
SEQUENCE OF
                  // 1..65535 elements
   SEQUENCE
                 // 4 elements
     class_id
     Version
     logical_name
                  // 2 elements
     SEQUENCE
                       // 1..65535 elements
       SEQUENCE OF
         SEQUENCE
                       // 3 elements
           attribute_id
           access_mode
           CHOICE
                             // 1..1 elements
              SEQUENCE OF
         }
       SEQUENCE OF
                       // 0..65535 elements
         SEQUENCE
                       // 2 elements
           method_id
           access_mode
```

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

Version

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 logical name

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

attribute id

Contains all implemented attributes.

Data type: INTEGER8
Authorized value: 0 to 127

Default value: 0 access_mode

Data type: ENUMERATED

Authorized values: 0: No access

1: Read only

2: Write only

3: Read and write

Default value: No access (0)

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

Data type: NULL
Authorized value:
Default value:
method id

Contains all implemented methods.

Data type: INTEGER8
Authorized value: 1 to 127

Default value: 1 access_mode

Data type: BOOLEAN

Authorized values:
0: FALSE
1: TRUE

Default value: 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)

```
Electricity utility
 Electricity laboratory
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
       Get/Set
                           Get/Set
                                             Get/Set
                                                                          Get/Set
Attribute description
 SEOUENCE
                 // 2 elements
   client_SAP
   server_SAP
 client SAP
 Electricity Reader SAP
 Data type: INTEGER8
 Authorized value: 3
 Default value: 3
 server SAP
 LD Management (it cannot be changed).
 Data type: UNSIGNED16
 Authorized value: 1
 Default value: 1
```

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                            Get
                                                                        Get
                                                                                                    Get
Attribute description
 SEQUENCE
                // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DLMS-UA-element
   application-context-element
   context-id-element
 }
joint-iso-ctt-element
Data type: UNSIGNED8
Authorized value: 0 to 255
```

Default value: 0 country-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

country-name-element

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

identified-organization-element:

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

<u>DLMS-UA-element</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

application-context-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

<u>context-id-element</u>

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Get Get Get Attribute description SEOUENCE // 6 elements conformance max_receive_pdu_size max_send_pdu_size dlms_version_number quality_of_service cyphering_info conformance The conformance element contains the xDLMS conformance block supported by the server. Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max receive pdu size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

max_send_pdu_size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	-	Get	-	Get

```
Attribute description
 SEQUENCE
             // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DLMS-UA-element
   authentication-mechanism-name-element
   mechanism-id-element
joint-iso-ctt-element
Data type: UNSIGNED8
Authorized value: 0 to 255
 Default value: 2
country-element
Data type: UNSIGNED8
Authorized value: 0 to 255
 Default value: 16
country-name-element
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 756
identified-organization-element:
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 5
DLMS-UA-element
Data type: UNSIGNED8
Authorized value: 0 to 255
 Default value: 8
authentication-mechanism-name-element
Data type: UNSIGNED8
Authorized value: 0 to 255
 Default value: 2
mechanism-id-element
Data type: UNSIGNED8
Authorized value: 0 to 255
```

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Default value: 1

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Set	-	Set	-	Set	-	-
Attribute description						
LLS secret						
_						
LLS secret						
Data type: OCTETS	STRING					

Authorized value: Decoded as ASCII (Size = 8)

Default value: 48;48;48;48;48;48;48; (00000000)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	Get	-	Get	-	Get

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

- 0: Non-associated
- 1: Association-pending
- 2: Associated

Default value: Non-associated (0)

2.1.39 MngtEndCustomerAssociation

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;40;0;10;25	5 15	0	2	7055	False	False	False

Logical devices:

Management	Electricity	End customer	
True	False	False	

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	MngtEndCustomerAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	-	Get	Get	-	Get

```
Attribute description
 SEQUENCE OF
                // 1..65535 elements
   SEQUENCE
                // 4 elements
     class_id
     Version
     logical_name
     SEQUENCE
               // 2 elements
       SEQUENCE OF // 1..65535 elements
                     // 3 elements
         SEQUENCE
           attribute_id
           access_mode
           CHOICE
             SEQUENCE OF // 1..1 elements
             }
                       // 0..65535 elements
       SEQUENCE OF
         SEOUENCE
                       // 2 elements
           method_id
           access_mode
   }
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
Version
Data type: UNSIGNED8
Authorized value: 0 to 255
 Default value: 0
logical name
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
attribute id
 Contains all implemented attributes.
Data type: INTEGER8
 Authorized value: 0 to 127
```

Default value: 0 access mode Data type: ENUMERATED Authorized values: 0: No access 1: Read only 2: Write only 3: Read and write Default value: No access (0) Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 Data type: NULL Authorized value: Default value: method id Contains all implemented methods. Data type: INTEGER8 Authorized value: 1 to 127 Default value: 1 access mode Data type: BOOLEAN Authorized values: 0: FALSE 1: TRUE Default value: 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
       Get/Set
                           Get/Set
                                                             Get/Set
                                                                                                         Get
Attribute description
 SEOUENCE
                // 2 elements
   client_SAP
   server_SAP
 client SAP
 End Customer SAP
 Data type: INTEGER8
 Authorized value: 7
 Default value: 7
```

server_SAP

LD Management (it cannot be changed).

Data type: UNSIGNED16
Authorized value: 1
Default value: 1

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

Electricity laboratory Get	Electricity utility Get	Electricity reader	End customer Get	Manufacturer Get	Resources upgrader	Engineer Get
Attribute description	Gei	-	Get	Get	<u> </u>	Get
SEQUENCE // { joint-iso-ctt-country-element country-name-element cou	t lement anization-element t ntext-element ment	nt:				
·						
Data type: UNSIGN Authorized value: 0						
Default value: 0	10 255					
country-element						
Data type: UNSIGN	ED8					
Authorized value: 0						
Default value: 0	10 200					
country-name-elem	<u>ent</u>					
Data type: UNSIGN	ED16					
Authorized value: 0						
Default value: 0						
identified-organizati	on-element:					
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					
Default value: 0						
DLMS-UA-element						
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					
Default value: 0						
application-context-	<u>element</u>					

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0
context-id-element
Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	-	Get	Get	-	Get

Attribute description

```
SEQUENCE // 6 elements
{
   conformance
   max_receive_pdu_size
   max_send_pdu_size
   dlms_version_number
   quality_of_service
   cyphering_info
```

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max_receive_pdu_size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

max_send_pdu_size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0
quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering_info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Electricity laboratory	Electricity utility	Electricity reader			Resources upgrader	_					
Get	Get	-	Get	Get	-	Get					
Attribute description	Attribute description										
	7 elements										
joint-iso-ctt-											
country-elemen											
country-name-e	rement anization-eleme	nt:									
DLMS-UA-elemen											
	- -mechanism-name	-element									
mechanism-id-e	lement										
}											
joint-iso-ctt-element											
Data type: UNSIGN	ED8										
Authorized value: 0	to 255										
Default value: 0											
country-element											
Data type: UNSIGN	ED8										
Authorized value: 0	to 255										
Default value: 0											
country-name-element	<u>ent</u>										
Data type: UNSIGN	ED16										
Authorized value: 0	to 65535										

Default value: 0

identified-organization-element:

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

<u>DLMS-UA-element</u>

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

authentication-mechanism-name-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

mechanism-id-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Set	Set	-	Set	Set	-	-

Attribute description

LLS_secret

LLS secret

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)
Default value: 48;48;48;48;48;48;48; (00000000)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	-	Get	Get	-	Get

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

- 0: Non-associated
- 1: Association-pending
- 2: Associated

Default value: Non-associated (0)

2.1.40 MngtEngineerAssociation

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;0;40;0;5;255	15	0	2	7055	False	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	MngtEngineerAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

```
Electricity laboratory
                     Electricity utility
                                    Electricity reader
                                                   End customer Manufacturer Resources upgrader Engineer
Attribute description
SEQUENCE OF
                  // 1..65535 elements
   SEQUENCE
                 // 4 elements
     class_id
     Version
     logical_name
     SEQUENCE
                  // 2 elements
       SEQUENCE OF
                       // 1..65535 elements
                        // 3 elements
         SEQUENCE
            attribute_id
            access_mode
            CHOICE
                               // 1..1 elements
              SEQUENCE OF
       SEQUENCE OF
                        // 0..65535 elements
         SEQUENCE
                        // 2 elements
            method_id
```

class_id

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

Version

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 logical name

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

attribute_id

Contains all implemented attributes.

Data type: INTEGER8
Authorized value: 0 to 127

Default value: 0 access_mode

Data type: ENUMERATED

Authorized values:
0: No access
1: Read only
2: Write only

3: Read and write

Default value: No access (0)

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

Data type: NULL
Authorized value:
Default value:
method_id

Contains all implemented methods.

Data type: INTEGER8
Authorized value: 1 to 127

```
Default value: 1

access_mode

Data type: BOOLEAN

Authorized values:
0: FALSE
1: TRUE

Default value: 1: TRUE
```

■ Attribute 3: associated partners id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                        End customer Manufacturer Resources upgrader Engineer
                                                                        Get/Set
                                                                                                     Get/Set
Attribute description
 SEQUENCE
                // 2 elements
   client_SAP
   server_SAP
 client SAP
 Engineer SAP
 Data type: INTEGER8
 Authorized value: 122
 Default value: 122
 server SAP
LD Management (it cannot be changed).
 Data type: UNSIGNED16
 Authorized value: 1
 Default value: 1
```

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
                                                                       Get
                                                                                                   Get
Attribute description
 SEOUENCE
               // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DIMS-UA-element
   application-context-element
   context-id-element
joint-iso-ctt-element
```

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 country-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

country-name-element

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

identified-organization-element:

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

<u>DLMS-UA-element</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

application-context-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 context-id-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

```
Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

- - - Get - Get

Attribute description

SEQUENCE // 6 elements
{
    conformance
    max_receive_pdu_size
    max_send_pdu_size
    dlms_version_number
    quality_of_service
    cyphering_info
}
```

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max receive pdu size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

max_send_pdu_size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0
quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Attribute description SEOUENCE // 7 elements joint-iso-ctt-element country-element country-name-element identified-organization-element: DLMS-UA-element authentication-mechanism-name-element mechanism-id-element joint-iso-ctt-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0 country-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0 country-name-element Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 identified-organization-element: Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0 **DLMS-UA-element** Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0 authentication-mechanism-name-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0 mechanism-id-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 0

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - Set - Set

Attribute description

LLS_secret

LLS secret

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)
Default value: 48;48;48;48;48;48;48;(00000000)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
-	-	-	=	Get	=	Get

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

- 0: Non-associated
- 1: Association-pending
- 2: Associated

Default value: Non-associated (0)

2.1.41 MngtGasReaderAssociation

Interface

Logical name	Class Id	Class version	Absolute number	Local Id	Configuration parameter	Restrictive programming	MID compliance
0;0;40;0;7;255	15	0	2	7055	False	False	False

Logical devices:

•			
Management	Electricity	End customer	
True	False	False	

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	MngtGasReaderAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

```
Electricity laboratory
                     Electricity utility
                                                    End customer Manufacturer Resources upgrader Engineer
                                     Electricity reader
        Get
                          Get
                                                                    Get
                                                                                               Get
Attribute description
 SEOUENCE OF
                  // 1..65535 elements
   SEOUENCE
                  // 4 elements
     class_id
     Version
     logical_name
                 // 2 elements
     SEOUENCE
       SEQUENCE OF
                        // 1..65535 elements
                        // 3 elements
         SEQUENCE
            attribute_id
            access_mode
            CHOICE
                               // 1..1 elements
              SEQUENCE OF
              }
       SEQUENCE OF
                        // 0..65535 elements
          SEQUENCE
                        // 2 elements
            method_id
            access_mode
     }
   }
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Version
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
logical name
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
 attribute id
 Contains all implemented attributes.
```

Data type: INTEGER8 Authorized value: 0 to 127 Default value: 0 access mode Data type: ENUMERATED Authorized values: 0: No access 1: Read only 2: Write only 3: Read and write Default value: No access (0) Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 Data type: NULL Authorized value: Default value: method id Contains all implemented methods. Data type: INTEGER8 Authorized value: 1 to 127 Default value: 1 access mode Data type: BOOLEAN Authorized values: 0: FALSE 1: TRUE Default value: 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

```
Electricity laboratory
                        Electricity utility
                                          Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
       Get/Set
                           Get/Set
                                                                          Get/Set
                                                                                                          Get
Attribute description
 SEQUENCE
               // 2 elements
   client_SAP
   server_SAP
 }
 client SAP
 Gas Reader SAP
 Data type: INTEGER8
```

Authorized value: 4

Default value: 4

server_SAP

LD Management (it cannot be changed).

Data type: UNSIGNED16

Authorized value: 1

Default value: 1

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

Electricity laboratory	Electricity utility	Electricity reader	End customer		Resources upgrader	
Get	Get	-	-	Get	-	Get
Attribute description						
<pre>SEQUENCE // { joint-iso-ctt-country-elemen country-name-e identified-org DLMS-UA-elemen application-cor context-id-elemen }</pre>	t lement anization-eleme t ntext-element	ent:				
joint-iso-ctt-element						
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					
Default value: 0						
country-element						
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					
Default value: 0						
country-name-element	<u>ent</u>					
Data type: UNSIGN	ED16					
Authorized value: 0	to 65535					
Default value: 0						
identified-organizati	on-element:					
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					
Default value: 0						
DLMS-UA-element						
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					

Default value: 0

application-context-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 context-id-element

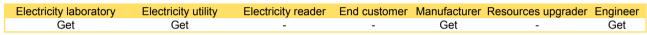
Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

Access rights (clients)



Attribute description

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max receive pdu size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

max send pdu size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering_info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	-	-	Get	-	Get
Attribute description						
SEQUENCE //	7 elements					
joint-iso-ctt-						
country-elemen						
_	anization-eleme	ent:				
DLMS-UA-elemen						
	-mechanism-name	e-element				
mechanism-id-e	lement					
}						
joint-iso-ctt-element	<u>:</u>					
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					
Default value: 0						
country-element						
Data type: UNSIGN	ED8					
Authorized value: 0	to 255					
Default value: 0						
country-name-elem	ent					

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

identified-organization-element:

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

<u>DLMS-UA-element</u>

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

authentication-mechanism-name-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

mechanism-id-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - Set - -

Attribute description

LLS_secret

LLS secret

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)
Default value: 48;48;48;48;48;48;48; (00000000)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

- 0: Non-associated
- 1: Association-pending
- 2: Associated

Default value: Non-associated (0)

2.1.42 MngtHeatReaderAssociation

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;0;40;0;9;255	15	0	2	7055	False	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	MngtHeatReaderAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

Electricity laboratory	Electricity utility	Electricity reader	End customer		Resources upgrader	
Get	Get	-	-	Get	-	Get
Attribute description						
Attribute description						
SEQUENCE OF	// 165535 ele	ements				
{						
SEQUENCE /	/ 4 elements					
{						
class_id						
Version						
logical_name						
SEQUENCE	// 2 elements					
{						
SEQUENCE O	F // 1655	35 elements				
{						
SEQUENCE	// 3 eleme	ents				
{						
attrib	-					
access						
CHOICE						
{						
SEQU	ENCE OF //	11 elements				
{						
}						
1						
}						
, }						
}	T // 0 6FF					
SEQUENCE O	F // 0655	35 elements				

```
SEQUENCE
                        // 2 elements
           method_id
           access_mode
}
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Version
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
logical name
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
attribute_id
Contains all implemented attributes.
Data type: INTEGER8
Authorized value: 0 to 127
Default value: 0
access mode
Data type: ENUMERATED
Authorized values:
0: No access
1: Read only
2: Write only
3: Read and write
Default value: No access (0)
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
Data type: NULL
Authorized value:
Default value:
method_id
```

Contains all implemented methods.

Data type: INTEGER8

Authorized value: 1 to 127

Default value: 1

access_mode

Data type: BOOLEAN

Authorized values:
0: FALSE
1: TRUE

Default value: 1: TRUE

■ Attribute 3: associated partners id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                         End customer Manufacturer Resources upgrader Engineer
       Get/Set
                          Get/Set
                                                                         Get/Set
                                                                                                       Get
Attribute description
 SEOUENCE
                // 2 elements
   client_SAP
   server_SAP
 client SAP
 Heat Reader SAP
 Data type: INTEGER8
 Authorized value: 6
 Default value: 6
 server SAP
LD Management (it cannot be changed).
 Data type: UNSIGNED16
 Authorized value: 1
 Default value: 1
```

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

```
Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Get - Get - Get Get

Attribute description

SEQUENCE // 7 elements
{
    joint-iso-ctt-element
    country-element
    country-name-element
    identified-organization-element:
    DLMS-UA-element
    application-context-element
```

```
context-id-element
joint-iso-ctt-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
country-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
country-name-element
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
identified-organization-element:
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
DLMS-UA-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
application-context-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
context-id-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
```

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

```
quality_of_service
  cyphering_info
}
```

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max receive pdu size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0 max send pdu size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

dlms_version_number

The dlms version number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 guality of service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

```
Electricity laboratory
                      Electricity utility
                                                     End customer Manufacturer Resources upgrader Engineer
                                      Electricity reader
        Get
                          Get
                                                                      Get
                                                                                                 Get
Attribute description
SEQUENCE
              // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DLMS-UA-element
   authentication-mechanism-name-element
   mechanism-id-element
 }
joint-iso-ctt-element
 Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
country-element
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
country-name-element
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
 identified-organization-element:
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
DLMS-UA-element
 Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
 authentication-mechanism-name-element
 Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
 mechanism-id-element
```

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - Set - -

Attribute description

LLS_secret

LLS_secret

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)
Default value: 48;48;48;48;48;48;48;48; (00000000)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

Electricity laboratory	Electricity utility	Electricity reader	End customer	Manufacturer	Resources upgrader	Engineer
Get	Get	-	-	Get	-	Get

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

- 0: Non-associated
- 1: Association-pending
- 2: Associated

Default value: Non-associated (0)

2.1.43 MngtManufacturerAssociation

Interface

Logical name	Class Id	Class version	Absolute	Local Id	Configuration	Restrictive	MID
			number		parameter	programming	compliance
0;0;40;0;4;255	15	0	2	7055	False	False	False

Logical devices:

Management	Electricity	End customer
True	False	False

Attributes / Methods

Attribute (A) / Method (M)	Data type	Content
A1. logical_name	OCTETSTRING	MngtManufacturerAssociationOBISCode
A2. object_list	ARRAY	See below
A3. associated_partners_id	SEQUENCE	See below
A4. application_context_name	SEQUENCE	See below
A5. xDLMS_context_info	SEQUENCE	See below
A6. authentication_mechanism_name	SEQUENCE	See below
A7. LLS_secret	OCTETSTRING	See below
A8. association status	ENUMERATED	See below

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

```
Electricity laboratory
                     Electricity utility
                                    Electricity reader
                                                   End customer Manufacturer Resources upgrader Engineer
                                                                   Get
                                                                                             Get
Attribute description
 SEQUENCE OF
                  // 1..65535 elements
                 // 4 elements
   SEQUENCE
     class_id
     Version
     logical_name
     SEQUENCE
               // 2 elements
       SEOUENCE OF
                       // 1..65535 elements
                       // 3 elements
         SEQUENCE
            attribute_id
            access_mode
            CHOICE
              SEQUENCE OF
                              // 1..1 elements
              }
                        // 0..65535 elements
       SEQUENCE OF
                        // 2 elements
         SEQUENCE
           method_id
            access_mode
class_id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
Version
Data type: UNSIGNED8
Authorized value: 0 to 255
 Default value: 0
logical_name
Data type: OCTETSTRING
```

Authorized value: Decoded as Decimal (Size = 6) Default value: 0;0;0;0;0;0; attribute id Contains all implemented attributes. Data type: INTEGER8 Authorized value: 0 to 127 Default value: 0 access mode Data type: ENUMERATED Authorized values: 0: No access 1: Read only 2: Write only 3: Read and write Default value: No access (0) Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 Data type: NULL Authorized value: Default value: method id Contains all implemented methods. Data type: INTEGER8 Authorized value: 1 to 127 Default value: 1 access mode Data type: BOOLEAN Authorized values: 0: FALSE 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)

Default value: 1: TRUE

```
Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - - - - - - - - - - - - - Get/Set - - Get

Attribute description

SEQUENCE // 2 elements
{
    client_SAP
```

```
Server_SAP

Client_SAP

Manufacturer SAP

Data type: INTEGER8

Authorized value: 120

Default value: 120

server_SAP

LD Management (it cannot be changed).

Data type: UNSIGNED16

Authorized value: 1

Default value: 1
```

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
                                                                                                  Get
                                                                      Get
Attribute description
 SEQUENCE
               // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DLMS-UA-element
   application-context-element
   context-id-element
joint-iso-ctt-element
Data type: UNSIGNED8
Authorized value: 0 to 255
 Default value: 0
country-element
Data type: UNSIGNED8
 Authorized value: 0 to 255
 Default value: 0
country-name-element
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
identified-organization-element:
Data type: UNSIGNED8
Authorized value: 0 to 255
```

Default value: 0

DLMS-UA-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

application-context-element
Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 context-id-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - - Get - Get

Attribute description

```
SEQUENCE // 6 elements

{
   conformance
   max_receive_pdu_size
   max_send_pdu_size
   dlms_version_number
   quality_of_service
   cyphering_info
```

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max receive pdu size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0 max send pdu size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms version number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0 quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Attribute description SEQUENCE // 7 elements joint-iso-ctt-element country-element country-name-element identified-organization-element: DLMS-UA-element authentication-mechanism-name-element mechanism-id-element } joint-iso-ctt-element Data type: UNSIGNED8 Authorized value: 0 to 255 Default value: 2

country-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 16

<u>country-name-element</u>Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 756

identified-organization-element:

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 5

DLMS-UA-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 8

authentication-mechanism-name-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 2

mechanism-id-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 1

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
Set
- - Set
-
Attribute description

LLS_secret

LLS_secret

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)

Default value: 48;48;48;48;48;48;48; (00000000)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - - - - - - - - - - - Get

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

- 0: Non-associated
- 1: Association-pending
- 2: Associated

Default value: Non-associated (0)

2.1.44 MngtResourcesUpgraderAssociation

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;40;0;3;255 | 15 | 0 | 2 | 7055 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|-----------------------------------|-------------------|--|
| A1. logical_name | OCTETSTRING | MngtResourcesUpgraderAssociationOBISCode |
| A2. object_list | ARRAY | See below |
| A3. associated_partners_id | SEQUENCE | See below |
| A4. application_context_name | SEQUENCE | See below |
| A5. xDLMS_context_info | SEQUENCE | See below |
| A6. authentication_mechanism_name | SEQUENCE | See below |
| A7. LLS_secret | OCTETSTRING | See below |
| A8. association status | ENUMERATED | See below |

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer
Get | Resources upgrader
Get | Engineer
Get |
|-------------------------|---------------------|--------------------|--------------|---------------------|---------------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE OF | // 165535 ele | ements | | | | |
| SEQUENCE / | / 4 elements | | | | | |
| class_id | | | | | | |
| Version
logical_name | <u> </u> | | | | | |
| SEQUENCE | // 2 elements | | | | | |
| SEQUENCE O | F // 1655 | 35 elements | | | | |
| {
SEQUENCE | 2 // 3 eleme | ents | | | | |
| {
attrib | oute_id | | | | | |
| access | mode | | | | | |
| CHOICE
{ | | | | | | |
| SEQU | JENCE OF // | 11 elements | | | | |

Default value: 0

```
{
              }
                        // 0..65535 elements
       SEQUENCE OF
                        // 2 elements
         SEQUENCE
           method_id
           access_mode
}
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Version
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
logical_name
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
attribute_id
Contains all implemented attributes.
Data type: INTEGER8
Authorized value: 0 to 127
Default value: 0
access mode
Data type: ENUMERATED
Authorized values:
0: No access
1: Read only
2: Write only
3: Read and write
Default value: No access (0)
Data type: INTEGER8
Authorized value: -128 to 127
```

Data type: NULL
Authorized value:

Default value:

method_id
Contains all implemented methods.

Data type: INTEGER8
Authorized value: 1 to 127

Default value: 1

access_mode

Data type: BOOLEAN

Authorized values:
0: FALSE
1: TRUE

Default value: 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| - | - | - | - | Get/Set | Get/Set | Get | |
| Attribute description | | | | | | | |
| SEQUENCE // 2 { client_SAP server_SAP } | elements | | | | | | |
| client SAP | | | | | | | |
| Resources Upgrade | r SAP | | | | | | |
| Data type: INTEGER8 | | | | | | | |
| Authorized value: 12 | :1 | | | | | | |
| Default value: 121 | | | | | | | |
| server_SAP | | | | | | | |
| LD Management (it o | cannot be change | ed). | | | | | |
| Data type: UNSIGNED16 | | | | | | | |
| Authorized value: 1 | | | | | | | |
| Default value: 1 | | | | | | | |

■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

| | · | | | | | |
|--------------------|--------------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity labora | tory Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| - | - | - | - | Get | Get | Get |
| | | | | | | |
| Attribute descrip | otion | | | | | |

```
SEQUENCE
            // 7 elements
  joint-iso-ctt-element
  country-element
  country-name-element
  identified-organization-element:
  DLMS-UA-element
  application-context-element
  context-id-element
joint-iso-ctt-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
country-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
country-name-element
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
identified-organization-element:
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
DLMS-UA-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
application-context-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
context-id-element
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
```

■ Attribute 5: xDLMS_context_info

Contains all the necessary information on the xDLMS context for the given association.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | Get | Get | Get |

Attribute description

```
SEQUENCE  // 6 elements
{
  conformance
  max_receive_pdu_size
  max_send_pdu_size
  dlms_version_number
  quality_of_service
  cyphering_info
}
```

conformance

The conformance element contains the xDLMS conformance block supported by the server.

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

max_receive_pdu_size

The max_receive_pdu_size element contains the maximum length for an xDLMS APDU, expressed in bytes that the client may send.

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see Green Book Clause 9.4.4.).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

max send pdu size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate.request pdu (see Green Book Clause 9.4.4).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER.

No mechanism-name is required when no authentication is used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer
Get | Resources upgrader
Get | Engineer
Get |
|--|---------------------|--------------------|--------------|---------------------|---------------------------|-----------------|
| Attribute description | - | - | - | Get | Gei | Get |
| | elements | | | | | |
| country-element country-name-el | | | | | | |
| identified-orga | nization-eleme | nt: | | | | |
| authentication- | mechanism-name | -element | | | | |
| <pre>mechanism-id-el }</pre> | ement | | | | | |
| joint-iso-ctt-element | | | | | | |
| Data type: UNSIGNE | ED8 | | | | | |
| Authorized value: 0 t | o 255 | | | | | |
| Default value: 0 | | | | | | |
| country-element | | | | | | |
| Data type: UNSIGNE | ED8 | | | | | |
| Authorized value: 0 t | o 255 | | | | | |
| Default value: 0 | | | | | | |
| country-name-eleme | | | | | | |
| Data type: UNSIGNE | | | | | | |
| Authorized value: 0 t | o 65535 | | | | | |
| Default value: 0 identified-organization | an alamant: | | | | | |
| _ | | | | | | |
| Data type: UNSIGNE Authorized value: 0 t | | | | | | |
| Default value: 0 | 0 200 | | | | | |
| DLMS-UA-element | | | | | | |
| Data type: UNSIGNE | ED8 | | | | | |
| Authorized value: 0 t | | | | | | |
| Default value: 0 | | | | | | |
| authentication-mecha | anism-name-elem | <u>nent</u> | | | | |
| Data type: UNSIGNE | ED8 | | | | | |

Authorized value: 0 to 255

Default value: 0

mechanism-id-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - Set Set -

Attribute description

LLS_secret

LLS secret

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)
Default value: 48;48;48;48;48;48;48; (00000000)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - - Get Get Get

Attribute description

association status

association status

Indicates the current status of the association, which is modeled by the object.

Data type: ENUMERATED

Authorized values:

- 0: Non-associated
- 1: Association-pending
- 2: Associated

Default value: Non-associated (0)

2.1.45 MngtWaterReaderAssociation

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;40;0;8;255 | 15 | 0 | 2 | 7055 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|-----------------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | MngtWaterReaderAssociationOBISCode |
| A2. object_list | ARRAY | See below |
| A3. associated_partners_id | SEQUENCE | See below |
| A4. application_context_name | SEQUENCE | See below |
| A5. xDLMS_context_info | SEQUENCE | See below |
| A6. authentication_mechanism_name | SEQUENCE | See below |
| A7. LLS_secret | OCTETSTRING | See below |
| A8. association status | ENUMERATED | See below |

■ Attribute 2: object_list

Contains the list of visible COSEM objects with their class_id, version, logical name and the access rights to their attributes and methods within the given application association.

The maximum size of the array is not limited.

```
Electricity laboratory
                     Electricity utility
                                     Electricity reader
                                                   End customer Manufacturer Resources upgrader Engineer
                         Get
                                                                   Get
                                                                                              Get
Attribute description
SEQUENCE OF
                  // 1..65535 elements
   SEQUENCE
                 // 4 elements
     class_id
     Version
     logical_name
     SEOUENCE
                  // 2 elements
                       // 1..65535 elements
       SEQUENCE OF
                        // 3 elements
          SEQUENCE
            attribute_id
            access_mode
            CHOICE
              SEQUENCE OF
                                // 1..1 elements
              {
       SEQUENCE OF
                        // 0..65535 elements
          SEQUENCE
                        // 2 elements
            method_id
            access_mode
     }
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
Version
```

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 logical_name

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

attribute id

Contains all implemented attributes.

Data type: INTEGER8
Authorized value: 0 to 127

Default value: 0 access mode

Data type: ENUMERATED

Authorized values:
0: No access
1: Read only
2: Write only

3: Read and write

Default value: No access (0)

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

Data type: NULL
Authorized value:
Default value:
method_id

Contains all implemented methods.

Data type: INTEGER8
Authorized value: 1 to 127

Default value: 1 access_mode

Data type: BOOLEAN Authorized values:

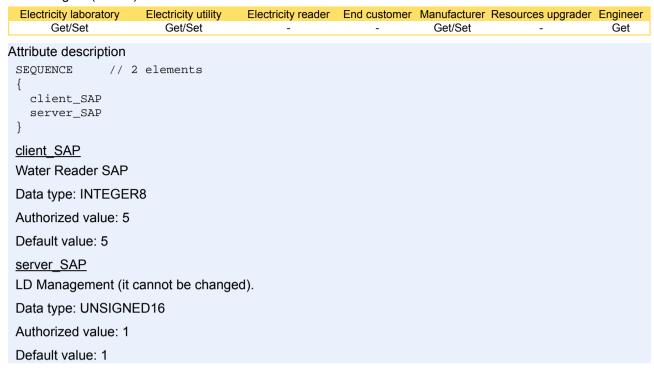
0: FALSE 1: TRUE

Default value: 1: TRUE

■ Attribute 3: associated_partners_id

Contains the identifiers of the COSEM client and the COSEM server (logical device) application processes within the physical devices hosting these processes, which belong to the application association modelled by the "Association LN" object.

Access rights (clients)



■ Attribute 4: application_context_name

In the COSEM environment, it is intended that an application context preexists and is referenced by its name during the establishment of an application association.

This attribute contains the name of the application context for that association.

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
- | End customer | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|----------------------------|-------------------------|--------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| · | 7 elements | | | | | |
| joint-iso-ctt-e | | | | | | |
| country-element | | | | | | |
| <pre>country-name-el identified-orga</pre> | | nt: | | | | |
| DLMS-UA-element | | 110. | | | | |
| application-cor | | | | | | |
| context-id-elem | ment | | | | | |
| } | | | | | | |
| joint-iso-ctt-element | | | | | | |
| Data type: UNSIGNE | ED8 | | | | | |
| Authorized value: 0 | to 255 | | | | | |
| Default value: 0 | | | | | | |
| country-element | | | | | | |
| Data type: UNSIGNE | ED8 | | | | | |
| Authorized value: 0 | to 255 | | | | | |
| Default value: 0 | | | | | | |
| country-name-eleme | <u>ent</u> | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |

Authorized value: 0 to 65535

Default value: 0

identified-organization-element:

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

<u>DLMS-UA-element</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

application-context-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

<u>context-id-element</u>

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 5: xDLMS_context_info

bytes that the client may send.

Green Book Clause 9.4.4.).

Contains all the necessary information on the xDLMS context for the given association.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Get Get Attribute description SEOUENCE // 6 elements conformance max_receive_pdu_size max_send_pdu_size dlms_version_number quality_of_service cyphering_info conformance The conformance element contains the xDLMS conformance block supported by the server. Data type: BITSTRING Authorized values: Size = 24ViewAsType = BitString max receive pdu size

The max receive pdu size element contains the maximum length for an xDLMS APDU, expressed in

This is the same as the server-max-receive-pdu-size parameter of the DLMS-Initiate.response pdu (see

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

max_send_pdu_size

The max_send_pdu_size, in an active association contains the maximum length for an xDLMS APDU, expressed in bytes that the server may send.

This is the same as the client-max-receive-pdu-size parameter of the DLMS-Initiate request pdu (see Green

Book Clause 9.4.4).

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

dlms version number

The dlms_version_number element contains the DLMS version number supported by the server.

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0 quality_of_service

Not used.

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 cyphering_info

The cyphering_info, in an active association, contains the dedicated key parameter of the DLMS-Initiate.request pdu (See Green Book Clause 9.4.4).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

■ Attribute 6: authentication_mechanism_name

Contains the name of the authentication mechanism for the association.

The authentication mechanism name is specified as an OBJECT IDENTIFIER in Clause 9.3.3.7.2 of the Green Book.

The authentication_mechanism_name attribute includes the arc labels of the OBJECT IDENTIFIER. No mechanism-name is required when no authentication is used.

```
Electricity laboratory
                      Electricity utility
                                                      End customer Manufacturer Resources upgrader Engineer
                                       Electricity reader
        Get
                           Get
                                                                                                  Get
Attribute description
 SEOUENCE
                // 7 elements
   joint-iso-ctt-element
   country-element
   country-name-element
   identified-organization-element:
   DLMS-UA-element
   authentication-mechanism-name-element
   mechanism-id-element
 }
```

joint-iso-ctt-element

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0 country-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

country-name-element

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

identified-organization-element:

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

<u>DLMS-UA-element</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

authentication-mechanism-name-element

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

mechanism-id-element

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 0

■ Attribute 7: LLS_secret

Contains the authentication value for the LLS authentication process.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - Set - -

Attribute description

LLS_secret

LLS secret

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 8)
Default value: 48;48;48;48;48;48;48; (00000000)

■ Attribute 8: association status

To be inserted by the meter.

Access rights (clients)

| | • , | • | | | | | | | |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
| | Get | Get | - | - | Get | - | Get | | |
| | Attributa description | | | | | | | | |
| , | Attribute description | | | | | | | | |
| | association status | | | | | | | | |
| | accondiction status | | | | | | | | |
| | association status | | | | | | | | |
| | Indicates the current | t status of the ass | ociation, which is | modeled by | the object. | | | | |
| | Data tupo: ENLIMED | ATED | | | | | | | |
| | Data type: ENUMERATED | | | | | | | | |
| | Authorized values: | | | | | | | | |
| | 0: Non-associated | | | | | | | | |

1: Association-pending

2: Associated

Default value: Non-associated (0)

2.1.46 ModemMonitoringResetParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;144;2;3;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

Delay in seconds to make sure modem is reset

Data type: UNSIGNED16

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | ModemMonitoringResetParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

| 7 toooco riginto (ononto | • | | | | | | |
|-----------------------------|---|--------------------|--------------|--------------|--------------------|----------|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get | |
| Attribute description | | | | | | | |
| SEQUENCE // | 4 elements | | | | | | |
| { ModemPowerEstal | hliahmon+Dolass | | | | | | |
| ModemPowerRese | - | | | | | | |
| ModemReconfigu: | - | | | | | | |
| ModemRestartDe | - | | | | | | |
| } | • | | | | | | |
| ModemPowerEstab | lishmentDelay | | | | | | |
| Delay in seconds to | make sure mode | m is started | | | | | |
| Data type: UNSIGN | ED16 | | | | | | |
| Authorized value: 10 to 900 | | | | | | | |
| Default value: 60 | | | | | | | |
| ModemPowerReset | <u>Delay</u> | | | | | | |

Authorized value: 10 to 900

Default value: 60

ModemReconfigureDelay

Delay in minutes without frame reception, which initiate modem reconfiguration

Data type: UNSIGNED8

Authorized value: 5 to 255

Default value: 10

ModemRestartDelay

Delay in hours without frame reception, which initiate modem restart (Power down, power up,

reconfiguration)

Data type: UNSIGNED8
Authorized value: 12 to 255

Default value: 24

2.1.47 PPPSetup

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;25;3;0;255 | 44 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------|
| A1. logical_name | OCTETSTRING | PPPSetupOBISCode |
| A2. PHY_reference | NULL | See below |
| A3. LCP_options | NULL | See below |
| A4. IPCP_options | NULL | See below |
| A5. PPP_authentication | SEQUENCE | See below |

■ Attribute 2: PHY_reference

Not used.

Access rights (clients)

| Elect | ricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------|-------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | - | - | - | - | - | - | - |
| | | | | | | | |

Attribute description

Data type: NULL
Authorized value:
Default value:

■ Attribute 3: LCP_options

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

Data type: NULL

End customer Manufacturer Resources upgrader Engineer

Authorized value:

Default value:

■ Attribute 4: IPCP_options

Not used.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Electricity reader

Attribute description

Data type: NULL Authorized value: Default value:

■ Attribute 5: PPP_authentication

Electricity utility

Access rights (clients)

Electricity laboratory

| Get/Set | Get/Set | Get/Set | Get | Get/Set | -
- | Get |
|-----------------------|-----------------------|---------------------|------------------|-----------|--------|-----|
| Attribute description | | | | | | |
| • | 2 elements | | | | | |
| {
+20 | | | | | | |
| tag
SEQUENCE | // 2 elements | | | | | |
| { | | | | | | |
| username | | | | | | |
| password
l | | | | | | |
| } | | | | | | |
| | | | | | | |
| <u>tag</u> | | | | | | |
| Data type: UNSIGI | NED8 | | | | | |
| Authorized values: | | | | | | |
| 0: no_authentication | on | | | | | |
| 1: PAP_password | | | | | | |
| Default value: no_a | authentication (0) | | | | | |
| <u>username</u> | | | | | | |
| if tag =0, length=0 | | | | | | |
| Data type: OCTET | STRING | | | | | |
| Authorized value: I | Decoded as ASCII (| Size = 31) | | | | |
| Default value: 0;0;0 | 0;0;0;0;0;0;0;0;0;0;0 | ;0;0;0;0;0;0;0;0;0; | 0;0;0;0;0;0;0;0; | 0;0;0; () | | |
| <u>password</u> | | | | | | |
| if tag =0, length=0 | | | | | | |
| Data type: OCTET | STRING | | | | | |
| Authorized value: I | Decoded as ASCII (| Size = 15) | | | | |

2.1.48 RealTimePortActivation

Allows to activate the real time port function. Saved as a manufacturer parameter.

Access restricted to manufacturer to be used as a meter resource.

Firmware upgrade from ACE7K IEC4 to ACE7K IEC5 will be possible without loss of manufacturer parameter.

If this parameter is changed from TRUE to FALSE, and a port is configured with IEC1107 protocol, the meter will continue to provide the function on the port.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;143;0;17;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------|
| A1. logical_name | OCTETSTRING | RealTimePortActivationOBISCode |
| A2. value | BOOLEAN | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get/Set | - | Get |

Attribute description

RealTimePortActivation

RealTimePortActivation

Manufacturer parameter to activate the IEC1107 protocol configuration

TRUE: Allow to configure the Customer and Utility port with IEC1107 protocol

FALSE: Configuring Customer or Utility port with IEC1107 protocol is inhibited.

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

2.1.49 RealTimePortIEC1107Parameters

Electricity

Allows to configure the IEC1107 common parameter on the real time port.

End customer

OCTETSTRING

The real time port can be activated on Utility or on Customer port.

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| 0;1;20;0;0;255 | 19 | 0 | 1 | 0 | False | False | False |

Logical devices : Management

A6. device addr

| True | False | False | |
|------------------------|-------|-------------------|---------------------------------------|
| Attributes / Meth | ods | | |
| Attribute (A) / Method | (M) | Data type | Content |
| A1. logical_name | | OCTETSTRING | RealTimePortIEC1107ParametersOBISCode |
| A2. default_mode | | ENUMERATED | See below |
| A3. default_baud | | ENUMERATED | See below |
| A4. prop_baud | | ENUMERATED | See below |
| A5. response_time | | ENUMERATED | See below |
| | | | |

See below

■ Attribute 2: default_mode

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
Get Get Get Get - Get

Attribute description

DefaultMode

DefaultMode

Allowed enumerated values are:

0: IEC (7 bits, even parity) - ModeC only if RealTimePortActivationParameter is TRUE)(

1 :HDLC (8 bits, no parity) (default value)

NOT CONFIGURABLE

Data type: ENUMERATED

Authorized values: 0: IEC Mode C

1: HDLC

Default value: IEC Mode C (0)

■ Attribute 3: default_baud

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| i | ۸ 44سنام ، .4 ما م م سانم 4 نام | | | | | | |

Attribute description

DefaultBaud

DefaultBaud

Baud rate used at connection procedure.

Data type: ENUMERATED

Authorized values:

4: 4800 bauds

5: 9600 bauds

6: 19200 bauds

Default value: 9600 bauds (5)

■ Attribute 4: prop_baud

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

PropBaud

PropBaud

READ ONLY

Firmware always takes the value of Default_baud parameter.

Thus there isn't baudrate switching.

Baud rate used for meter readout

Data type: ENUMERATED

Authorized value: Default value: (0)

■ Attribute 5: response_time

| Electricity laboratory
Get/Set | Electricity utility
Get/Set | Electricity reader
Get | End customer
Get | Manufacturer
Get/Set | Resources upgrader | Engineer
Get |
|---|--------------------------------|---------------------------|---------------------|-------------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| ResponseTime ResponseTime | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized values:
0: 20 ms
1: 200 ms | | | | | | |

■ Attribute 6: device_addr

Default value: 200 ms (1)

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DeviceAddr

DeviceAddr

This attribute contains the IEC 1107 device address to which the device will respond if included in the sign on message.

READ ONLY

Meter will respond with the client serial number (8 digits).

The same behavior is used on optical head.

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 0)

Default value: ()

2.1.50 RestrictiveProgrammingByLabSwitchParameters

This object allows programming of some parameters only if laboratory switch is activated. Parameters concerned by this programming restriction are identified in XMI, by the 'Restrictive programming' column.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;143;0;13;255 | 1 | 0 | 1 | 0 | True | True | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|-------------------------------|------------------------|---|
| A1. logical_name
A2. value | OCTETSTRING
BOOLEAN | RestrictiveProgrammingByLabSwitchParametersOBISCode See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | Get/Set | Get |

Attribute description

 ${\tt RestrictiveProgrammingByLabSwitchParameters}$

<u>RestrictiveProgrammingByLabSwitchParameters</u>

Restrictive programming by laboratory switch: TRUE.

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

2.1.51 SapAssignment

This data contains the list of all logical devices and their SAP addresses within the physical device.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;41;0;0;255 | 17 | 0 | 5 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------|
| A1. logical_name | OCTETSTRING | SapAssignmentOBISCode |
| A2. SAP_assignment_list | ARRAY | See below |

■ Attribute 2: SAP_assignment_list

There are 6 logical devices inside the meter, but only 2 logical devices are provided in the SAP assignment

the Management logical device and the Electricity logical device.

Access rights (clients)

| | | | | | _ | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get/Set | Get | Get | Get | Get/Set | Get | Get |
| | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 2 elements | | | | | |
| { | | | | | | |
| SEQUENCE | // 2 elements | | | | | |
| { | | | | | | |
| SAP | | | | | | |
| LogicalDevid | ceName | | | | | |
| } | | | | | | |
| } | | | | | | |
| | | | | | | |
| <u>SAP</u> | | | | | | |
| SAP | | | | | | |
| - MANAGEMENT I | ogical device (Defa | ult value = 1) = f | irst element | | | |
| - ELECTRICITY log | • | , | | ot | | |
| - ELECTRICITY IO | gicai device (Deiau | it value - 17) - 5 | econa elemei | IL | | |
| | | | | | | |
| Data type: UNSIGN | NFD16 | | | | | |

Authorized value: 0 to 65535

Default value: 1

LogicalDeviceName

Logical device name

- 1rst element : MANAGEMENT logical device name (Default value = "SLB761MAsn000000")
- 2nd element : ELECTRICITY logical device(Default value = "SLB761ELsn000000")

Composed of:

- Meter type (6 first digits) : Value = "SLB761"
- Logical device type (2 digits): Value = "MA" for Management logical device and "EL" for Electricity logical

device

- Meter serial number (8 digits)

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 16)

Default value: 83;76;66;55;54;49;77;65;115;110;48;48;48;48;48;48; (SLB761MAsn000000)

2.1.52 SMTPSetupParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;25;5;0;255 | 46 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-----------------------------|--|
| A1. logical_name | OCTETSTRING | SMTPSetupParametersOBISCode | |
| A2. server_port | UNSIGNED16 | See below | |
| A3. user_name | OCTETSTRING | See below | |
| A4. login_password | OCTETSTRING | See below | |
| A5. server_address | OCTETSTRING | See below | |
| A6. sender_address | OCTETSTRING | See below | |

■ Attribute 2: server_port

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | = | Get |

Attribute description

SmtpPortID

SmtpPortID

Defines the SMTP port ID. It is a read-only parameter.

Default value: 25 (port ID defined by IETF)

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 25

■ Attribute 3: user_name

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

userName

<u>userName</u>

Defines the username to be used for the login to the SMTP server.

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 15)

Default value: 0;0;0;0;0;0;0;0;0;0;0;0;0;0;0; ()

■ Attribute 4: login_password

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

password

password

Defines the password to be used for login.

A void string means that there is no authentication.

Default value: "" (no authentication)

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 15)

■ Attribute 5: server_address

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | = | Get |

Attribute description

serverAddress

serverAddress

Defines the server address.

This server address can be a name which must be resolvable by the primary DNSor the secondary DNS. In the case that it is directly the IP address of the server which is specified here it will be a string in dot format.

Example "10.217.106.87"

Default value: ""

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 63)

Default value:

0;0;0;0;0;0; ()

■ Attribute 6: sender_address

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

meterAddress

meterAddress

Defines the meter address.

This server address can be a name. In the case that it is directly the IP address of the server which is specified here it will be a string in dot format.

Default value: ""

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 63)

Default value:

0;0;0;0;0;0; ()

2.1.53 TCPUDPSetup

The parameters accessible via this interface class are mainly related to the TCP session.

UDP is not used in the current implementation.

Here the TCP port Id need to be fixed. By default this port id is 703 (Cosem port).

The number of simultaneous communications depends on the IPCM used.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;25;0;0;255 | 41 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------|
| A1. logical_name | OCTETSTRING | TCPUDPSetupOBISCode |
| A2. TCP-UDP_port | UNSIGNED16 | See below |
| A3. IP_reference | OCTETSTRING | See below |
| A4. MSS | UNSIGNED16 | See below |
| A5. nb_of_sim_conn | UNSIGNED8 | See below |
| A6. inactivity_time_out | UNSIGNED16 | See below |

■ Attribute 2: TCP-UDP_port

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

TcpUdpPort

TcpUdpPort

Defines the value of the port used by the COSEM TCP / UDP server.

Default value: 703 (Cosem port)

Data type: UNSIGNED16 Authorized value: 1 to 65535

Default value: 703

■ Attribute 3: IP_reference

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |

IpReference

IpReference

Not used

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 0)

Default value:

■ Attribute 4: MSS

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

MaxSegmentSize

MaxSegmentSize

Defines the maximum receive TCP segment size (in bytes).

Only a read access is given for this attribute.

The set is not implemented.

Data type: UNSIGNED16

Authorized value: 40 to 65535

Default value: 576

■ Attribute 5: nb_of_sim_conn

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

NbOfSimConn

NbOfSimConn

Defines the maximum number of simultaneous connections on the COSEM TCP / UDP server.

Data type: UNSIGNED8

Authorized value: 1 to 255

Default value: 3

■ Attribute 6: inactivity_time_out

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

InactivityTimeout

InactivityTimeout

Defines the time, expressed in seconds over which,

if no frame is received from its Client, the non-active TCP connection shall be aborted. When this value is set to 0, this means that the inactivity_time_out is not operational.

Default value : 180 (seconds)
Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 180

2.1.54 UtilityHDLCParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0:1:22:0:0:255 | 23 | 1 | 2 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|------------------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | UtilityHDLCParametersOBISCode |
| A2. comm_speed | ENUMERATED | See below |
| A3. window_size_transmit | UNSIGNED8 | See below |
| A4. window_size_receive | UNSIGNED8 | See below |
| A5. max_info_field_length_transmit | UNSIGNED16 | See below |
| A6. max_info_field_length_receive | UNSIGNED16 | See below |
| A7. inter_octet_time_out | UNSIGNED16 | See below |
| A8. inactivity_time_out | UNSIGNED16 | See below |
| A9. device_address | UNSIGNED16 | See below |

■ Attribute 2: comm_speed

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| Attribute description comm_speed | | | | | | |
| comm_speed | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized values:
2: 1200 bauds
3: 2400 bauds
4: 4800 bauds
5: 9600 bauds
6: 19200 bauds | | | | | | |

■ Attribute 3: window_size_transmit

Default value: 9600 bauds (5)

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|-----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get/Set | Get | Get | Get | Get/Set | - | Get |
| , | Marine at a salar a salar ti a sa | | | | | | |
| F | Attribute description | | | | | | |
| | window_size_trans | smit | | | | | |
| | window size transm | ai+ | | | | | |
| | window_size_transn | <u>11L</u> | | | | | |
| | Data type: UNSIGNE | =D8 | | | | | |
| | Data type. ONSIGNI | _D0 | | | | | |
| | Authorized value: 11 | to 7 | | | | | |
| | 56 11 1 = | | | | | | |
| | Default value: 7 | | | | | | |

■ Attribute 4: window_size_receive

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

window_size_receive

window_size_receive

Data type: UNSIGNED8 Authorized value: 0 to 1

Default value: 1

■ Attribute 5: max_info_field_length_transmit

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Get Get Get Get - Get

Attribute description

max_info_field_length_transmit

max_info_field_length_transmit

Data type: UNSIGNED16 Authorized value: 768 Default value: 768

■ Attribute 6: max_info_field_length_receive

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

max_info_field_length_receive

max info field length receive

Data type: UNSIGNED16 Authorized value: 240 Default value: 240

■ Attribute 7: inter_octet_time_out

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

inter_octet_time_out

inter_octet_time_out

Defines the time, expressed in ms, over which, when any character is received from the primary station, the device will treat the already received data as a complete frame.

The Utility HDLC Parameter 'inter_char_time_out' value is also used to dimension the IEC1107 intercharacter timeout.

Data type: UNSIGNED16
Authorized value: 1 to 1000

Default value: 110

■ Attribute 8: inactivity_time_out

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

inactivity_time_out

inactivity time out

Defines the time, expressed in seconds over which, when any frame is received from the primary station, the device will process a disconnection.

Data type: UNSIGNED16
Authorized value: 1 to 65535

Default value: 30

■ Attribute 9: device address

Access rights (clients)

Electricity utility Electricity reader Electricity laboratory End customer Manufacturer Resources upgrader Engineer Get/Set Get/Set Attribute description device_address device address Contains the physical device address of a device : - 0x01 .. 0x0F : Reserved for future use - 0x10 .. 0x03FFD : Usable address space - 0x03FFE: CALLER Physical Device Address Data type: UNSIGNED16

Authorized value: 1 to 16382 Default value: 17

2.1.55 UtilityModemDiagnosticParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;144;2;4;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | UtilityModemDiagnosticParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| A ((') | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| ſ | | | | | | |

ModemDiagnosticType

ModemDiagnosticPeriod

ModemDiagnosticPeriod

Period in second between two GSM/GPRS utility modem diagnostic.

Data type: UNSIGNED32 Authorized value: 10 to 86400

Default value: 3600 ModemDiagnosticType

Define which type of diagnostic frame must be used.

Data type: ENUMERATED

Authorized values:

0: NO DIAGNOSTIC

1: SIEMENS_TC65_DIAGNOSTIC

Default value: NO_DIAGNOSTIC (0)

2.1.56 UtilityModemDiagnosticRegister

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;144;2;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Meth | nod (M) | Data type | Content |
|----------------------|---------|-------------|--|
| A1. logical_name | | OCTETSTRING | UtilityModemDiagnosticRegisterOBISCode |
| A2. value | | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

```
SEQUENCE // 7 elements
{
    DiagDateTime
    rs
    MNC
    PWR
    dBm
    RXLev
    ModemStatus
```

DiagDateTime

Date of this diagnoctic

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

rs

Received signal strength indication.

Data type: UNSIGNED8

Authorized value: 0 to 63

Default value: 0

<u>MNC</u>

Mobile Network Code, it corresponds to the operator.

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

PWR

Current power level in dBm

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

dBm

Receiving level of the BCCH carrier (in dBm)

Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0

RXLev

Minimal receiving level (in dBm) to allow registration

Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0 **ModemStatus**

Modem status regarding network and dedicated channel.

The possible values are:

"Searching" (modem is searching a cell) "Cell Rese" (modem is reselecting a cell)

"Low Serv" (only emergency calls are allowed)

"No Conn" (modem is not connected to a distant device)

Data type: VISIBLESTRING Authorized value: Size = 9

Default value:

2.1.57 UtilityModemParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;1;2;2;0;255 | 28 | 0 | 3 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------|
| A1. logical_name | OCTETSTRING | UtilityModemParametersOBISCode |
| A2. mode | ENUMERATED | See below |
| A3. listening_window | ARRAY | See below |
| A4. status | ENUMERATED | See below |
| A5. number_of_calls | UNSIGNED8 | See below |
| A6. number_of_rings | NULL | See below |

■ Attribute 2: mode

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| Attribute description | | | | | | |

Mode

Mode

Complementary informations:

Share line...of calls allowed: Once the number of calls is reached, the window status becomes inactive until the next start date, whatever the result of the call.

Share line...of successful calls allowed: Once the number of successful communications is reached, the window status becomes inactive until next start date.

Direct line: No modem to manage.

APS ON: The modem power supply is "ON", without modem management. APS OFF: The modem power supply is "OFF", without modem management.

Data type: ENUMERATED

Authorized values:

- 0: Dedicated line to the device
- 1: Share line management with limited number of calls allowed
- 2: Share line management with limited number of successful calls allowed
- 3: Direct line 204: APS ON 205: APS OFF

Default value: Dedicated line to the device (0)

■ Attribute 3: listening_window

Access rights (clients)

| | Electricity laboratory | / Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get/Set | Get/Set | Get | Get | Get/Set | - ' | Get |
| | | | | | | | |
| , | Attribute descriptio | n | | | | | |
| | SEQUENCE OF | // 5 elements | | | | | |
| | { | | | | | | |
| | SEQUENCE | // 2 elements | | | | | |
| | { | | | | | | |
| | start_time | | | | | | |
| | end_time | | | | | | |
| | | | | | | | |

start time

Only the fields hour and minutes are managed in these UTC. Other fields are not significative:

- when programmed, they are not taken into account.
- when read, they are equal to 255, excepted 'deviation highbyte' (=128) and 'deviation lowbyte' (=0). Default value : 0h00.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 255;255;255;255;255;0;0;255;255;128;0;255;

end time

Only the fields hour and minutes are managed in these UTC. Other fields are not significative:

- when programmed, they are not taken into account.
- when read, they are equal to 255, excepted 'deviation highbyte' (=128) and 'deviation lowbyte' (=0). Default value : 0h00.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 255;255;255;255;255;0;0;255;255;128;0;255;

■ Attribute 4: status

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Status

Status

Complementary informations:

Inactive: The device will manage no new incoming call. This status is automatically reset to Active when the next listening window starts.

Active: The device can answer to the next incoming call.

Locked: No new incoming call will be accepted in the currend window until next window be opened.

Data type: ENUMERATED

Authorized values:

0: Inactive 1: Active 2: Locked

Default value: Inactive (0)

■ Attribute 5: number_of_calls

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get/Set | Get/Set | Get | Get | Get/Set | | Get |
| | | | | | | | |
| 4 | Attribute description | | | | | | |
| | number_of_calls | | | | | | |
| | | | | | | | |
| | number_of_calls | | | | | | |
| | Data tura LINCIONE | -D0 | | | | | |
| | Data type: UNSIGNE | -D8 | | | | | |
| | Authorized value: 0 t | n 255 | | | | | |
| | 7.00.1200 70.00.0 | .0 200 | | | | | |
| | Default value: 0 | | | | | | |

■ Attribute 6: number_of_rings

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

2.1.58 UtilityModemSetup

These parameters allow to define if a modem can be activated or not on the utility link, the initialisation string for the modem and the modem baudrate.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;1;2;0;0;255 | 27 | 0 | 2 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | UtilityModemSetupOBISCode | |
| A2. comm_speed | ENUMERATED | See below | |
| A3. initialization_string | ARRAY | See below | |
| A4. modem_profile | ARRAY | See below | |

■ Attribute 2: comm_speed

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | = | Get |
| | | | | | | |
| Attribute description | | | | | | |
| comm_speed | | | | | | |
| comm_speed | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized values: | | | | | | |
| 2: 1200 bauds | | | | | | |
| 3: 2400 bauds | | | | | | |
| 4: 4800 bauds | | | | | | |
| 4. 4000 bauus | | | | | | |

5: 9600 bauds 6: 19200 bauds

Default value: 2400 bauds (3)

■ Attribute 3: initialization_string

"initialization_string" is an ordered array to send to the modem for its initialization.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|--|--------------------|--------------|---------------|--------------------|----------|--|--|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get | | |
| Attribute description | | | | | | | | |
| SEQUENCE OF { | // 5 elements | | | | | | | |
| SEQUENCE OF { | // 2 elements | ("Array Of" | view as "Sec | quence" in | get only) | | | |
| RequestAndRe | sponse | | | | | | | |
| } | | | | | | | | |
| RequestAndRespon | <u>nse</u> | | | | | | | |
| | Request Default value of request in the first init string: "ATX3&D0S0=2" Default value of request for other init strings: "" | | | | | | | |
| Init string response reading the UtilityM Size octet string = 9 | lodemSetup object. | | the response | e is always e | qual to 'NOT USE | D' when | | |
| Data type: OCTETS | STRING | | | | | | | |

Data type. OCTETSTRING

Authorized value: Decoded as ASCII (Size = 27)

■ Attribute 4: modem_profile

"modem_profile" is an ordered array of octet-strings, which position allows to determine the answer of the modem.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | = | Get |

Attribute description

modem profile

Default values are listed below:

- · location 0 : OK
- · location 1 : CONNECT
- · location 2: RING
- · location 3: NO CARRIER
- · location 4 : ERROR
- location 5: NOT USED
- · location 6 : NO DIALTONE
- · location 7: BUSY
- · location 8 : NO ANSWER
- locations 9 to 16: NOT USED.

Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 27)

2.1.59 UtilityRemoteReportParameters1

This object holds the parameters relative to remote address when meter utility modem is used to send out a given alarm. It allows to select the alarm notification mode(s) (email, SMS and/or PSTN auto dialing). The format is the same for each of three possible remote addresses.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;1;2;1;0;255 | 29 | 0 | 2 | 0 | False | False | False |

Logical devices:

| | 9 | | |
|----|-------------------|-------------|--------------|
| | Management | Electricity | End customer |
| | True | True | False |
| At | ttributes / Metho | ds | |

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--|--|
| A1. logical_name | OCTETSTRING | UtilityRemoteReportParameters1OBISCode | |
| A2. mode | ENUMERATED | See below | |
| A3. repetitions | UNSIGNED8 | See below | |
| A4. repetition_delay | UNSIGNED16 | See below | |
| A5. calling_window | NULL | See below | |
| A6. phone_list | ARRAY | See below | |

■ Attribute 2: mode

Defines the alarm notification mode.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

Mode

Mode

Complementary information:

- 0 : => Erasing of the current remote address parameters (no selected mode)
- 3 : PSTN auto dialing used for alarm notification is not allowed.
- 6 : Email programming is not allowed (for the Utility channel).

Data type: ENUMERATED

Authorized values: 0: No selected mode

4: SMS used for alarm notification Default value: No selected mode (0)

■ Attribute 3: repetitions

Not used (used only in PSTN mode).

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

repetitions

repetitions

Not used (used only in PSTN mode).

Data type: UNSIGNED8 Authorized value: 0 Default value: 0

■ Attribute 4: repetition_delay

Delay between two consecutive attempts when the former attempt failed.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |
| Attribute description | | | | | | |

repetition_delay

repetition delay

This delay is common to the 3 alarm notification media and is not linked to the channel:

- Unit : sec ; default value : 6h Data type: UNSIGNED16 Authorized value: 1 to 65535

Default value: 21600

■ Attribute 5: calling_window

Not used.

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | - | - | - | - | - | - | - |
| | Attribute description | | | | | | |
| 1 | Attribute description | | | | | | |

Data type: NULL Authorized value: Default value:

■ Attribute 6: phone_list

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| 1 | Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

```
SEQUENCE OF // 0..3 elements {
   Address
}
```

Address

PROGRAMMATION

Only one address can be programmed at once (1 element in the array).

This address is relative to the mode programmed in the same programming sequence (ended by a validate) and not to the current mode of the device.

Several addresses can take place in the same programming sequence.

LECTURE

When read, this array will contain all the valid programmed addresses

related to the concerned channel, whatever the mode is => 3 elements max (one per mode).

When no mode is selected, an array of 0 element is read.

According to the corresponding mode, max length of the address is :

- 15 characters for PSTN and SMS

Default value : empty array Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 63)

Default value:

2.1.60 UtilityRemoteReportParameters2

This object holds the parameters relative to remote address when meter utility modem is used to send out a given alarm. It allows to select the alarm notification mode(s) (email, SMS and/or PSTN auto dialing). The format is the same for each of three possible remote addresses.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;2;2;1;0;255 | 29 | 0 | 2 | 0 | False | False | False |

Logical devices:

| - | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | UtilityRemoteReportParameters2OBISCode |
| A2. mode | ENUMERATED | See below |
| A3. repetitions | UNSIGNED8 | See below |
| A4. repetition_delay | UNSIGNED16 | See below |
| A5. calling_window | NULL | See below |
| A6. phone_list | ARRAY | See below |

■ Attribute 2: mode

Defines the alarm notification mode.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |
| | | | | | | |

Attribute description

Mode

Mode

Complementary information:

- 0 : => Erasing of the current remote address parameters (no selected mode)
- 3 : PSTN auto dialing used for alarm notification is not allowed.
- 6: Email programming is not allowed (for the Utility channel).

Data type: ENUMERATED

Authorized values:

0: No selected mode

4: SMS used for alarm notification

Default value: No selected mode (0)

■ Attribute 3: repetitions

Not used (used only in PSTN mode).

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| L | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |

Attribute description

repetitions

repetitions

Not used (used only in PSTN mode).

Data type: UNSIGNED8
Authorized value: 0
Default value: 0

■ Attribute 4: repetition_delay

Delay between two consecutive attempts when the former attempt failed.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

repetition_delay

repetition delay

This delay is common to the 3 alarm notification media and is not linked to the channel:

- Unit : sec ; default value : 6h
 Data type: UNSIGNED16
 Authorized value: 1 to 65535

Default value: 21600

■ Attribute 5: calling_window

Not used.

Access rights (clients)

Authorized value:

| • | ` , | | | | | | |
|--------------|------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity | laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| _ | | - | - | - | - | - | - |
| Attribute de | escription | | | | | | |
| Data type | : NULL | | | | | | |

Default value:

■ Attribute 6: phone list

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

```
SEQUENCE OF // 0..3 elements {
   Address
}
```

Address

PROGRAMMATION

Only one address can be programmed at once (1 element in the array).

This address is relative to the mode programmed in the same programming sequence (ended by a validate) and not to the current mode of the device.

Several addresses can take place in the same programming sequence.

LECTURE

When read, this array will contain all the valid programmed addresses

related to the concerned channel, whatever the mode is => 3 elements max (one per mode).

When no mode is selected, an array of 0 element is read.

According to the corresponding mode, max length of the address is :

- 15 characters for PSTN and SMS

Default value : empty array
Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 63)

Default value:

2.1.61 UtilityRemoteReportParameters3

This object holds the parameters relative to remote address when meter utility modem is used to send out a given alarm. It allows to select the alarm notification mode(s) (email, SMS and/or PSTN auto dialing). The format is the same for each of three possible remote addresses.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;3;2;1;0;255 | 29 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------------------|------------------|--------------|--|
| True | True | False | |
| Attributes / Meth | nods | | |
| Attribute (A) / Method | d (M) | Data type | Content |
| A1. logical_name | A1. logical_name | | UtilityRemoteReportParameters3OBISCode |
| A2. mode | | ENUMERATED | See below |
| A3. repetitions | | UNSIGNED8 | See below |
| A4. repetition_delay | | UNSIGNED16 | See below |
| A5. calling_window | | NULL | See below |
| A6. phone_list | | ARRAY | See below |

■ Attribute 2: mode

Defines the alarm notification mode.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

Mode

Mode

Complementary information:

- 0 : => Erasing of the current remote address parameters (no selected mode)
- 3: PSTN auto dialing used for alarm notification is not allowed.
- 6: Email programming is not allowed (for the Utility channel).

Data type: ENUMERATED

Authorized values:

0: No selected mode

4: SMS used for alarm notification

Default value: No selected mode (0)

■ Attribute 3: repetitions

Not used (used only in PSTN mode).

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| ۸ 44سالم عام ما معانيه 4 | | | | | | |
| Attribute description | | | | | | |
| repetitions | | | | | | |
| repetitions | | | | | | |
| repetitions | | | | | | |
| Not used (used only | in PSTN mode). | | | | | |
| | | | | | | |

Data type: UNSIGNED8 Authorized value: 0

Default value: 0

■ Attribute 4: repetition_delay

Delay between two consecutive attempts when the former attempt failed.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| repetition delay | | | | | | |

repetition_delay

repetition delay

This delay is common to the 3 alarm notification media and is not linked to the channel:

- Unit : sec ; default value : 6h Data type: UNSIGNED16 Authorized value: 1 to 65535

Default value: 21600

■ Attribute 5: calling_window

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 6: phone_list

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

```
SEQUENCE OF // 0..3 elements {
   Address
}
```

Address

PROGRAMMATION

Only one address can be programmed at once (1 element in the array).

This address is relative to the mode programmed in the same programming sequence (ended by a validate) and not to the current mode of the device.

Several addresses can take place in the same programming sequence.

LECTURE

When read, this array will contain all the valid programmed addresses

related to the concerned channel, whatever the mode is => 3 elements max (one per mode).

When no mode is selected, an array of 0 element is read.

According to the corresponding mode, max length of the address is :

- 15 characters for PSTN and SMS

Default value : empty array Data type: OCTETSTRING

Authorized value: Decoded as ASCII (Size = 63)

Default value:

2.2 Cosem profiles

2.2.1 CustomerModemDiagnosticElement

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;130;11;25 | 7 | 1 | 1 | 0 | ROM | 1 | 0 | 24 | 24 | 24 |
| 5 | | | | | | | | | | |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | CustomerModemDiagnosticElementOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| 1 | Attribute description | n | | | | | |
| | SEQUENCE OF { | // 24 elements | | | | | |
| | SEQUENCE | // 1 elements | | | | | |
| | { | | | | | | |
| | CustomerMoo | demDiagnosticRegi | ster (Att. 1d: | 2, Abs. Ni | umber: 1) | | |
| | } | | | | | | |
| | } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (CustomerModemDiagnosticRegister): Obis_code = 0;0;144;2;1;255, Class_id = 1, Attribute_index = 2, Data_index = 0

| Get Get Get Get Get - C Attribute description SEQUENCE OF // 1 elements { SEQUENCE // 4 elements { Class_id Obis_code Attribute_index Data_index } } Class id | |
|--|-----|
| <pre>SEQUENCE OF // 1 elements { SEQUENCE</pre> | Get |
| <pre>{ SEQUENCE</pre> | |
| <pre>SEQUENCE // 4 elements { Class_id Obis_code Attribute_index Data_index }</pre> | |
| | |
| Class id | |
| <u> </u> | |
| Data type: UNSIGNED16 | |
| Authorized value: 0 to 65535 | |
| Default value: 0 | |
| Obis_code | |
| Data type: OCTETSTRING | |
| Authorized value: Decoded as Decimal (Size = 6) | |
| Default value: 0;0;0;0;0;0; | |
| Attribute_index | |
| Data type: INTEGER8 | |
| Authorized value: -128 to 127 | |
| Default value: 0 | |
| <u>Data_index</u> | |

Data type: UNSIGNED16

Authorized value: 0 to 65535

D (11)

Default value: 0

2.2.2 UtilityModemDiagnosticElement

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;130;12;25
5 | 7 | 1 | 1 | 0 | ROM | 1 | 0 | 24 | 24 | 24 |

Logical devices:

Management Electricity End customer
True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | UtilityModemDiagnosticElementOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | y Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | on | | | | | |
| SEQUENCE OF { | // 24 elements | | | | | |
| SEQUENCE | // 1 elements | | | | | |
| { | | | | | | |
| UtilityMod | emDiagnosticRegis | ter (Att. Id: | 2, Abs. Nu | mber: 1) | | |
| } | | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (UtilityModemDiagnosticRegister): Obis_code = 0;0;144;2;2;255, Class_id = 1, Attribute_index = 2, Data_index = 0

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                        End customer Manufacturer Resources upgrader Engineer
        Get
                            Get
                                             Get
                                                            Get
                                                                         Get
                                                                                                      Get
Attribute description
 SEQUENCE OF
                    // 1 elements
   SEQUENCE
                   // 4 elements
     Class_id
     Obis_code
     Attribute_index
     Data_index
 Class_id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
```

Default value: 0

Obis_code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

3 Control Input

3.1 Cosem objects

3.1.1 ControlInputOffsetParameters

This parameter depends on Auxiliary Board. It defines the position of the first Control Input in the input buffer.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;138;0;3;255 | 1 | 0 | 1 | 0 | True | True | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ControlInputOffsetParametersOBISCode |
| A2. value | UNSIGNED8 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| IOBoardType | | | | | | |

IOBoardType

Data type: UNSIGNED8

Authorized values: 2: light IO board 4: full IO board

Default value: full IO board (4)

3.1.2 ControlInputParameters

This object allows the setting of the control input configuration.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;138;0;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------|
| A1. logical_name | OCTETSTRING | ControlInputParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

```
SEQUENCE  // 4 elements
{
   AuthorizedIndex
   AuthorizedDayProfile
   AuthorizedSeason
   EOBConfig
}
```

AuthorizedIndex

Each bit is relative to a specific index: the element i in the bitstring indicates if the index i is allowed or not from control input (bit = 1: authorized, bit=0: not authorized).

Data type: BITSTRING

Authorized values:

Size = 50

ViewAsType = BitString

Default value:

<u>AuthorizedDayProfile</u>

Each bit is relative to a specific day profile: the element i in the bitstring indicates if the day profile i is allowed or not from control input (bit = 1: authorized, bit=0: not authorized).

Data type: BITSTRING

Authorized values:

Size = 24

ViewAsType = BitString

AuthorizedSeason

Each bit is relative to a specific season: the element i in the bitstring indicates if the season i is allowed or not from control input (bit = 1: authorized, bit=0: not authorized).

Data type: BITSTRING

Authorized values:

Size = 12

ViewAsType = BitString

Default value: 0;0;0;0;0;0;0;0;0;0;0;0;0;

EOBConfig

- TRUE = change over contact
- FALSE = single contact

Data type: BOOLEAN

Authorized values:

0: FALSE

1: TRUE

Default value: 0: FALSE

3.1.3 ControlInputPhysicalParameters

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;138;0;1;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

| | Management | Electricity | End customer | | |
|----------------------|----------------------|-------------|--------------|--|--|
| | True | False | False | | |
| Attributes / Methods | | | | | |
| A | ttribute (A) / Metho | od (M) | Data type | | |
| A. | 1. logical_name | ` , | OCTETSTRING | | |
| A′ | 2. value | | SEQUENCE | | |

■ Attribute 2: value

The object ControlInputPhysicalParameters is modified in order to manage on the first input, the magnet detection.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | ∟ngineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

ControlInputActiveLevel

ControlInputMapping

SEQUENCE // 2 elements

ControlInputMapping

SEQUENCE OF // 8 elements

The value to select is the functionnality (from 0 to 24 or 255 for "Not affected") to associate to the physical input

The element 0 of the array is for the physical input 1, ..., and the element 7 of the array is for the physical input 8.

If magnet sensor is managed by the meter, the functionnality "magnet detection" can be managed only on the first input and

in that case, any other function can be affected to this input.

Data type: UNSIGNED8

Authorized values:

- 0: Index bit 0
- 1: Index bit 1
- 2: Index bit 2
- 3: Index bit 3
- 4: Index bit 4
- 5: Index bit 5
- 6: Day profile bit 0
- 7: Day profile bit 1
- 8: Day profile bit 2
- 9: Day profile bit 3
- 10: Day profile bit 4
- 11: Season bit 0
- 12: Season bit 1
- 13: Season bit 2
- 14: Season bit 3
- 15: Pulse 1 direction
- 16: Pulse 2 direction
- 17: Pulse 3 direction
- 18: Pulse 4 direction
- 19: Alarm
- 20: EOB 1
- 21: EOB 2
- 22: EOI

23: Clock synchro

24: Display button

25: Magnet sensor 255: Not affected

Default value: Not affected (255)

<u>ControlInputActiveLevel</u>

- bit 0 logic of input 1

- ... - bit 7 logic of input 8

Value "0" only accepted for Magnet sensor input, value "0" or "1" for the other inputs.

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

4 Control Output

4.1 Cosem objects

4.1.1 ControlOuputPhysicalParameters

This object is intended for the physical control outputs configuration.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;139;0;1;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | ControlOuputPhysicalParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| | | | | | | |

Attribute description

ControlOutputMapping

Defines for each output functionnality, if a physical output is allocated to it or not.

List of the 21 output functionnality, in the array:

- element 0 Logical control output 1 in index table
- element 1 Logical control output 2 in index table
- element 2 Logical control output 3 in index table
- element 3 Logical control output 4 in index table
- element 4 Logical control output 5 in index table
- element 5 Logical control output 6 in index table
- element 6 Logical control output 7 in index table
- element 7 Logical control output 8 in index table
- element 8 Pulse output 1 direction
- element 9 Pulse output 2 direction
- element 10 Pulse output 3 direction
- element 11 Pulse output 4 direction
- element 12 Pulse output 5 direction
- element 13 Pulse output 6 direction
- element 14 alarm
- element 15 excess demand
- element 16 EOB1
- element 17 EOB2
- element 18 EOI
- element 19 Clock synchro

- element 20 Phase cut

Only 8 functionnalities (among 21) can be associated to the outputs.

Each output can be allocated to only one functionnality.

Data type: UNSIGNED8

Authorized values:

0: Physical output 1

1: Physical output 2

2: Physical output 3

3: Physical output 4

4: Physical output 5

5: Physical output 6

6: Physical output 7

7: Physical output 8

255: Not affected

Default value: Not affected (255)

ControlOutputActiveLevel

- bit 0 logic of output 1

- ...

- bit 7 logic of output 8

For each bit, value "1" = positive and value "0" = negative.

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 207

4.1.2 ControlOutputEOIDecouplingTimeParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;139;0;3;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Ma | anagement | Electricity | End customer |
|----|-----------|-------------|--------------|
| | True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | ControlOutputEOIDecouplingTimeParametersOBISCode |
| A2. value | UNSIGNED8 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

Decouplingtime

Decouplingtime

in seconds

Data type: UNSIGNED8 Authorized value: 1 to 9

Default value: 1

4.1.3 ControlOutputParameters

This parameter defines the EOB contact working mode.

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration | Restrictive | MID
compliance |
|-----------------|----------|---------------|--------------------|----------|---------------|-------------|-------------------|
| | | | Hullibei | | parameter | programming | compliance |
| 0;0;139;0;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer

True False False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | ControlOutputParametersOBISCode |
| A2. value | BOOLEAN | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

EOBOutputType

EOBOutputType

TRUE = change over contact, FALSE = single contact

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

5 Database

5.1 Cosem objects

5.1.1 CompleteExtFirmwareIdParameters

This object holds the firmware revision of the external code memory. It is a read only object because this information is "hard coded" in the firmware.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;142;1;3;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|---|
| A1. logical_name | OCTETSTRING | CompleteExtFirmwareIdParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | Get | Get |

Attribute description

CompleteExternalFirmwareRevision

CompleteExternalFirmwareRevision

"XX.Yyt.ZZ" where:

- XX is the major firmware revision
- Yyt is the minor firmware revision
- ZZ is the logical device revision

Example: « 01.10a.00 »

Data type: VISIBLESTRING

Authorized value: Size = 9

Default value:

5.1.2 CompleteIntFirmwareIdParameters

This object holds the firmware revision of the internal code memory. It is a read only object because this information is "hard coded" in the firmware.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;142;1;4;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Logical devices. | | | | | | |
|------------------|------------|-------------|--------------|--|--|--|
| | Management | Electricity | End customer | | | |
| | True | True | False | | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|---|
| A1. logical_name | OCTETSTRING | CompleteIntFirmwareIdParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader
Get | Engineer
Get |
|---|-------------------------|---------------------------|---------------------|---------------------|---------------------------|-----------------|
| Attribute description | | | | | | |
| InternalFirmware | Revision | | | | | |
| InternalFirmwareRe | <u>vision</u> | | | | | |
| "XX.Yyt" where : - XX is the major firr - Yyt is the minor firr Example : «04.02a » | nware revision | | | | | |
| Data type: VISIBLES | STRING | | | | | |
| Authorized value: Si | ze = 6 | | | | | |
| Default value: | | | | | | |

5.1.3 DisplayReadOutTableParameters

False

This object defines the selected information to be sent in the 1107 readout and data, displayed in the three display modes.

The code to display (or transmit on the read out) is also defined in this object.

NB: at least, one element must be defined in the 'sequence of'.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;21;0;0;255 | 1 | 0 | 11 | 0 | False | True | False |
| Logical devices : | | | | | | | |
| Management | El | ectricity | End customer | | | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | DisplayReadOutTableParametersOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

| Electricity laboratory Get/Set | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get/Set | Resources upgrader | Engineer
Get | | | | |
|--|---|---------------------------|---------------------|-------------------------|--------------------|-----------------|--|--|--|--|
| Attribute description | | | | | | | | | | |
| SEQUENCE OF | // 1100 eleme | ents | | | | | | | | |
| SEQUENCE | // 7 elements | | | | | | | | | |
| SequenceInd | { InternalIdentifier SequenceIndicator | | | | | | | | | |
| Scaler | IdentificationCode
Scaler
NumberOfDecimal | | | | | | | | | |
| NumberOfdisplayableDigit
dividedBy100 | | | | | | | | | | |
| } | | | | | | | | | | |
| <u>InternalIdentifier</u> | | | | | | | | | | |

See Id listing in XMI (meter interface)

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0 SequenceIndicator

Data type: BITSTRING

Authorized values:

Size = 8

ViewAsType = BitString BIT 0: ReadoutIndicator

BIT 1: NormalSequenceIndicator BIT 2: AlternateShortIndicator BIT 3: AlternateLongIndicator BIT 4: SetAbleIndicator

BIT 5: Not used BIT 6: Not used BIT 7: Not used

Default value: 0;0;0;0;0;0;0;0;0;

IdentificationCode

Identification code of the data. Data type: VISIBLESTRING Authorized value: Size = 8

Default value:

Scaler

Data type: UNSIGNED8

Authorized values:

0:0 3: 3 6:6 9:9

Default value: 0 (0) <u>NumberOfDecimal</u>

Data type: UNSIGNED8 Authorized value: 0 to 4

Default value: 0

NumberOfdisplayableDigit

Can take following discrete values: 3,4, 5, 6, 7, 8 or 9 If the meter is MIDComplianceParameters = TRUE

, then for TER register (ID_TOTAL_ENERGY_IMP_ACT_ENERGY_PH1,

ID_TOTAL_ENERGY_IMP_ACT_ENERGY_PH2, ID_TOTAL_ENERGY_IMP_ACT_ENERGY_PH3, ID_TOTAL_ENERGY_IMP_ACT_ENERGY_AGG, ID_TOTAL_ENERGY_EXP_ACT_ENERGY_PH1, ID_TOTAL_ENERGY_EXP_ACT_ENERGY_PH2, ID_TOTAL_ENERGY_EXP_ACT_ENERGY_PH3, ID_TOTAL_ENERGY_EXP_ACT_ENERGY_AGG), only value 9 is autorised.

Data type: UNSIGNED8 Authorized value: 3 to 9

Default value: 9

dividedBy100

this parameter is always equal to False if the meter is not UFER.

if the meter is UFER, it is possible to set this parameter to True or False.

True means that the real value of the register is divided by 100.

This parameter is only valid if the displayed value is an energy regsiter. This control is only done in the configuration tools and not in the meter.

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

5.1.4 DownloadProtectionParameters

A manufacturer parameter allows to define if the firmware download can be performed cover closed or not.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;142;2;1;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | | |
|------------|-------------|--------------|--|--|
| True | False | False | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | DownloadProtectionParametersOBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | _ | - | Get | Get/Set | - | Get |

Attribute description

DownloadProtectionParameter

<u>DownloadProtectionParameter</u>

If MIDComplianceParameters = TRUE, only AMBER_DOWNLOAD_PROTECTED is authorized. In case of flash memory completely erased (no manufacturer parameters recorded), the default value is 0xFFFF, so the default mode is AMBER_DOWNLOAD_NOT_PROTECTED (the firmware download can be performed cover closed).

Data type: UNSIGNED16

Authorized values:

257: AMBER DOWNLOAD PROTECTED

65535: AMBER_DOWNLOAD_NOT_PROTECTED

Default value: AMBER DOWNLOAD NOT PROTECTED (65535)

5.1.5 ExtFirmwareIdParameters

This object holds the firmware revision of the external code memory. It is a read only object because this information is "hard coded" in the firmware. The reading format is different from the previous one.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;142;1;1;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | ExtFirmwareIdParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|---------------------------|-----------------------|--------------------|------------------|---------------|--------------------|----------|--|--|--|
| Get | Get | Get | Get | Get | Get | Get | | | |
| Attribute description | | | | | | | | | |
| SEQUENCE //: | 2 elements | | | | | | | | |
| _ | FirmwareMajorRevision | | | | | | | | |
| FirmwareMinorRe | evision | | | | | | | | |
| } | | | | | | | | | |
| <u>FirmwareMajorRevis</u> | <u>sion</u> | | | | | | | | |
| Equal to XX of the o | bject 'CompleteE | kternalFirmwareF | Revision'. | | | | | | |
| Data type: UNSIGN | ED8 | | | | | | | | |
| Authorized value: 0 | to 255 | | | | | | | | |
| Default value: 0 | | | | | | | | | |
| FirmwareMinorRevi | <u>sion</u> | | | | | | | | |
| Equal to YY of the o | bject 'CompleteEx | ternalFirmwareF | Revision', the r | numerical fie | lds only. | | | | |
| Data type: UNSIGN | ED8 | | | | | | | | |
| Authorized value: 0 | to 255 | | | | | | | | |

5.1.6 HardwareParameters

This object is only used to store hardware information but it is not used by firmware. This object is only programmed in process in manufacturer client.

The syntactic control must be done by the tool.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;142;3;1;255 | 1 | 0 | 12 | 0 | True | False | True |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

Default value: 0

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | HardwareParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get/Set | Get/Set | Get |
| | | | | | | |

Attribute description

```
SEQUENCE // 6 elements
  EnergyActiveClass
  SEQUENCE // 2 elements
    CurrentRating.Iref
    CurrentRating.Imax
  ConnectionType
  SEQUENCE // 2 elements
    CommunicationPort.TypePort1
    CommunicationPort.TypePort2
  VoltageRange
  MagnetSensorBoard
EnergyActiveClass
Data type: UNSIGNED8
Authorized values:
1: CI 0.2
2: CI 0.5
3: CI 1
4: CI A
5: CI B
6: CI C
Default value: CI 0.5 (2)
CurrentRating.Iref
the values are programmed in tenth A( 15 means 1,5 A).
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 100
CurrentRating.Imax
the values are programmed in tenth A( 15 means 1,5 A).
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 600
ConnectionType
Data type: UNSIGNED8
Authorized values:
1: USE
2: VDE
Default value: VDE (2)
CommunicationPort.TypePort1
Data type: UNSIGNED8
Authorized values:
0: Nothing
1: RS232
```

2: RS485 3: TCP/IP

Default value: RS232 (1)

CommunicationPort.TypePort2

Data type: UNSIGNED8

Authorized values:

0: Nothing 1: RS232 2: RS485

3: TCP/IP

Default value: RS232 (1)

VoltageRange

Data type: UNSIGNED8

Authorized values: 1: 57.7V-100V 2: 127V-220V 3: 230V-400V 4: Auto ranging

Default value: 230V-400V (3)

MagnetSensorBoard

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

5.1.7 HardwareResetInhibitionParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;142;6;1;255 | 1 | 0 | 1 | 0 | True | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | HardwareResetInhibitionParametersOBISCode |
| A2. value | ENUMERATED | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get/Set | Get/Set | Get |

Attribute description

 ${\tt HardwareResetInhibition}$

HardwareResetInhibition

No Inhibition : Hardware reset processing can be done Inhibition : Hardware reset processing cannot be done

Data type: ENUMERATED

Authorized values: 0: NO_INHIBITION 1: INHIBITION

Default value: NO_INHIBITION (0)

5.1.8 InternalDevelopmentVersion

Indicates the internal development version

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;144;1;1;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|------------------------------------|
| A1. logical_name | OCTETSTRING | InternalDevelopmentVersionOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

InternalDevelopmentVersion

<u>InternalDevelopmentVersion</u>

"XX.YY" where:

- XX is the major number (validation)

- YY is the minor number (integration)

Example: « 01.03 »

Data type: VISIBLESTRING Authorized value: Size = 5

Default value:

5.1.9 IntFirmwareIdParameters

This object holds the firmware revision of the internal code memory. It is a read only object because this information is "hard coded" in the firmware.

Interface

| Logical nar | me Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|--------------|-------------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;142;1;2; | 255 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | IntFirmwareIdParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | - |
|------------------------|---------------------|--------------------|-----------------|---------------|--------------------|-----|
| Get | Get | Get | Get | Get | Get | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| { | | | | | | |
| FirmwareMajorRe | | | | | | |
| } | 20131011 | | | | | |
| FirmwareMajorRevis | sion | | | | | |
| • | | 5 | | | | |
| Equal to XX of the o | bject Completein | iternalFirmwareR | evision'. | | | |
| Data type: UNSIGN | ED8 | | | | | |
| Authorized value: 0 | to 255 | | | | | |
| Default value: 0 | | | | | | |
| FirmwareMinorRevis | sion . | | | | | |
| Equal to YY of the o | bject 'CompleteIn | ternalFirmwareR | evision', the n | umerical fiel | ds only. | |
| Data type: UNSIGNI | ED8 | | | | | |
| Authorized value: 0 | to 255 | | | | | |
| Default value: 0 | | | | | | |

5.1.10 LongSerialNumber

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|--------------------|------------------|---------------|-----------------|-----------|----------------------------|-------------------------|----------------|
| 0;0;96;1;2;255 | 1 | 0 | 1 | 0 | True | True | False |
| Logical device | es : | | | | | | |
| Management | El | ectricity | End customer | | | | |
| True | | True | True | | | | |
| Attributes / N | lethods | | | | | | |
| Attribute (A) / Me | ethod (M) | | Data | type | Content | | |
| A1. logical_name | A1. logical_name | | OCT | ETSTRING | G LongSerialNumberOBISCode | | |
| A2. value | | | VISI | BLESTRING | See below | | |

■ Attribute 2: value

Access rights (clients)

| • , | • | | | | | | | | | |
|-------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
| Get | Get | Get | Get | Get/Set | Get | Get | | | | |
| Attribute description | | | | | | | | | | |
| LongSerialNumber | | | | | | | | | | |
| <u>LongSerialNumber</u> | | | | | | | | | | |
| Default value : sn00 | 00000000000 | | | | | | | | | |
| Data type: VISIBLES | STRING | | | | | | | | | |
| Authorized value: Si | ze = 16 | | | | | | | | | |
| Default value: sn000 | 00000000000 | | | | | | | | | |

5.1.11 ManufacturerIdParameters

This object contains an ID which is manufacturer specific.

| Logical name | Class Id | Class version | Absolute | e Local Id Configuration | | Restrictive | MID |
|-----------------|----------|---------------|----------|--------------------------|-----------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;142;0;3;255 | 1 | 0 | 1 | 0 | True | True | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ManufacturerIdParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Access rights (chefits | ·) | | | | | | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
| Get | Get | Get | Get | Get/Set | - | Get | | | |
| Attribute description | | | | | | | | | |
| ManufacturerId | ManufacturerId | | | | | | | | |
| ManufacturerId | | | | | | | | | |
| Data type: VISIBLE | STRING | | | | | | | | |
| Authorized value: S | ize = 8 | | | | | | | | |

5.1.12 MeterTypeIdentification

Default value: manuf id

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;142;4;1;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | MeterTypeIdentificationOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | Get | Get |
| A 11-11-11-11-11-11-11-11-11-11-11-11-11- | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE // | 20 elements | | | | | |
| { | | | | | | |
| SAP | | | | | | |
| InternalFirmwa | reRevision | | | | | |
| ExternalFirmwa | reRevision | | | | | |
| InternalChecks | um | | | | | |
| ExternalChecks | um | | | | | |
| MIDComplianceP | arameters | | | | | |
| CurrentConnect | ionParameters | | | | | |
| EnergyActiveCl | ass | | | | | |
| SEQUENCE / | / 2 elements | | | | | |
| ſ | | | | | | |

```
Iref_CurrentRating
    IMax_CurrentRating
  ConnectionType
  CommunicationTypePort1
  CommunicationTypePort2
 VoltageRange
 ControlOutputNumber
  ControlInputNumber
 PulseOutputNumber
 PulseInputNumber
 NominalFrequency
 ConnectionTopology
  AuthorisationImaxInTERParameters
SAP
Data type: VISIBLESTRING
Authorized value: Size = 6
Default value:
InternalFirmwareRevision
Data type: VISIBLESTRING
Authorized value: Size = 6
Default value:
ExternalFirmwareRevision
Data type: VISIBLESTRING
Authorized value: Size = 6
Default value:
InternalChecksum
Data type: VISIBLESTRING
Authorized value: Size = 8
Default value:
ExternalChecksum
Data type: VISIBLESTRING
Authorized value: Size = 8
Default value:
MIDComplianceParameters
TRUE: the meter is MID compliant.
Data type: BOOLEAN
Authorized values:
0: FALSE
```

222 / 948

1: TRUE

Default value: 0: FALSE

<u>CurrentConnectionParameters</u>

FALSE: Direct connection, TRUE: Transformer connection

Data type: BOOLEAN Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE
EnergyActiveClass

Data type: UNSIGNED8

Authorized values:

1: CI 0.2 2: CI 0.5 3: CI 01 4: CI A 5: CI B

5: CI B 6: CI C

Default value: Cl 0.5 (2)

<u>Iref_CurrentRating</u>

CurrentRating: the values are programmed in tenth A(15 means 1,5 A).

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 100

IMax CurrentRating

CurrentRating: the values are programmed in tenth A(15 means 1,5 A).

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 600 ConnectionType

Data type: UNSIGNED8

Authorized values:

1: USE 2: VDE

Default value: VDE (2)

<u>CommunicationTypePort1</u>

Data type: UNSIGNED8

Authorized values:

0: Nothing 1: RS232 2: RS485 3: TCP/IP

Default value: RS232 (1)

<u>CommunicationTypePort2</u>

Data type: UNSIGNED8

Authorized values:

0: Nothing

1: RS232

2: RS485

3: TCP/IP

Default value: RS232 (1)

VoltageRange

Data type: UNSIGNED8

Authorized values: 1: [57.7V-100V] 2: [127V-220V] 3: [230V-400V]

4: Auto ranging

Default value: [230V-400V] (3)

ControlOutputNumber

Data type: UNSIGNED8 Authorized value: 0 to 8

Default value: 4
ControlInputNumber

Data type: UNSIGNED8 Authorized value: 0 to 8

Default value: 2
PulseOutputNumber

Data type: UNSIGNED8
Authorized value: 0 to 4

Default value: 4
PulseInputNumber

Data type: UNSIGNED8 Authorized value: 0 to 6

Default value: 6
NominalFrequency

Data type: UNSIGNED16

Authorized values: 5000: 50 Hz 6000: 60 Hz

Default value: 50 Hz (5000)

<u>ConnectionTopology</u>

Data type: UNSIGNED8

Authorized values:

3: 3 wires 4: 4 wires

Default value: 4 wires (4)

AuthorisationImaxInTERParameters

TRUE: Imax in TER when Magnet sensor detection.

FALSE: Inhibition of Imax in TER when Magnet sensor detection.

Data type: BOOLEAN Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

5.1.13 MIDCompliance Parameters

This object indicates if the meter is MID compliant or not.

If parameter is set to true, it allows programming of "MID compliant" parameters only if laboratory switch is activated.

Parameters concerned by this programming restriction are identified in XMI,

by the 'MID compliance' column.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;142;5;1;255 | 1 | 0 | 1 | 0 | True | False | True |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | MIDComplianceParametersOBISCode |
| A2. value | BOOLEAN | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get/Set | Get/Set | Get |

Attribute description

MIDComplianceParameters

MIDComplianceParameters

Meter is MID compliant when set to TRUE.

When MIDComplianceParameters is set to TRUE:

- DownloadProtectionParameters is forced to AMBER_DOWNLOAD_PROTECTED.
- AuthorisationImaxInTERParameters is forced to FALSE.

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

5.1.14 ResourcesIdParameters

This object defines the resources configuration of the meter. It can only be programmed with the laboratory switch set.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;142;0;2;255 | 1 | 0 | 2 | 0 | True | False | True |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | ResourcesIdParametersOBISCode |
| A2. value | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get/Set | Get/Set | Get |

Attribute description

ResourceId

Resourceld

This octet string contents the resources defined in the following way (one byte each):

- Control input number // 0..8
- Control output number // 0..8
- Pulse input number // 0..4
- Pulse output number // 0..6
- Voltage quality // 0 : disabled ; 1 : enabled
- Channels and rates resources level // 0..4 : see table below

The resources which do not need to be set during a programming will be set to wildcard (0xFF)

- Channels and rates resources levels 0 1 2 3 4
- Demand channels resources 2 3 6 6 10
- Demand registers resources 4 7 15 18 24
- Energy channels resources 2 3 6 6 10
- Energy registers resources 4 10 24 24 32
- Load profile channels resources 0 3 5 6 8

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 2;4;4;6;0;4;

5.1.15 SerialNumber

This object contains the serial number of the meter.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;1;0;255 | 1 | 0 | 1 | 0 | True | True | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|----------------------|
| A1. logical_name | OCTETSTRING | SerialNumberOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get/Set | Resources upgrader
Get | |
|----------------------------|-------------------------|---------------------------|---------------------|-------------------------|---------------------------|-----|
| | Get | Gei | Gei | Gel/Set | Get | Get |
| Attribute description | | | | | | |
| SerialNumber | | | | | | |
| <u>SerialNumber</u> | | | | | | |
| Default value : sn00 | 00000000000 | | | | | |
| Data type: VISIBLES | STRING | | | | | |
| Authorized value: Si | ize = 8 | | | | | |
| Default value: sn000 | 0000 | | | | | |

5.1.16 TypesOfMeterBoards

True

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|----------------|
| 0;0;142;3;2;255 | 1 | 0 | 1 | 0 | False | False | False |
| Logical devices | | octricity | End quotomor | | | | |

Attributes / Methods

True

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | TypesOfMeterBoardsOBISCode |
| A2. value | SEQUENCE | See below |

False

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | | | | Resources upgrader | |
|----------------------------------|---------------------|------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | Get | Get |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| {
 | | | | | | |
| TypeOfBoardTop
TypeOfBoardIHM | | | | | | |
| } | | | | | | |
| Turn a Of Decard Ton | | | | | | |
| <u>TypeOfBoardTop</u> | | | | | | |
| Data type: UNSIGN | ED8 | | | | | |
| Authorized values: | | | | | | |
| 0: IEC4 Board | | | | | | |
| 1: IEC5 Board (Cros | ssed comms) | | | | | |
| Default value: IEC4 | Board (0) | | | | | |
| <u>TypeOfBoardIHM</u> | | | | | | |
| | | | | | | |
| Data type: UNSIGN | ED8 | | | | | |
| Authorized values: | | | | | | |
| 0: IEC4 Driver (Drive | er SED1540) | | | | | |
| 1: IEC5 Driver (Drive | er S1D15206) | | | | | |
| Default value: IEC4 | Driver (Driver SE | D1540) (0) | | | | |

5.1.17 UtilityId10Parameters

These objects hold the utility Ids (from Id1 to Id10).

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;0;0;9;255 | 1 | 0 | 2 | 0 | True | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|---------------|-------------------------------|--|
| A1. logical_name | OCTETSTRING | UtilityId10ParametersOBISCode | |
| A2. value | VISIBLESTRING | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get/Set | Get/Set | Get |

Attribute description

UtilityId10

UtilityId10

Data type: VISIBLESTRING Authorized value: Size = 8 Default value: D0000000

5.1.18 UtilityId1Parameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;0;0;0;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|------------------------------|
| A1. logical_name | OCTETSTRING | UtilityId1ParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| E | lectricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|-----------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

UtilityId1

UtilityId1

Data type: VISIBLESTRING Authorized value: Size = 8 Default value: utility0

5.1.19 UtilityId2Parameters

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;0;0;1;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|------------------------------|
| A1. logical_name | OCTETSTRING | UtilityId2ParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

UtilityId2

UtilityId2

Data type: VISIBLESTRING Authorized value: Size = 8 Default value: utility1

5.1.20 UtilityId3Parameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;0;0;2;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|------------------------------|
| A1. logical_name | OCTETSTRING | UtilityId3ParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

UtilityId3

UtilityId3

Data type: VISIBLESTRING Authorized value: Size = 8 Default value: utility2

5.1.21 UtilityId4Parameters

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;0;0;3;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|------------------------------|
| A1. logical_name | OCTETSTRING | UtilityId4ParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

UtilityId4

UtilityId4

Data type: VISIBLESTRING Authorized value: Size = 8 Default value: utility3

5.1.22 UtilityId5Parameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;0;0;4;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|------------------------------|
| A1. logical_name | OCTETSTRING | UtilityId5ParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|----|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| -[| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

UtilityId5

UtilityId5

Data type: VISIBLESTRING Authorized value: Size = 8 Default value: utility4

5.1.23 UtilityId6Parameters

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;0;0;5;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|------------------------------|
| A1. logical_name | OCTETSTRING | UtilityId6ParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

UtilityId6

UtilityId6

Data type: VISIBLESTRING Authorized value: Size = 8 Default value: utility5

5.1.24 UtilityId7Parameters

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;0;0;6;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|------------------------------|
| A1. logical_name | OCTETSTRING | UtilityId7ParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

UtilityId7

UtilityId7

Data type: VISIBLESTRING Authorized value: Size = 8 Default value: utility6

5.1.25 UtilityId8Parameters

| Logical nan | ne Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|--------------|-------------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;0;0;7;25 | 5 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|------------------------------|
| A1. logical_name | OCTETSTRING | UtilityId8ParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

UtilityId8

UtilityId8

Data type: VISIBLESTRING Authorized value: Size = 8 Default value: utility7

5.1.26 UtilityId9Parameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;0;0;8;255 | 1 | 0 | 4 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|------------------------------|
| A1. logical_name | OCTETSTRING | UtilityId9ParametersOBISCode |
| A2. value | VISIBLESTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

UtilityId9

UtilityId9

Data type: VISIBLESTRING Authorized value: Size = 8 Default value: utility8

5.2 Cosem profiles

5.2.1 UtilityIdTable

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;0;0;255;255 | 7 | 1 | 4 | 0 | ROM | 10 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | UtilityIdTableOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

```
Electricity laboratory
                    Electricity utility
                                    Electricity reader
                                                  End customer Manufacturer Resources upgrader Engineer
                         Get
                                         Get
                                                      Get
                                                                 Get
Attribute description
 SEQUENCE OF
                  // 1 elements
 {
   SEQUENCE
                 // 10 elements
     UtilityId1Parameters (Att. Id: 0, Abs. Number: 2)
     UtilityId2Parameters (Att. Id: 0, Abs. Number: 2)
     UtilityId3Parameters (Att. Id: 0, Abs. Number: 2)
     UtilityId4Parameters (Att. Id: 0, Abs. Number: 2)
     UtilityId5Parameters (Att. Id: 0, Abs. Number: 2)
     UtilityId6Parameters (Att. Id: 0, Abs. Number: 2)
     UtilityId7Parameters (Att. Id: 0, Abs. Number: 2)
     UtilityId8Parameters (Att. Id: 0, Abs. Number: 2)
     UtilityId9Parameters (Att. Id: 0, Abs. Number: 4)
     UtilityId10Parameters (Att. Id: 0, Abs. Number: 2)
```

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

```
Index 1 (UtilityId1Parameters): Obis_code = 1;0;0;0;0;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 2 (UtilityId2Parameters): Obis_code = 1;0;0;0;1;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 3 (UtilityId3Parameters): Obis_code = 1;0;0;0;2;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 4 (UtilityId4Parameters): Obis_code = 1;0;0;0;3;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 5 (UtilityId5Parameters): Obis_code = 1;0;0;0;4;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 6 (UtilityId6Parameters): Obis_code = 1;0;0;0;5;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 7 (UtilityId7Parameters): Obis_code = 1;0;0;0;6;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 8 (UtilityId8Parameters): Obis_code = 1;0;0;0;7;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 9 (UtilityId9Parameters): Obis_code = 1;0;0;0;8;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 10 (UtilityId10Parameters): Obis_code = 1;0;0;0;9;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 10 (UtilityId10Parameters): Obis_code = 1;0;0;0;9;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 10 (UtilityId10Parameters): Obis_code = 1;0;0;0;9;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 10 (UtilityId10Parameters): Obis_code = 1;0;0;0;9;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 10 (UtilityId10Parameters): Obis_code = 1;0;0;0;9;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 10 (UtilityId10Parameters): Obis_code = 1;0;0;0;9;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 10 (UtilityId10Parameters): Obis_code = 1;0;0;0;9;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 10 (UtilityId10Parameters): Obis_code = 1;0;0;0;9;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 10 (UtilityId10Parameters): Obis_code = 1;0;0;0;9;255, Class_id = 1, Attribute_index = 0, Data_index = 0 Index 10 (UtilityId10Parameters): Obis_code = 1;0;0;0;0;9;255, Cla
```

```
Class_id
    Obis_code
    Attribute_index
    Data_index
}
Class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Obis code
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
Attribute index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
Data_index
```

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6 Demand Registering

6.1 Cosem objects

6.1.1 AveragePowerFactor

The power factor of the last integration period is represented by a register object and is automatically updated at the end of each integration period.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;13;4;0;255 | 5 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | AveragePowerFactorOBISCode |
| A2. current_average_value | INTEGER16 | See below |
| A3. last_average_value | INTEGER16 | See below |
| A4. scaler_unit | SEQUENCE | See below |
| A5. status | NULL | See below |
| A6. capture_time | NULL | See below |
| A7. start_time_current | NULL | See below |
| A8. period | NULL | See below |
| A9. number_of_periods | NULL | See below |

■ Attribute 2: current_average_value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| current_average_v | value | | | | | |
| current_average_va | <u>lue</u> | | | | | |

Data type: INTEGER16

Authorized value: -10000 to 10000

Default value: 10000

■ Attribute 3: last_average_value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

last_average_value

last_average_value

Data type: INTEGER16

Authorized value: -10000 to 10000

Default value: 10000

■ Attribute 4: scaler_unit

| Get Get Get Get Get Get Get Get - Get Attribute description SEQUENCE // 2 elements { Scaler Unit } Scaler Data type: INTEGER8 Authorized value: -4: 4 decimals Default value: 4 decimals (-4) Unit Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255) Attribute 5: status Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
|---|
| Sequence // 2 elements { Scaler |
| Scaler Unit Scaler Data type: INTEGER8 Authorized value: -4: 4 decimals Default value: 4 decimals (-4) Unit Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255) Attribute 5: status Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader Attribute description Data type: NULL Authorized value: Default value: |
| Scaler Data type: INTEGER8 Authorized value: -4: 4 decimals Default value: 4 decimals (-4) Unit Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255) Attribute 5: status Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Scaler Data type: INTEGER8 Authorized value: -4: 4 decimals Default value: 4 decimals (-4) Unit Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255) Attribute 5: status Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Data type: INTEGER8 Authorized value: -4: 4 decimals Default value: 4 decimals (-4) Unit Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255) Attribute 5: status Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Authorized value: -4: 4 decimals Default value: 4 decimals (-4) Unit Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255) Attribute 5: status Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Default value: 4 decimals (-4) Unit Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255) Attribute 5: status Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Unit Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255) Attribute 5: status Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255) Attribute 5: status Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Authorized value: 255: No unit Default value: No unit (255) Attribute 5: status Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Default value: No unit (255) Attribute 5: status Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Not used. Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer |
| Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value: |
| Attribute description Data type: NULL Authorized value: Default value: |
| Data type: NULL Authorized value: Default value: |
| Authorized value: Default value: |
| Default value: |
| |
| Attuibute Congression times |
| ■ Attribute 6: capture_time |
| Not used. |
| Access rights (clients) |
| Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer |
| Attribute description |
| Data type: NULL |
| Authorized value: |
| Default value: |
| |
| Attribute 7: start_time_current Not used. |
| Access rights (clients) |
| Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer |
| Attribute description |
| |
| Data type: NULL |

Default value:

■ Attribute 8: period

Not used.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description

Data type: NULL Authorized value:

Default value:

■ Attribute 9: number_of_periods

Not used.

Access rights (clients)

Electricity laboratory **Electricity utility** Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Data type: NULL Authorized value: Default value:

6.1.2 DemandChannelParameters

This object defines the allocation of each demand register for all the available channels.

The demand parameter type is a sequence of 10 elements (maximum number of available channels). See the resourcesIdParameter for the définition of the number of available channels.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;135;0;2;255 | 1 | 0 | 1 | 0 | True | True | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | DemandChannelParametersOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

| | Electricity laboratory | / Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | ∟ngineer |
|---|------------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get/Set | Get | Get | Get | Get/Set | - | Get |
| | Attribute descriptio | 'n | | | | | |
| , | Allibule descriptio | '11 | | | | | |
| | SEQUENCE OF | // 10 elements | | | | | |
| | { | | | | | | |
| | SEQUENCE | // 6 elements | | | | | |
| | { | | | | | | |
| | QuantityId | | | | | | |
| | NumberOfRa | te | | | | | |
| | Scaler | | | | | | |

```
Unit
    Fluid
    QuantityType
}
QuantityId
It defines which energy quantity is allocated to this channel:
- Default value for the first element : 3 (ImportActiveEnergyAgg)
- Default value for the others: 255 (No energy - No allocation)
Data type: UNSIGNED8
Authorized values:
0: Import Active Energy Phase 1
1: Import Active Energy Phase 2
2: Import Active Energy Phase 3
3: Import Active Energy Aggregate
4: Export Active Energy Phase 1
5: Export Active Energy Phase 2
6: Export Active Energy Phase 3
7: Export Active Energy Aggregate
8: Import Reactive Energy Phase 1
9: Import Reactive Energy Phase 2
10: Import Reactive Energy Phase 3
11: Import Reactive Energy Aggregate
12: Export Reactive Energy Phase 1
13: Export Reactive Energy Phase 2
14: Export Reactive Energy Phase 3
15: Export Reactive Energy Aggregate
16: Q1 Energy Phase 1
17: Q1 Energy Phase 2
18: Q1 Energy Phase 3
19: Q1 Energy Aggregate
20: Q2 Energy Phase 1
21: Q2 Energy Phase 2
22: Q2 Energy Phase 3
23: Q2 Energy Aggregate
24: Q3 Energy Phase 1
25: Q3 Energy Phase 2
26: Q3 Energy Phase 3
27: Q3 Energy Aggregate
28: Q4 Energy Phase 1
29: Q4 Energy Phase 2
30: Q4 Energy Phase 3
31: Q4 Energy Aggregate
32: Import Apparent Energy Phase 1
33: Import Apparent Energy Phase 2
34: Import Apparent Energy Phase 3
35: Import Apparent Energy Aggregate
36: Export Apparent Energy Phase 1
37: Export Apparent Energy Phase 2
38: Export Apparent Energy Phase 3
39: Export Apparent Energy Aggregate
40: Import External Energy 1
41: Import External Energy 2
42: Import External Energy 3
43: Import External Energy 4
44: Export External Energy 1
45: Export External Energy 2
```

- 46: Export External Energy 3
- 47: Export External Energy 4
- 48: Summation Energy 1
- 49: Summation Energy 2
- 50: Summation Energy 3
- 51: Summation Energy 4

255: No energy - No allocation

Default value: No energy - No allocation (255)

NumberOfRate

Defines how many rates are managed for this channel:

- Default value for the first element : 1
- Default value for the others: 0

Data type: UNSIGNED8 Authorized value: 0 to 8

Default value: 0

Scaler

It defines the scaler attached to this channel:

- The allowed discrete values are -1, 0, 1, 2, 3, 4, 5 and 6

Data type: INTEGER8
Authorized value: -1 to 6

Default value: 0

Unit

It defines the unit attached to this channel:

- Default value for the first element : 27 (W)
- Default value for the others: 255 (No unit)

Data type: UNSIGNED8

Authorized values:

27: W

28: VA

29: VAR

255: No unit

Default value: No unit (255)

<u>Fluid</u>

Default value for the first element : 0 (Electricity) Default value for the others : 255 (No fluid)

Data type: UNSIGNED8

Authorized values:

0: Electricity

1: Heat

2: Gas

3: Water

255: No fluid

Default value: Electricity (0)

QuantityType

Value of the OBIS code field C:
- Default value for the first element: 1
- Default value for the others: 82

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 1

6.1.3 DemandParameters

This object defines all the parameters allowing a specific demand management. It applies to all demand channels and registers.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;135;0;1;255 | 1 | 0 | 2 | 0 | True | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | DemandParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

10: 10 min 12: 12 min 15: 15 min 20: 20 min 30: 30 min 60: 60 min

Default value: 15 min (15)

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
      Get/Set
                           Get
                                            Get
                                                           Get
                                                                      Get/Set
                                                                                                    Get
Attribute description
 SEQUENCE
                // 9 elements
   IntegrationPeriod
   SlidingDepth
   IntegrationPeriodRestartMode
   ClockModificationThreshold
   IncompletePeriodMode
   {\tt ExcessDemandControlMode}
   ActiveDemandThresholdForPF
   DemandCalculationAlgorithm
   MaxDemandMode
IntegrationPeriod
It is the duration elapsed between two demands calculation:
 - The value must be a sub-multiple of 60
- Unit = minute
Data type: UNSIGNED8
Authorized values:
 1: 1 min
2: 2 min
3: 3 min
4: 4 min
5: 5 min
 6: 6 min
```

SlidingDepth

It is the number of subintervals which creates a full period. Programming a value outside the range leads to a programming error.

Data type: UNSIGNED8

Authorized value: 1 to 15

Default value: 1

IntegrationPeriodRestartMode

It defines the way the demand calculation will restart after a power failure.

Complementary informations:

- Restart : A new integration period will start after a power up.
- Resume : The period which was interrupted by power failure continues after power up in order to have a complete integration period.
- Synchronize: The integration period is always synchronized with the round hour.

Data type: UNSIGNED8

Authorized values:

- 0: Restart
- 1: Resume
- 2: Synchronize

Default value: Synchronize (2)

ClockModificationThreshold

It is a percentage of the integration period (0 to 5%).

When the date and time is updated by programming within this percentage, no need to process an incomplete period calculation. Otherwise, the integration period will be ended.

Data type: UNSIGNED8 Authorized value: 0 to 5

Default value: 1

<u>IncompletePeriodMode</u>

It defines how to manage periods which ends anormally (if the value calculated will be used or will be neglected).

Data type: UNSIGNED8

Authorized values:

0: Neglected

1: Used

Default value: Used (1)

ExcessDemandControlMode

I defines the way to manage the excess demands.

Complementary informations :

- Projection: By a projection of the actual demand to the end of the integration period
- Rising value : By monitoring the rising value

Data type: UNSIGNED8

Authorized values:

- 0: No management
- 1: End of integration period
- 2: Rising value
- 3: Projection

Default value: No management (0)

ActiveDemandThresholdForPF

It defines the minimum value of the active demand, allowing the power factor calculation. The scaler and unit are the same as for the concerned register.

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

DemandCalculationAlgorithm

It defines the way the demands are calculated; if it will be the standard average algorithm or a specific algorithm.

Data type: UNSIGNED8

Authorized values: 0: Standard (average)

1: Green tariff

Default value: Standard (average) (0)

MaxDemandMode

It defines the way as Maximum Demand is managed.

Complementary informations:

- Maximum Mode (Maximum value is saved)
- Maximum Excess Mode (Difference between maximum value and threshold is saved)

Data type: ENUMERATED

Authorized values:

0: Maximum Mode

1: Maximum Excess Mode

Default value: Maximum Mode (0)

6.1.4 DemandRate10Parameters

This object defines the thresholds associated to the demand rate register number 10, and actions to trigger when the excess demand occurs.

The objects are automatically created and allocated to the monitored_value when the demand rate allocation is configured. Up to 10 objects are available in SL7000.

As the identification of the demand rate surveyed is performed by its OBIS code, the demand channel parameters must be programmed before this object.

The actions related to the crossing of threshold are defined implicitely with the event manager configuration and do not reference a script.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;1;5;9;255 | 21 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------|
| A1. logical_name | OCTETSTRING | DemandRate10ParametersOBISCode |
| A2. thresholds | ARRAY | See below |
| A3. monitored_value | SEQUENCE | See below |
| A4. actions | NULL | See below |

■ Attribute 2: thresholds

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

```
Attribute description

SEQUENCE OF // 1 elements
{
    Threshold
}

Threshold
The unit and scaler matches the associated demand channel:
- Default value: 65535 (no action)

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 65535
```

■ Attribute 3: monitored_value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| Attribute description | | | | | | |
| <pre>SEQUENCE // 3 { class_Id logical_name attribute_index }</pre> | elements | | | | | |
| class_ld | | | | | | |
| Demand register class | ss Id. | | | | | |
| Data type: UNSIGNE | :D16 | | | | | |
| Authorized value: 5 | | | | | | |
| Default value: 5 | | | | | | |
| logical_name | | | | | | |
| OBIS Code of the de | mand rate conce | rned. | | | | |
| Data type: OCTETST | RING | | | | | |
| Authorized value: De | coded as Decima | al (Size = 6) | | | | |
| Default value: 255;25 | 55;255;255;255;2 | 55; | | | | |
| attribute_index | | | | | | |
| last_average_value | | | | | | |
| Data type: INTEGER | 8 | | | | | |
| Authorized value: 3 | | | | | | |
| Default value: 3 | | | | | | |

■ Attribute 4: actions

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |
| 5 | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Authorized value: | | | | | | |

Default value:

6.1.5 DemandRate1Parameters

This object defines the thresholds associated to the demand rate register number 1, and actions to trigger when the excess demand occurs.

The objects are automatically created and allocated to the monitored_value when the demand rate allocation is configured. Up to 10 objects are available in SL7000.

As the identification of the demand rate surveyed is performed by its OBIS code, the demand channel parameters must be programmed before this object.

The actions related to the crossing of threshold are defined implicitely with the event manager configuration and do not reference a script.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;1;5;0;255 | 21 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | DemandRate1ParametersOBISCode |
| A2. thresholds | ARRAY | See below |
| A3. monitored_value | SEQUENCE | See below |
| A4. actions | NULL | See below |

■ Attribute 2: thresholds

Access rights (clients)

```
Electricity laboratory
                        Electricity utility
                                          Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
       Get/Set
                           Get/Set
                                              Get/Set
                                                               Get
                                                                          Get/Set
                                                                                                          Get
Attribute description
 SEOUENCE OF
                     // 1 elements
   Threshold
 }
 Threshold
 The unit and scaler matches the associated demand channel:
 - Default value : 65535 (no action)
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 65535
```

■ Attribute 3: monitored_value

```
End customer Manufacturer Resources upgrader Engineer
  Electricity laboratory
                         Electricity utility
                                           Electricity reader
       Get/Set
                            Get/Set
                                                                             Get/Set
                                                 Get
                                                                 Get
                                                                                                              Get
Attribute description
 SEQUENCE
                  // 3 elements
   class_Id
   logical_name
   attribute_index
 }
 class Id
```

Demand register class Id.

Data type: UNSIGNED16

Authorized value: 5
Default value: 5
logical name

OBIS Code of the demand rate concerned.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

attribute_index
last_average_value
Data type: INTEGER8
Authorized value: 3
Default value: 3

■ Attribute 4: actions

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

6.1.6 DemandRate2Parameters

This object defines the thresholds associated to the demand rate register number 2, and actions to trigger when the excess demand occurs.

The objects are automatically created and allocated to the monitored_value when the demand rate allocation is configured. Up to 10 objects are available in SL7000.

As the identification of the demand rate surveyed is performed by its OBIS code, the demand channel parameters must be programmed before this object.

The actions related to the crossing of threshold are defined implicitely with the event manager configuration and do not reference a script.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;1;5;1;255 | 21 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | DemandRate2ParametersOBISCode |
| A2. thresholds | ARRAY | See below |
| A3. monitored_value | SEQUENCE | See below |
| A4. actions | NULL | See below |

■ Attribute 2: thresholds

Access rights (clients)

Electricity utility Electricity laboratory Electricity reader End customer Manufacturer Resources upgrader Engineer Get/Set Get/Set Get/Set Get Get/Set Get Attribute description SEQUENCE OF // 1 elements Threshold **Threshold** The unit and scaler matches the associated demand channel: - Default value: 65535 (no action) Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 65535

■ Attribute 3: monitored_value

Access rights (clients)

| Attribute description SEQUENCE // 3 elements | |
|--|--|
| | |
| <pre>{ class_Id logical_name attribute_index }</pre> | |
| class_Id | |
| Demand register class Id. | |
| Data type: UNSIGNED16 | |
| Authorized value: 5 | |
| Default value: 5 | |
| logical_name OBIS Code of the demand rate concerned. | |
| Data type: OCTETSTRING | |
| Authorized value: Decoded as Decimal (Size = 6) | |
| Default value: 255;255;255;255;255; | |
| attribute_index | |
| last_average_value | |
| Data type: INTEGER8 | |
| Authorized value: 3 | |
| Default value: 3 | |

■ Attribute 4: actions

Not used.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

Data type: NULL Authorized value: Default value:

6.1.7 DemandRate3Parameters

This object defines the thresholds associated to the demand rate register number 3, and actions to trigger when the excess demand occurs.

The objects are automatically created and allocated to the monitored_value when the demand rate allocation is configured. Up to 10 objects are available in SL7000.

As the identification of the demand rate surveyed is performed by its OBIS code, the demand channel parameters must be programmed before this object.

The actions related to the crossing of threshold are defined implicitely with the event manager configuration and do not reference a script.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;1;5;2;255 | 21 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | DemandRate3ParametersOBISCode |
| A2. thresholds | ARRAY | See below |
| A3. monitored_value | SEQUENCE | See below |
| A4. actions | NULL | See below |

■ Attribute 2: thresholds

Access rights (clients) Electricity laboratory

| | Electricity laboratory Get/Set | Electricity utility Get/Set | Electricity reader
Get/Set | End customer
Get | Manufacturer
Get/Set | Resources upgrader | Engineer
Get |
|---|--------------------------------|-----------------------------|-------------------------------|---------------------|-------------------------|--------------------|-----------------|
| Δ | ttribute description | | | | | | |
| | SEQUENCE OF { Threshold } | // 1 elements | | | | | |
| | <u>Threshold</u> | | | | | | |
| | The unit and scale | r matches the asso | ciated demand c | hannel : | | | |

- Default value : 65535 (no action)

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 65535

■ Attribute 3: monitored value

| | Electricity laboratory Get/Set | Electricity utility Get/Set | Electricity reader
Get | End customer
Get | Manufacturer
Get/Set | Resources upgrader | Engineer
Get |
|-----|--------------------------------|-----------------------------|---------------------------|---------------------|-------------------------|--------------------|-----------------|
| Λ + | tribute description | 300000 | | | 300000 | | |
| | • | 8 elements | | | | | |
| { | PEOUFINCE // 3 | e rements | | | | | |

```
class_Id
  logical_name
  attribute_index
class Id
Demand register class Id.
Data type: UNSIGNED16
Authorized value: 5
Default value: 5
logical name
OBIS Code of the demand rate concerned.
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
attribute index
last_average_value
Data type: INTEGER8
Authorized value: 3
```

■ Attribute 4: actions

Default value: 3

Not used.

Access rights (clients)

| 5 (| | | | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

6.1.8 DemandRate4Parameters

This object defines the thresholds associated to the demand rate register number 4, and actions to trigger when the excess demand occurs.

The objects are automatically created and allocated to the monitored_value when the demand rate allocation is configured. Up to 10 objects are available in SL7000.

As the identification of the demand rate surveyed is performed by its OBIS code, the demand channel parameters must be programmed before this object.

The actions related to the crossing of threshold are defined implicitely with the event manager configuration and do not reference a script.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;1;5;3;255 | 21 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------------|--|
| A1. logical_name | OCTETSTRING | DemandRate4ParametersOBISCode | |
| A2. thresholds | ARRAY | See below | |
| A3. monitored_value | SEQUENCE | See below | |
| A4. actions | NULL | See below | |

■ Attribute 2: thresholds

Access rights (clients)

| Electricity laboratory Get/Set | Electricity utility Get/Set | Electricity reader
Get/Set | End customer
Get | Manufacturer
Get/Set | Resources upgrader | Engineer
Get | | | |
|--|---|-------------------------------|---------------------|-------------------------|--------------------|-----------------|--|--|--|
| Attribute description SEQUENCE OF // 1 elements | | | | | | | | | |
| { Threshold } | <pre>{ Threshold }</pre> | | | | | | | | |
| <u>Threshold</u> | | | | | | | | | |
| | The unit and scaler matches the associated demand channel : - Default value : 65535 (no action) | | | | | | | | |
| Data type: UNSIGNED16 | | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | |

■ Attribute 3: monitored_value

Access rights (clients)

Default value: 65535

| Electricity laboratory Get/Set | Electricity utility
Get/Set | Electricity reader
Get | End customer
Get | Manufacturer
Get/Set | Resources upgrader | Engineer
Get |
|--|--------------------------------|---------------------------|---------------------|-------------------------|--------------------|-----------------|
| { class_Id logical_name attribute_inde | 3 elements
x | | | | | |
| } class_Id Demand register cla | ass Id. | | | | | |
| Data type: UNSIGN | ED16 | | | | | |
| Authorized value: 5 | | | | | | |
| Default value: 5 | | | | | | |
| logical_name OBIS Code of the de | emand rate conce | rned. | | | | |
| Data type: OCTETS | STRING | | | | | |
| Authorized value: D | ecoded as Decima | al (Size = 6) | | | | |
| Default value: 255;2 | 255;255;255;255;2 | 55; | | | | |
| attribute_index | | | | | | |
| last_average_value | | | | | | |
| Data type: INTEGEI | R8 | | | | | |
| Authorized value: 3 | | | | | | |
| Default value: 3 | | | | | | |

■ Attribute 4: actions

Not used.

Access rights (clients)

| Access rights (clients) |) | | | | | |
|-------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

6.1.9 DemandRate5Parameters

This object defines the thresholds associated to the demand rate register number 5, and actions to trigger when the excess demand occurs.

The objects are automatically created and allocated to the monitored_value when the demand rate allocation is configured. Up to 10 objects are available in SL7000.

As the identification of the demand rate surveyed is performed by its OBIS code, the demand channel parameters must be programmed before this object.

The actions related to the crossing of threshold are defined implicitely with the event manager configuration and do not reference a script.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;1;5;4;255 | 21 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | DemandRate5ParametersOBISCode |
| A2. thresholds | ARRAY | See below |
| A3. monitored_value | SEQUENCE | See below |
| A4. actions | NULL | See below |

■ Attribute 2: thresholds

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF { Threshold } | // 1 elements | | | | | |
| <u>Threshold</u> | | | | | | |
| The unit and scaler - Default value : 655 | | ciated demand cl | hannel : | | | |
| Data type: UNSIGN | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 6553 | 5 | | | | | |

■ Attribute 3: monitored_value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|--|---------------------|--------------------|-----|---------|--------------------|-----|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| Attribute description | | | | | | |
| <pre>SEQUENCE // 3 { class_Id logical_name attribute_index }</pre> | 3 elements | | | | | |
| class Id | | | | | | |
| Demand register cla | ss Id. | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Authorized value: 5 | | | | | | |
| Default value: 5 | | | | | | |
| logical_name | | a d | | | | |
| OBIS Code of the de | | emea. | | | | |
| Data type: OCTETS | | | | | | |
| Authorized value: De | ecoded as Decim | al (Size = 6) | | | | |
| Default value: 255;2 | 55;255;255;255;2 | 255; | | | | |
| attribute_index | | | | | | |
| last_average_value | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 3 | | | | | | |
| Default value: 3 | | | | | | |
| Addullanda da addan | | | | | | |

■ Attribute 4: actions

Not used.

Access rights (clients)

Electricity laboratory

Default value:

| - | - | - | - | - | - | - |
|-----------------------|---|---|---|---|---|---|
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |

Electricity reader End customer Manufacturer Resources upgrader Engineer

6.1.10 DemandRate6Parameters

Electricity utility

This object defines the thresholds associated to the demand rate register number 6, and actions to trigger when the excess demand occurs.

The objects are automatically created and allocated to the monitored_value when the demand rate allocation is configured. Up to 10 objects are available in SL7000.

As the identification of the demand rate surveyed is performed by its OBIS code, the demand channel parameters must be programmed before this object.

The actions related to the crossing of threshold are defined implicitely with the event manager configuration and do not reference a script.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;1;5;5;255 | 21 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | DemandRate6ParametersOBISCode |
| A2. thresholds | ARRAY | See below |
| A3. monitored_value | SEQUENCE | See below |
| A4. actions | NULL | See below |

■ Attribute 2: thresholds

Access rights (clients)

| Electricity laboratory | Electricity utility | • | | | Resources upgrader | | | | | |
|---|---------------------|---------|-----|---------|--------------------|-----|--|--|--|--|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get | | | | |
| Attribute description | | | | | | | | | | |
| SEQUENCE OF | // 1 elements | | | | | | | | | |
| {
Threshold | | | | | | | | | | |
| } | | | | | | | | | | |
| · | | | | | | | | | | |
| <u>Threshold</u> | | | | | | | | | | |
| The unit and scaler matches the associated demand channel : - Default value : 65535 (no action) | | | | | | | | | | |
| Data type: UNSIGNED16 | | | | | | | | | | |
| Authorized value: 0 to 65535 | | | | | | | | | | |
| Default value: 6553 | 35 | | | | | | | | | |

■ Attribute 3: monitored_value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

class Id

Demand register class Id.
Data type: UNSIGNED16

Authorized value: 5
Default value: 5
logical_name

OBIS Code of the demand rate concerned.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

attribute index

last_average_value
Data type: INTEGER8
Authorized value: 3
Default value: 3

■ Attribute 4: actions

Not used.

| Access rights (clients) | | | | | | |
|-------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

6.1.11 DemandRate7Parameters

This object defines the thresholds associated to the demand rate register number 7, and actions to trigger when the excess demand occurs.

The objects are automatically created and allocated to the monitored_value when the demand rate allocation is configured. Up to 10 objects are available in SL7000.

As the identification of the demand rate surveyed is performed by its OBIS code, the demand channel parameters must be programmed before this object.

The actions related to the crossing of threshold are defined implicitely with the event manager configuration and do not reference a script.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;1;5;6;255 | 21 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | DemandRate7ParametersOBISCode |
| A2. thresholds | ARRAY | See below |
| A3. monitored_value | SEQUENCE | See below |
| A4. actions | NULL | See below |

■ Attribute 2: thresholds

- Default value : 65535 (no action)

| Electricity laboratory Get/Set | Electricity utility Get/Set | Electricity reader
Get/Set | End customer
Get | Manufacturer
Get/Set | Resources upgrader - | Engineer
Get |
|--------------------------------|-----------------------------|-------------------------------|---------------------|-------------------------|----------------------|-----------------|
| Attribute description | 1 | | | | | |
| SEQUENCE OF { Threshold } | // 1 elements | | | | | |
| <u>Threshold</u> | | | | | | |
| The unit and scale | r matches the asso | ciated demand c | hannel : | | | |

Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 65535

■ Attribute 3: monitored_value

Access rights (clients)

| Electricity laboratory Get/Set | Electricity utility
Get/Set | Electricity reader
Get | End customer
Get | Manufacturer
Get/Set | Resources upgrader - | Engineer
Get |
|--|--------------------------------|---------------------------|---------------------|-------------------------|----------------------|-----------------|
| Attribute description SEQUENCE // 3 { class_Id logical_name attribute_index } | elements | | | | | |
| class_Id Demand register class | ee ld | | | | | |
| Data type: UNSIGNE | | | | | | |
| Authorized value: 5 | | | | | | |
| Default value: 5 | | | | | | |
| logical_name OBIS Code of the de | mand rate conce | rned. | | | | |
| Data type: OCTETS1 | TRING | | | | | |
| Authorized value: De | coded as Decima | al (Size = 6) | | | | |
| Default value: 255;25 | 55;255;255;255;2 | 55; | | | | |
| attribute_index | | | | | | |
| last_average_value | | | | | | |
| Data type: INTEGER | 18 | | | | | |
| Authorized value: 3 | | | | | | |
| Default value: 3 | | | | | | |

■ Attribute 4: actions

Not used.

Access rights (clients)

Electricity laboratory

Default value:

| Attrib | oute description | | |
|--------|------------------|--|--|
| Dat | a type: NULL | | |
| Aut | horized value: | | |

Electricity reader End customer Manufacturer Resources upgrader Engineer

6.1.12 DemandRate8Parameters

Electricity utility

This object defines the thresholds associated to the demand rate register number 8, and actions to trigger when the excess demand occurs.

The objects are automatically created and allocated to the monitored_value when the demand rate allocation is configured. Up to 10 objects are available in SL7000.

As the identification of the demand rate surveyed is performed by its OBIS code, the demand channel parameters must be programmed before this object.

The actions related to the crossing of threshold are defined implicitely with the event manager configuration and do not reference a script.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;1;5;7;255 | 21 | 0 | 1 | 0 | False | False | False |

Logical devices:

| - | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | DemandRate8ParametersOBISCode |
| A2. thresholds | ARRAY | See below |
| A3. monitored_value | SEQUENCE | See below |
| A4. actions | NULL | See below |

■ Attribute 2: thresholds

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 1 elements | | | | | |
| { | | | | | | |
| Threshold | | | | | | |
| } | | | | | | |
| Threshold | | | | | | |
| The unit and scaler | matches the asso | ciated demand cl | hannel : | | | |
| - Default value : 655 | 35 (no action) | | | | | |
| Data type: UNSIGN | ED16 | | | | | |
| Data type. ONOION | | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| | | | | | | |

■ Attribute 3: monitored_value

Access rights (clients)

Default value: 65535

| Electricity laboratory
Get/Set | Electricity utility Get/Set | Electricity reader
Get | End customer
Get | Manufacturer
Get/Set | Resources upgrader | Engineer
Get |
|--|-----------------------------|---------------------------|---------------------|-------------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| <pre>SEQUENCE // 3 { class_Id logical_name attribute_index }</pre> | elements | | | | | |
| class_ld | | | | | | |
| Demand register class | ss Id. | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Authorized value: 5 | | | | | | |
| Default value: 5 | | | | | | |
| logical_name | | | | | | |

OBIS Code of the demand rate concerned.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

attribute_index
last_average_value
Data type: INTEGER8
Authorized value: 3
Default value: 3

■ Attribute 4: actions

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

6.1.13 DemandRate9Parameters

This object defines the thresholds associated to the demand rate register number 9, and actions to trigger when the excess demand occurs.

The objects are automatically created and allocated to the monitored_value when the demand rate allocation is configured. Up to 10 objects are available in SL7000.

As the identification of the demand rate surveyed is performed by its OBIS code, the demand channel parameters must be programmed before this object.

The actions related to the crossing of threshold are defined implicitely with the event manager configuration and do not reference a script.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;1;5;8;255 | 21 | 0 | 1 | 0 | False | False | False |

Logical devices:

| _ | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | DemandRate9ParametersOBISCode |
| A2. thresholds | ARRAY | See below |
| A3. monitored_value | SEQUENCE | See below |
| A4. actions | NULL | See below |

■ Attribute 2: thresholds

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

```
SEQUENCE OF // 1 elements

{
    Threshold
}

Threshold
The unit and scaler matches the associated demand channel:
- Default value: 65535 (no action)

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 65535
```

■ Attribute 3: monitored_value

Access rights (clients)

| Ele | ectricity laboratory | Electricity utility | | | | Resources upgrader | |
|------------|---|---------------------|---------------|-----|---------|--------------------|-----|
| | Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| Attril | oute description | | | | | | |
| { | QUENCE // 3 class_Id logical_name attribute_index | elements | | | | | |
| } | | | | | | | |
| cla | ss_ld | | | | | | |
| De | mand register clas | ss Id. | | | | | |
| Da | ta type: UNSIGNE | D16 | | | | | |
| Aut | thorized value: 5 | | | | | | |
| De | fault value: 5 | | | | | | |
| <u>log</u> | <u>ical_name</u> | | | | | | |
| OB | IS Code of the de | mand rate conce | rned. | | | | |
| Da | ta type: OCTETS1 | TRING | | | | | |
| Aut | thorized value: De | coded as Decima | al (Size = 6) | | | | |
| De | fault value: 255;25 | 55;255;255;255;2 | 55; | | | | |
| attr | <u>ribute_index</u> | | | | | | |
| las | t_average_value | | | | | | |
| Da | ta type: INTEGER | 8 | | | | | |
| Aut | thorized value: 3 | | | | | | |
| De | fault value: 3 | | | | | | |

■ Attribute 4: actions

Not used.

Access rights (clients)

Authorized value:

Default value:

6.1.14 IntegrationPeriodDuration

This parameter holds the interval period (integration period) for demand management.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;0;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | IntegrationPeriodDurationOBISCode |
| A2. value | UNSIGNED8 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

IntegrationPeriod

IntegrationPeriod

It is the duration elapsed between two demands calculation.

The value must be a sub-multiple of 60.

Data type: UNSIGNED8 Authorized value: 1 to 60

Default value: 15

■ Attribute 3: scaler_unit

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|----------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| | Get | Gei | GEL | GEI | - | Gei |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| ۱
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 6: | min | | | | | |
| Default value: min (6 | 5) | | | | | |

6.1.15 MinimumPowerFactorSinceLastEOB

This data is represented by an extended register object and is automatically updated at the end of each integration period.

It is reset when an EOB occurs.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;13;3;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | MinimumPowerFactorSinceLastEOBOBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | - | Get | Get | - | Get |
| Attribute description | | | | | | |
| MinPowerFactor | | | | | | |
| <u>MinPowerFactor</u> | | | | | | |
| Data type: INTEGER | 16 | | | | | |

Authorized value: -10000 to 10000

Default value: 10000

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|---------------------------------------|---------------------|--------------------|-----|-----|--------------------|-----|
| Get | Get | - | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // : { Scaler Unit } | 2 elements | | | | | |
| Scaler | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -4 | : 4 decimals | | | | | |
| Default value: 4 dec | imals (-4) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No ur | nit (255) | | | | | |

■ Attribute 4: status

Not used

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | - | Get | Get | - | Get |
| , | Attribute description | | | | | | |

Data type: NULL Authorized value: Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | - | Get | Get | - | Get |

Attribute description

DateTime

DateTime

Date and time of the minimum power factor

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12) Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

6.1.16 PreviousPowerFactor

This parameter holds the last average value of power factor (on previous integration period).

Interface

| Logica | l name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------|---------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;13; | 5;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | PreviousPowerFactorOBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | - | Get | Get | - | Get |

Attribute description

PreviousPowerFactor

PreviousPowerFactor

Data type: INTEGER16

Authorized value: -10000 to 10000

Default value: 10000

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|-------------------------|--------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| Scaler Data type: INTEGER | 00 | | | | | |
| Authorized value: -4 | | | | | | |
| Default value: -4 <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER Authorized value: 25 | | | | | | |
| Default value: No ur | | | | | | |

6.2 Cosem profiles

6.2.1 AllCumulativeMaxDemands

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max En |
|-----------------------|----------|---------------|-----------------|----------|--------------|-------------|---------|----------|----------|--------|
| 0;0;98;133;90;25
5 | 7 | 1 | 4 | 0 | RAM | 0 | 0 | 1 | 1 | 1 |
| Logical device | s: | | | | | | | | | |
| Management | Ele | ectricity | End customer | | | | | | | |
| True | | True | True | | | | | | | |
| Attributes / M | ethods | | | | | | | | | |
| Attribute (A) / Me | thod (M) | | Data typ | ре | Conten | t | | | | |
| A1. logical_name | ; | | OCTET | STRING | AllCum | ulativeMaxD | emands(| DBISCode | 9 | |
| A2. buffer | | | ARRAY | | See be | low | | | | |
| A3 capture obje | cts | | ARRAY | | See be | low | | | | |

■ Attribute 2: buffer

For each demand rate configured (max 24 rates configured), there are 2 elements :

- one for the value of the cumulative max demand register.
- one for the scaler-unit of the cumulative max demand register.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | 1 | | | | | |
| SEQUENCE OF { | // 1 elements | | | | | |
| CHOICE | | | | | | |
| { | | | | | | |
| SEQUENCE OF | // 248 el | ements ("Array | of" view a | as "Sequenc | ce" in get only |) |

```
CHOICE
           CumulativeMaxDemandValue
           CumulativeMaxDemandValue
         SEQUENCE
                       // 2 elements
           Scaler
           Unit
    Null
<u>CumulativeMaxDemandValue</u>
The type (Unsigned32) corresponds to historical cumulative max demand value.
Data type: UNSIGNED32
Authorized value: 0 to 999999999
Default value: 0
<u>CumulativeMaxDemandValue</u>
The type (Unsigned8) corresponds to current cumulative max demand value.
Always equal to 0 in this case.
Data type: UNSIGNED8
Authorized value: 0
Default value: 0
Scaler
```

Data type: INTEGER8
Authorized value: -1 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED

Authorized values:

27: W 28: VA 29: var

Default value: W (27)

<u>Null</u>

Data type: NULL Authorized value:

Default value:

■ Attribute 3: capture_objects

For each demand rate configured (max 24 rates configured), there are 2 entries in capture object:

- one with attribute index = 2 to read the value of the cumulative max demand register.
- one with attribute index = 3 to read the scaler-unit of the cumulative max demand register.

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|------------------------|--------------------------|--------------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| ~ | // 048 elemen | ıts | | | | |
| { SEQUENCE / | // 4 elements | | | | | |
| { | | | | | | |
| class_id | andDood at axODI | 'Codo | | | | |
| attribute_in | nandRegisterOBIS
ndex | code | | | | |
| data_index | | | | | | |
| } | | | | | | |
| } | | | | | | |
| class_id | | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |
| ConcernedDemand | <u>IRegisterOBISCod</u> | <u>e</u> | | | | |
| Data type: OCTETS | STRING | | | | | |
| Authorized value: D | ecoded as Decim | al (Size = 6) | | | | |
| Default value: 255;2 | 255;255;255;255;2 | 55; | | | | |
| attribute_index | | | | | | |
| Data type: INTEGE | R8 | | | | | |
| Authorized value: - | 128 to 127 | | | | | |
| Default value: 0 | | | | | | |
| data_index | | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |

6.2.2 AllDemands

Interface

| 0;0;98;133;5;25 7 1 4 0 RAM 0 0 1 1 1 1
5 | Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|--|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| | 0;0;98;133;5;25
5 | 7 | 1 | 4 | 0 | RAM | 0 | 0 | 1 | 1 | 1 |

Logical devices :

| • | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------|
| A1. logical_name | OCTETSTRING | AllDemandsOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

For each demand channel configured (max 10), 2 elements (structures) are provided:

- First element corresponds to the Previous demand
- Second element corresponds to the Rising demand

```
Electricity laboratory
                     Electricity utility
                                     Electricity reader
                                                     End customer Manufacturer Resources upgrader Engineer
        Get
                          Get
                                           Get
                                                                                               Get
                                                                     Get
Attribute description
 SEQUENCE OF
                   // 1 elements
   CHOICE
     SEQUENCE
                    // 2..20 elements ("Array Of" view as "Sequence")
       SEQUENCE
                      // 3 elements
          PreviousDemandRegisterOBISCode or RisingDemandRegisterOBISCode
          PreviousDemandValue or RisingDemandValue
          SEQUENCE
                        // 2 elements
          {
            Scaler
            Unit
 }
PreviousDemandRegisterOBISCode or RisingDemandRegisterOBISCode
FPrevious demand OBIS code or Rising demand OBIS code:
- Previous demand : field D of OBIS code = 5.
- Rising demand : field D of OBIS code = 4.
 Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
Previous Demand Value or Rising Demand Value
Previous demand value or Rising demand value.
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
Scaler
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
Unit
Data type: ENUMERATED
Authorized values:
 27: W
28: VA
29: var
Default value: W (27)
```

Data type: NULL
Authorized value:
Default value:

■ Attribute 3: capture_objects

The sort order is defined by the configuration of the meter, from channel 1 to channel 10.

The captured objects attribute is created automatically when configuring the meter.

There are 2 entries in the capture object for each demand channel configured

Access rights (clients)

| Get Get Get Get - Attribute description SEQUENCE OF // 020 elements | Get |
|---|-----|
| · | |
| { | |
| <pre>SEQUENCE // 4 elements { class_id ConcernedDemandRegisterOBISCode attribute_index data_index }</pre> | |
| <u>class_id</u> | |
| Data type: UNSIGNED16 | |
| Authorized value: 0 to 65535 | |
| Default value: 0 | |
| ConcernedDemandRegisterOBISCode Previous demand OBIS code or Rising demand OBIS code: - Previous demand: field D of OBIS code = 5 Rising demand: field D of OBIS code = 4. | |
| Data type: OCTETSTRING | |
| Authorized value: Decoded as Decimal (Size = 6) | |
| Default value: 255;255;255;255;255; | |
| attribute_index = 0 all attribut | |
| Data type: INTEGER8 | |
| Authorized value: -128 to 127 | |
| Default value: 0 | |
| <u>data_index</u> | |
| Data type: UNSIGNED16 | |
| Authorized value: 0 to 65535 | |
| Default value: 0 | |

6.2.3 AllMaximumDemands

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;6;25
5 | 7 | 1 | 1 | 0 | RAM | 48 | 0 | 1 | 1 | 48 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | AllMaximumDemandsOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Here below, the details of each index in the array (max 48 elements):

Index 1: MaximumDemand1 OBIS code

Index 2: MaximumDemand1 peak values

Index 3: MaximumDemand2 OBIS code

Index 4: MaximumDemand2 peak values

Index 5: MaximumDemand3 OBIS code

Index 6: MaximumDemand3 peak values

Index 7: MaximumDemand4 OBIS code

Index 8: MaximumDemand4 peak values

Index 9: MaximumDemand5 OBIS code

Index 10: MaximumDemand5 peak values

Index 11: MaximumDemand6 OBIS code

Index 12: MaximumDemand6 peak values

Index 13: MaximumDemand7 OBIS code

Index 14: MaximumDemand7 peak values

Index 15: MaximumDemand8 OBIS code

Index 16: MaximumDemand8 peak values

Index 17: MaximumDemand9 OBIS code

Index 18: MaximumDemand9 peak values

Index 19: MaximumDemand10 OBIS code

Index 20: MaximumDemand10 peak values

Index 21: MaximumDemand11 OBIS code

Index 22: MaximumDemand11 peak values

Index 23: MaximumDemand12 OBIS code

Index 24: MaximumDemand12 peak values

Index 25: MaximumDemand13 OBIS code

Index 26: MaximumDemand13 peak values

Index 27: MaximumDemand14 OBIS code

Index 28: MaximumDemand14 peak values

Index 29: MaximumDemand15 OBIS code

Index 30: MaximumDemand15 peak values

Index 31: MaximumDemand16 OBIS code

Index 32: MaximumDemand16 peak values

Index 33: MaximumDemand17 OBIS code

Index 34: MaximumDemand17 peak values

Index 35: MaximumDemand18 OBIS code

Index 36: MaximumDemand18 peak values

Index 37: MaximumDemand19 OBIS code

Index 38: MaximumDemand19 peak values

Index 39: MaximumDemand20 OBIS code

Index 40: MaximumDemand20 peak values

Index 41: MaximumDemand21 OBIS code

Index 42: MaximumDemand21 peak values

Index 43: MaximumDemand22 OBIS code

Index 44: MaximumDemand22 peak values Index 45: MaximumDemand23 OBIS code Index 46: MaximumDemand23 peak values Index 47: MaximumDemand24 OBIS code Index 48: MaximumDemand24 peak values

```
Access rights (clients)
 Electricity laboratory
                     Electricity utility
                                     Electricity reader
                                                    End customer Manufacturer Resources upgrader Engineer
        Get
                          Get
                                          Get
                                                        Get
                                                                    Get
                                                                                               Get
Attribute description
 SEQUENCE OF
                   // 1 elements
   CHOICE
     SEQUENCE OF
                       // 2..48 elements ("Array Of" view as "Sequence" in get only)
          ConcernedMaximumDemandOBISCode
          SEQUENCE OF // 5 elements
                         // 3 elements
            SEQUENCE
              PeakValue
              SEQUENCE
                             // 2 elements
                 Scaler
                 Unit
              PeakDateTimeStamp
     Null
 <u>ConcernedMaximumDemandOBISCode</u>
 Data type: OCTETSTRING
 Authorized value: Decoded as Decimal (Size = 6)
 Default value: 255;255;255;255;255;
 PeakValue
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
 Scaler
 Data type: INTEGER8
 Authorized value: -1 to 6
 Default value: 0
 Unit
 Data type: ENUMERATED
 Authorized values:
 27: W
 28: VA
```

29: var 255: No unit

Default value: W (27)
PeakDateTimeStamp

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

<u>Null</u>

Data type: NULL
Authorized value:
Default value:

■ Attribute 3: capture_objects

Here below, the details of each index in the array (max 48 elements):

Index 1 (MaximumDemand1): Obis_code = 0;0;98;133;61;255, Class_id = 7, Attribute_index = 1, Data_index = 0

Index 2 (MaximumDemand1): Obis_code = 0;0;98;133;61;255, Class_id = 7, Attribute_index = 2, Data_index = 0

Index 3 (MaximumDemand2): Obis_code = 0;0;98;133;62;255, Class_id = 7, Attribute_index = 1, Data_index = 0

Index 4 (MaximumDemand2): Obis_code = 0;0;98;133;62;255, Class_id = 7, Attribute_index = 2, Data_index = 0

Index 5 (MaximumDemand3): Obis_code = 0;0;98;133;63;255, Class_id = 7, Attribute_index = 1, Data_index = 0

Index 6 (MaximumDemand3): Obis_code = 0;0;98;133;63;255, Class_id = 7, Attribute_index = 2, Data_index = 0

Index 7 (MaximumDemand4): Obis_code = 0;0;98;133;64;255, Class_id = 7, Attribute_index = 1, Data_index = 0

Index 8 (MaximumDemand4): Obis_code = 0;0;98;133;64;255, Class_id = 7, Attribute_index = 2, Data_index = 0

Index 9 (MaximumDemand5): Obis_code = 0;0;98;133;65;255, Class_id = 7, Attribute_index = 1, Data_index = 0

Index 10 (MaximumDemand5): Obis_code = 0;0;98;133;65;255, Class_id = 7, Attribute_index = 2, Data index = 0

Index 11 (MaximumDemand6): Obis_code = 0;0;98;133;66;255, Class_id = 7, Attribute_index = 1, Data index = 0

Index 12 (MaximumDemand6): Obis_code = 0;0;98;133;66;255, Class_id = 7, Attribute_index = 2, Data index = 0

Index 13 (MaximumDemand7): Obis_code = 0;0;98;133;67;255, Class_id = 7, Attribute_index = 1, Data index = 0

Index 14 (MaximumDemand7): Obis_code = 0;0;98;133;67;255, Class_id = 7, Attribute_index = 2, Data index = 0

Index 15 (MaximumDemand8): Obis_code = 0;0;98;133;68;255, Class_id = 7, Attribute_index = 1, Data index = 0

Index 16 (MaximumDemand8): Obis_code = 0;0;98;133;68;255, Class_id = 7, Attribute_index = 2, Data index = 0

Index 17 (MaximumDemand9): Obis_code = 0;0;98;133;69;255, Class_id = 7, Attribute_index = 1, Data index = 0

Index 18 (MaximumDemand9): Obis_code = 0;0;98;133;69;255, Class_id = 7, Attribute_index = 2, Data index = 0

Index 19 (MaximumDemand10): Obis_code = 0;0;98;133;70;255, Class_id = 7, Attribute_index = 1, Data index = 0

Index 20 (MaximumDemand10): Obis code = 0;0;98;133;70;255, Class id = 7, Attribute index = 2,

```
Data index = 0
Index 21 (MaximumDemand11): Obis code = 0;0;98;133;71;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 22 (MaximumDemand11): Obis code = 0;0;98;133;71;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 23 (MaximumDemand12): Obis code = 0;0;98;133;72;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 24 (MaximumDemand12): Obis code = 0;0;98;133;72;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 25 (MaximumDemand13): Obis code = 0:0:98:133:73:255. Class id = 7, Attribute index = 1,
Data index = 0
Index 26 (MaximumDemand13): Obis code = 0;0;98;133;73;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 27 (MaximumDemand14): Obis code = 0;0;98;133;74;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 28 (MaximumDemand14): Obis code = 0;0;98;133;74;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 29 (MaximumDemand15): Obis_code = 0;0;98;133;75;255, Class_id = 7, Attribute_index = 1,
Data index = 0
Index 30 (MaximumDemand15): Obis code = 0;0;98;133;75;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 31 (MaximumDemand16): Obis_code = 0;0;98;133;76;255, Class_id = 7, Attribute_index = 1,
Data index = 0
Index 32 (MaximumDemand16): Obis code = 0;0;98;133;76;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 33 (MaximumDemand17): Obis code = 0;0;98;133;77;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 34 (MaximumDemand17): Obis code = 0;0;98;133;77;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 35 (MaximumDemand18): Obis code = 0;0;98;133;78;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 36 (MaximumDemand18): Obis code = 0;0;98;133;78;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 37 (MaximumDemand19): Obis code = 0;0;98;133;79;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 38 (MaximumDemand19): Obis code = 0;0;98;133;79;255, Class id = 7, Attribute index = 2,
Data index = 0
Index 39 (MaximumDemand20): Obis_code = 0;0;98;133;80;255, Class_id = 7, Attribute_index = 1,
Data index = 0
Index 40 (MaximumDemand20): Obis_code = 0;0;98;133;80;255, Class_id = 7, Attribute_index = 2,
Data index = 0
Index 41 (MaximumDemand21): Obis code = 0;0;98;133;81;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 42 (MaximumDemand21): Obis code = 0;0;98;133;81;255, Class id = 7, Attribute index = 2,
Data_index = 0
Index 43 (MaximumDemand22): Obis code = 0;0;98;133;82;255, Class id = 7, Attribute index = 1,
Data index = 0
Index 44 (MaximumDemand22): Obis_code = 0;0;98;133;82;255, Class_id = 7, Attribute_index = 2,
Data index = 0
Index 45 (MaximumDemand23): Obis_code = 0;0;98;133;83;255, Class_id = 7, Attribute_index = 1,
Data index = 0
Index 46 (MaximumDemand23): Obis_code = 0;0;98;133;83;255, Class_id = 7, Attribute_index = 2,
Data index = 0
Index 47 (MaximumDemand24): Obis_code = 0;0;98;133;84;255, Class_id = 7, Attribute_index = 1,
Data_index = 0
Index 48 (MaximumDemand24): Obis_code = 0;0;98;133;84;255, Class_id = 7, Attribute_index = 2,
Data_index = 0
Access rights (clients)
```

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|----------------------------|---------------------|--------------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF { | // 048 elemen | its | | | | |
| | // 4 elements | | | | | |
| {
class_id | | | | | | |
| | antityOBISCode | | | | | |
| attribut_ind
data_index | dex | | | | | |
| } | | | | | | |
| } | | | | | | |
| class_id | | | | | | |
| Data type: UNSIGN | NED16 | | | | | |
| Authorized value: 0 |) to 65535 | | | | | |
| Default value: 0 | | | | | | |
| ConcernedQuantity | <u>yOBISCode</u> | | | | | |
| Data type: OCTET | STRING | | | | | |
| Authorized value: [| Decoded as Decima | al (Size = 6) | | | | |
| Default value: 255; | 255;255;255;255;2 | 55; | | | | |
| attribut_index | | | | | | |
| Data type: INTEGE | ER8 | | | | | |
| Authorized value: - | 128 to 127 | | | | | |
| Default value: 0 | | | | | | |
| data_index | | | | | | |
| Data type: UNSIGN | NED16 | | | | | |
| Authorized value: 0 |) to 65535 | | | | | |
| Default value: 0 | | | | | | |

6.2.4 AllPowerFactors

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;133;31;25
5 | 7 | 1 | 3 | 0 | ROM | 5 | 0 | 1 | 1 | 1 |

Logical devices :

| • | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------|
| A1. logical_name | OCTETSTRING | AllPowerFactorsOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

End customer Manufacturer Resources upgrader Engineer

End customer Manufacturer Resources upgrader Engineer **Electricity laboratory** Electricity utility Electricity reader Get Get Get Get Attribute description SEQUENCE OF // 1 elements SEQUENCE // 5 elements AveragePowerFactor (Att. Id: 1, Abs. Number: 2) AveragePowerFactor (Att. Id: 3, Abs. Number: 2) AveragePowerFactor (Att. Id: 2, Abs. Number: 2) AveragePowerFactor (Att. Id: 4, Abs. Number: 2) MinimumPowerFactorSinceLastEOB (Att. Id: 0, Abs. Number: 1) }

■ Attribute 3: capture_objects

```
Here below, the details of each index in the array:
```

Electricity utility

```
Index 1 (AveragePowerFactor): Obis_code = 1;1;13;4;0;255, Class_id = 5, Attribute_index = 1, Data_index = 0
```

Index 2 (AveragePowerFactor): Obis_code = 1;1;13;4;0;255, Class_id = 5, Attribute_index = 3, Data_index =

Index 3 (AveragePowerFactor): Obis_code = 1;1;13;4;0;255, Class_id = 5, Attribute_index = 2, Data_index = 0

Index 4 (AveragePowerFactor): Obis_code = 1;1;13;4;0;255, Class_id = 5, Attribute_index = 4, Data_index = 0

Index 5 (MinimumPowerFactorSinceLastEOB): Obis_code = 1;1;13;3;0;255, Class_id = 4, Attribute_index = 0, Data_index = 0

Electricity reader

Access rights (clients)

Electricity laboratory

```
Get
                          Get
                                           Get
                                                          Get
                                                                      Get
                                                                                                 Get
Attribute description
 SEQUENCE OF
                   // 5 elements
   SEQUENCE
                  // 4 elements
     Class_id
     Obis_code
     Attribute index
     Data_index
 }
Class id
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
Obis_code
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
 Attribute index
Data type: INTEGER8
Authorized value: -128 to 127
```

Default value: 0

<u>Data index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6.2.5 ExcessDemandProfile

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;7;25
5 | 7 | 1 | 2 | 0 | RAM | 0 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | ExcessDemandProfileOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

The Excess Demand Profile contains the Threshold, Occurrences, Duration, and Magnitude for each configured rate (monitored or not).

To know which rates are monitored, the value "monitored_value" of each DemandRateParameters has to be read.

Each group of 4 elements in the array corresponds to a configured rate :

- first element : excess demand Threshold
- second element : excess demand Occurrences
- third element : excess demand Duration
- fourth element : excess demand Magnitude

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|----------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE OF { CHOICE | // 1 elements | | | | | |
| SEQUENCE
{ | // 496 eleme | ents ("Array Of | " view as | "Sequence" |) | |
| SEQUENCE
{ | // 3 element | S | | | | |
| logical_ | _name | | | | | |
| CHOICE
{ | | | | | | |
| Excess | s demand Magnitu | de or Duration | ı | | | |
| Excess
} | s demand Thresho | old or Occurrer | nces | | | |
| SEQUENCE
{
Scale: | Z // 2 eleme | ents | | | | |
| unit } | | | | | | |

```
}
    RateOperatingTime
}
```

logical name

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255; Excess demand Magnitude or Duration

Corresponds to value of Excess demand Magnitude (max value = 999 999 999) or to value of Excess

demand Duration.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

Excess demand Threshold or Occurrences

Corresponds to value of Excess demand Threshold or value of Excess demand Occurrences.

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

Scaler

For Excess demand Ocurrences and Excess demand Duration, scaler is always equal to 0.

For Excess demand magnitude and Excess demand threshold, scaler corresponds to channel scaler.

Data type: INTEGER8
Authorized value: -1 to 6

Default value: 0

<u>unit</u>

For Excess demand Occurrences, Unit is always equal to No unit (255).

For Excess demand Duration, Unit is always equal to Min (6).

For Excess demand Threshold and Magnitude, Unit can be equal to W(27), VA(28) or var(29).

Data type: ENUMERATED

Authorized values:

6: min 27: W 28: VA 29: var

255: No unit

Default value: No unit (255)

RateOperatingTime

Data type: NULL
Authorized value:
Default value:

■ Attribute 3: capture_objects

All excess data are available for reading as a whole through a profile (current values in Demand Registering exploitation data or historical values in the EOBData profile).

The Excess Demand Profile contains the Threshold, Occurrences, Duration, and Magnitude for each configured rate (monitored or not).

To know which rates are monitored, the value "monitored_value" of each DemandRateParameters has to be read. So, the DemandRateXParameters objects (X = 1..10) are now readable in the Electricity Logical Device to allow the reading of each monitored_value parameter.

Access rights (clients)

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                                                                       Get
                           Get
                                            Get
                                                           Get
                                                                                                   Get
Attribute description
SEQUENCE OF
                   // 0..96 elements
   SEQUENCE
                  // 4 elements
     class_id
     logical_name
     attribute_index
     data_index
 }
class id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
logical name
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
 Default value: 255;255;255;255;255;255;
 attribute index
Data type: INTEGER8
Authorized value: -128 to 127
 Default value: 0
data_index
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
```

6.2.6 MaximumDemand1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;61;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand1OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description
 SEQUENCE OF
               // 5 elements
 {
   CHOICE
     Null data
                // 3 elements
     SEQUENCE
       PeakValue
       SEQUENCE // 2 elements
         Scaler
         unit
       PeakDateTimeStamp
   }
Null data
Null data when corresponding demand rate is not configured.
Data type: NULL
Authorized value:
 Default value:
PeakValue
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
<u>Scaler</u>
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
<u>unit</u>
Data type: ENUMERATED
Authorized values:
 27: W
28: VA
 29: var
255: No unit
```

Default value: W (27) **PeakDateTimeStamp** Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

■ Attribute 3: capture_objects

Access rights (clients)

| Attribute description CROTCE { SEQUENCE OF | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---------------------------|------------------------|--------------------|--------------|--------------|--------------------|----------|
| CHOICE { SEQUENCE OF | | | | | | - | |
| { SEQUENCE OF // 3 elements { class_id MaximumDemandRegisternOBISCode attribute_index data_index } } SEQUENCE OF // 0 elements { } SEQUENCE OF // 0 elements { } } Class_id Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255;55; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Attribute description | | | | | | |
| { class_id MaximumDemandRegisternOBISCode attribute_index data_index } } } } SEQUENCE OF // 0 elements { } } } SEQUENCE OF // 0 elements { } } } } Class_id Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | { SEQUENCE OF { | | | | | | |
| attribute_index data_index } SEQUENCE OF // 0 elements { } } class_id Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255;355; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | { class_id | | _ | | | | |
| class_id Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | attribute_:
data_index | index | SCode | | | | |
| Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | SEQUENCE OF { | // 0 elements | | | | | |
| Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | class_id | | | | | | |
| Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Data type: UNSIGNI | ED16 | | | | | |
| MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Authorized value: 0 | to 65535 | | | | | |
| Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Default value: 0 | | | | | | |
| Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | MaximumDemandR | <u>egisternOBISCod</u> | <u>e</u> | | | | |
| Default value: 255;255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Data type: OCTETS | TRING | | | | | |
| attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Authorized value: Do | ecoded as Decima | al (Size = 6) | | | | |
| Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Default value: 255;2 | 255;255;255;255;2 | 55; | | | | |
| Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | attribute_index | | | | | | |
| Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Data type: INTEGER | ₹8 | | | | | |
| data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Authorized value: -1 | 28 to 127 | | | | | |
| Data type: UNSIGNED16 Authorized value: 0 to 65535 | Default value: 0 | | | | | | |
| Authorized value: 0 to 65535 | data_index | | | | | | |
| | Data type: UNSIGN | ED16 | | | | | |
| Default value: 0 | Authorized value: 0 | to 65535 | | | | | |
| | Default value: 0 | | | | | | |

6.2.7 MaximumDemand10

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;70;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------|
| A1. logical_name | OCTETSTRING | MaximumDemand10OBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | CHOICE | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Null data

Null data when corresponding demand rate is not configured.

Data type: NULL Authorized value:

Default value:

PeakValue

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

Scaler

Data type: INTEGER8
Authorized value: -1 to 6

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized values:

27: W 28: VA 29: var 255: No unit Default value: W (27)
PeakDateTimeStamp

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

■ Attribute 3: capture_objects

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|-------------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| CHOICE
{ | | | | | | |
| SEQUENCE OF | // 3 elements | | | | | |
| {
SEQUENCE | // 4 elements | | | | | |
| {
class_id | | | | | | |
| MaximumDema | andRegisternOBI | SCode | | | | |
| attribute_i
data_index | index | | | | | |
| } | | | | | | |
| }
SEQUENCE OF | // 0 elements | | | | | |
| {
} | | | | | | |
| } | | | | | | |
| class_id | | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |
| MaximumDemandRo | <u>egisternOBISCode</u> | <u>e</u> | | | | |
| Data type: OCTETS | TRING | | | | | |
| Authorized value: De | ecoded as Decima | al (Size = 6) | | | | |
| Default value: 255;2 | 55;255;255;255;2 | 55; | | | | |
| attribute_index | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | 28 to 127 | | | | | |
| Default value: 0 | | | | | | |
| data_index | | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |

6.2.8 MaximumDemand11

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;71;25
5 | 5 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

PeakValue
GEOGIENCE // 2 elements

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------|
| A1. logical_name | OCTETSTRING | MaximumDemand11OBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | CHOICE | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A their sets of a seriestic or | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 5 elements | | | | | |
| { | | | | | | |
| CHOICE | | | | | | |
| { | | | | | | |
| Null data | | | | | | |
| SECTIENCE | // 3 elements | | | | | |

}
Null data

}

Null data when corresponding demand rate is not configured.

Data type: NULL
Authorized value:
Default value:
PeakValue

Data type: UNSIGNED16 Authorized value: 0 to 65535

Scaler unit

PeakDateTimeStamp

Default value: 0

<u>Scaler</u>

Data type: INTEGER8

Authorized value: -1 to 6

Default value: 0

unit

Data type: ENUMERATED

Authorized values:

```
27: W
28: VA
29: var
255: No unit

Default value: W (27)

PeakDateTimeStamp

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

■ Attribute 3: capture_objects

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                            Get
                                                          Get
                                                                      Get
                                                                                                  Get
Attribute description
 CHOICE
   SEQUENCE OF
                     // 3 elements
     SEQUENCE
                     // 4 elements
       class_id
       MaximumDemandRegisternOBISCode
       attribute_index
       data_index
   SEQUENCE OF
                     // 0 elements
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
 attribute_index
 Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
data index
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
```

6.2.9 MaximumDemand12

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;72;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand12OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |

■ Attribute 2: buffer

Access rights (clients)

Attribute description

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

PeakDateTimeStamp

Null data

}

Null data when corresponding demand rate is not configured.

Data type: NULL

unit

Authorized value:

Default value:

<u>PeakValue</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>Scaler</u>

Data type: INTEGER8
Authorized value: -1 to 6

Default value: 0

unit Data type: ENUMERATED Authorized values: 27: W 28: VA 29: var 255: No unit Default value: W (27) PeakDateTimeStamp Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 12) Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

■ Attribute 3: capture_objects

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
                           Get
                                            Get
                                                                      Get
                                                                                                  Get
Attribute description
 CHOICE
   SEQUENCE OF
                     // 3 elements
     SEQUENCE
                    // 4 elements
       class_id
       MaximumDemandRegisternOBISCode
       attribute_index
       data_index
   SEQUENCE OF
                     // 0 elements
class_id
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
 attribute_index
Data type: INTEGER8
 Authorized value: -128 to 127
Default value: 0
 data_index
```

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6.2.10 MaximumDemand13

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;73;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

Management Electricity End customer
True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand13OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |

■ Attribute 2: buffer

Access rights (clients)

```
Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Get Get - Get

Attribute description
```

Null data

Null data when corresponding demand rate is not configured.

Data type: NULL
Authorized value:
Default value:
PeakValue

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>Scaler</u>

Data type: INTEGER8

Authorized value: -1 to 6

Default value: 0

unit

Data type: ENUMERATED

Authorized values:
27: W
28: VA
29: var
255: No unit

Default value: W (27)

PeakDateTimeStamp

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

■ Attribute 3: capture_objects

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                     End customer Manufacturer Resources upgrader Engineer
        Get
                                                                      Get
Attribute description
 CHOICE
   SEQUENCE OF
                     // 3 elements
                    // 4 elements
     SEQUENCE
       class_id
       MaximumDemandRegisternOBISCode
       attribute_index
       data_index
   SEQUENCE OF
                     // 0 elements
class id
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
 Default value: 255;255;255;255;255;
attribute_index
 Data type: INTEGER8
```

Authorized value: -128 to 127

Default value: 0 data_index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6.2.11 MaximumDemand14

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;74;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

Management Electricity End customer
True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand14OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description
```

Null data

Null data when corresponding demand rate is not configured.

Data type: NULL

Authorized value:

Default value:

PeakValue

Data type: UNSIGNED16

```
Authorized value: 0 to 65535
Default value: 0
Scaler
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
unit
Data type: ENUMERATED
Authorized values:
27: W
28: VA
29: var
255: No unit
Default value: W (27)
PeakDateTimeStamp
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

■ Attribute 3: capture_objects

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                                                                                  Get
Attribute description
 CHOICE
   SEQUENCE OF
                      // 3 elements
     SEQUENCE
                     // 4 elements
       class_id
       MaximumDemandRegisternOBISCode
       attribute_index
       data_index
     }
   SEQUENCE OF
                      // 0 elements
class_id
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
```

Default value: 255;255;255;255;255;

attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 data_index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6.2.12 MaximumDemand15

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;75;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand15OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Get Get Get Get - Get | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |

Attribute description

Null data

Null data when corresponding demand rate is not configured.

Data type: NULL

Authorized value:

```
Default value:
PeakValue
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Scaler
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
unit
Data type: ENUMERATED
Authorized values:
27: W
28: VA
29: var
255: No unit
Default value: W (27)
PeakDateTimeStamp
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

■ Attribute 3: capture_objects

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                            Get
                                                           Get
                                                                       Get
                                                                                                   Get
Attribute description
 CHOICE
   SEQUENCE OF
                      // 3 elements
                     // 4 elements
     SEQUENCE
       class_id
       MaximumDemandRegisternOBISCode
       attribute_index
       data_index
   SEQUENCE OF
                      // 0 elements
class id
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
```

$\underline{MaximumDemandRegisternOBISCode}$

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 data index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6.2.13 MaximumDemand16

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;76;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand16OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture objects | CHOICE | See below | |

■ Attribute 2: buffer

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | = | Get |
| A () | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 5 elements | | | | | |
| { | | | | | | |
| CHOICE | | | | | | |
| { | | | | | | |
| Null data | | | | | | |
| SEQUENCE | // 3 elements | | | | | |
| { | | | | | | |
| PeakValue | | | | | | |
| SEQUENCE | // 2 elements | 5 | | | | |
| { | | | | | | |
| Scaler | | | | | | |
| unit | | | | | | |
| } | | | | | | |
| PeakDateT | imeStamp | | | | | |
| } | | | | | | |
| } | | | | | | |
| } | | | | | | |
| Null data | | | | | | |

Null data when corresponding demand rate is not configured. Data type: NULL Authorized value: Default value: **PeakValue** Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 Scaler Data type: INTEGER8 Authorized value: -1 to 6 Default value: 0 unit Data type: ENUMERATED Authorized values: 27: W 28: VA 29: var 255: No unit Default value: W (27) **PeakDateTimeStamp**

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12) Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

■ Attribute 3: capture_objects

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                        End customer Manufacturer Resources upgrader Engineer
        Get
                            Get
                                             Get
                                                            Get
                                                                         Get
                                                                                                      Get
Attribute description
 CHOICE
   SEQUENCE OF
                      // 3 elements
     SEQUENCE
                     // 4 elements
        class_id
        {\tt MaximumDemandRegisternOBISCode}
        attribute_index
        data_index
   SEQUENCE OF
                       // 0 elements
 class id
```

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

<u>MaximumDemandRegisternOBISCode</u>

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 data_index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6.2.14 MaximumDemand17

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;77;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

 Management
 Electricity
 End customer

 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------|
| A1. logical_name | OCTETSTRING | MaximumDemand17OBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | CHOICE | See below |

■ Attribute 2: buffer

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|----------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE OF { CHOICE | // 5 elements | | | | | |
| { | | | | | | |
| Null data
SEQUENCE | // 3 elements | | | | | |
| { | // 5 CICILCITES | | | | | |
| PeakValue | | | | | | |
| SEQUENCE
{ | // 2 elements | 5 | | | | |
| Scaler
unit | | | | | | |
| } | | | | | | |
| PeakDateTi | imeStamp | | | | | |

```
Null data
Null data when corresponding demand rate is not configured.
Data type: NULL
Authorized value:
Default value:
PeakValue
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
<u>Scaler</u>
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
<u>unit</u>
Data type: ENUMERATED
Authorized values:
27: W
28: VA
29: var
255: No unit
Default value: W (27)
PeakDateTimeStamp
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | <u>-</u> | Get |
| Attribute description | | | | | | |
| · | | | | | | |
| CHOICE | | | | | | |
| { | | | | | | |
| SEQUENCE OF | // 3 elements | | | | | |
| { | | | | | | |
| SEQUENCE | // 4 elements | | | | | |
| { | | | | | | |
| class_id | | | | | | |
| MaximumDem | andRegisternOBI | SCode | | | | |
| attribute_ | index | | | | | |
| _
data_index | | | | | | |
| } | | | | | | |
| } | | | | | | |
| SEQUENCE OF | // 0 elements | | | | | |
| l STATINGE OF | // O CICINCIICS | | | | | |
| l | | | | | | |

class_id

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

MaximumDemandRegisternOBISCode

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;255;

attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

data_index

Data type: UNSIGNED16

Authorized value: 0 to 65535

6.2.15 MaximumDemand18

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;78;25 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

Management Electricity End customer
True True True

Attributes / Methods

Default value: 0

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand18OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |

■ Attribute 2: buffer

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | |
| | | | | | | | | | | |
| Attribute description | | | | | | | | | | |
| SEQUENCE OF | // 5 elements | | | | | | | | | |
| CHOICE | | | | | | | | | | |
| {
Null data | | | | | | | | | | |
| SEQUENCE
{ | // 3 elements | | | | | | | | | |
| PeakValue | | | | | | | | | | |
| SEQUENCE | // 2 element: | S | | | | | | | | |

```
Scaler
         unit
       PeakDateTimeStamp
  }
}
Null data
Null data when corresponding demand rate is not configured.
Data type: NULL
Authorized value:
Default value:
PeakValue
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Scaler
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
<u>unit</u>
Data type: ENUMERATED
Authorized values:
27: W
28: VA
29: var
255: No unit
Default value: W (27)
PeakDateTimeStamp
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|---|--------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | |
| | | | | | | | | | | |
| P | Attribute description | | | | | | | | | |
| | CHOICE | | | | | | | | | |
| | { | | | | | | | | | |
| | SEQUENCE OF | // 3 elements | | | | | | | | |
| | { | | | | | | | | | |
| | SEQUENCE | // 4 elements | | | | | | | | |
| | { | | | | | | | | | |
| | class_id | | | | | | | | | |
| | MaximumDemandRegisternOBISCode | | | | | | | | | |
| | attribute_index | | | | | | | | | |

```
data_index
  SEQUENCE OF // 0 elements
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
attribute index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
data index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

6.2.16 MaximumDemand19

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;79;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------|
| A1. logical_name | OCTETSTRING | MaximumDemand19OBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | CHOICE | See below |

■ Attribute 2: buffer

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF { CHOICE | // 5 elements | | | | | |

```
Null data
                   // 3 elements
    SEQUENCE
      PeakValue
                    // 2 elements
       SEQUENCE
         Scaler
         unit
      PeakDateTimeStamp
    }
  }
}
Null data
Null data when corresponding demand rate is not configured.
Data type: NULL
Authorized value:
Default value:
PeakValue
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Scaler
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
unit
Data type: ENUMERATED
Authorized values:
27: W
28: VA
29: var
255: No unit
Default value: W (27)
PeakDateTimeStamp
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

```
SEQUENCE
                   // 4 elements
      class_id
      MaximumDemandRegisternOBISCode
      attribute_index
      data_index
  SEQUENCE OF // 0 elements
class id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
attribute index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
data_index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

6.2.17 MaximumDemand2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;62;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

| • | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand2OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |

■ Attribute 2: buffer

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description
 SEQUENCE OF
               // 5 elements
   CHOICE
     Null data
     SEQUENCE // 3 elements
       PeakValue
SEQUENCE // 2 elements
         Scaler
         unit
       PeakDateTimeStamp
   }
 }
Null data
Null data when corresponding demand rate is not configured.
Data type: NULL
Authorized value:
 Default value:
PeakValue
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Scaler
Data type: INTEGER8
Authorized value: -1 to 6
 Default value: 0
unit
Data type: ENUMERATED
Authorized values:
 27: W
 28: VA
29: var
255: No unit
Default value: W (27)
PeakDateTimeStamp
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description
 CHOICE
   SEQUENCE OF
                   // 3 elements
     SEQUENCE
                   // 4 elements
       class_id
       MaximumDemandRegisternOBISCode
       attribute_index
       data_index
   SEQUENCE OF // 0 elements
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
attribute_index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
data index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

6.2.18 MaximumDemand20

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;80;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------|
| A1. logical_name | OCTETSTRING | MaximumDemand20OBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | CHOICE | See below |

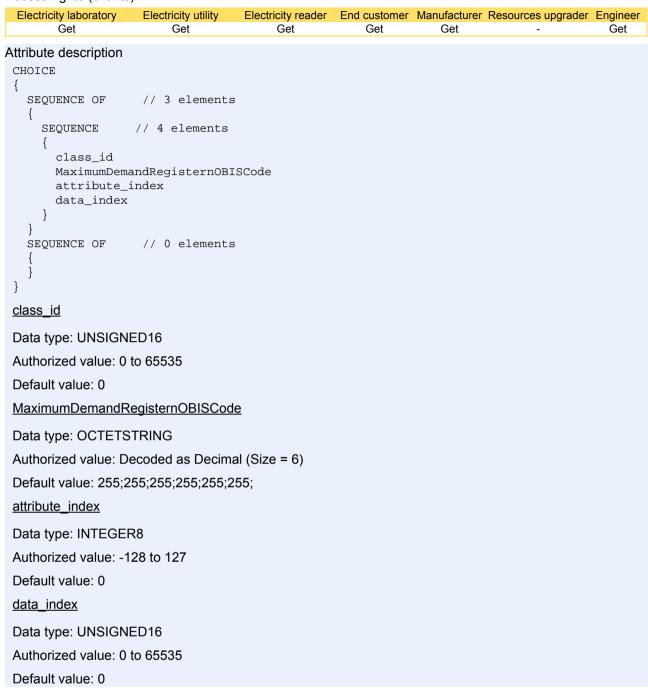
■ Attribute 2: buffer

Access rights (clients)

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                            Get
                                                           Get
                                                                       Get
Attribute description
 SEQUENCE OF
                   // 5 elements
   CHOICE
     Null data
     SEQUENCE
                    // 3 elements
        PeakValue
        SEQUENCE // 2 elements
          Scaler
          unit
        PeakDateTimeStamp
   }
 }
Null data
Null data when corresponding demand rate is not configured.
Data type: NULL
Authorized value:
 Default value:
<u>PeakValue</u>
 Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
<u>Scaler</u>
Data type: INTEGER8
Authorized value: -1 to 6
 Default value: 0
unit
Data type: ENUMERATED
 Authorized values:
 27: W
 28: VA
 29: var
255: No unit
Default value: W (27)
PeakDateTimeStamp
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

■ Attribute 3: capture_objects

Access rights (clients)



6.2.19 MaximumDemand21

Electricity

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;81;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |
| Logical devices | s: | | | | | | | | | |

End customer

True

True Attributes / Methods

Management

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand21OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |

■ Attribute 2: buffer

Access rights (clients)

PeakDateTimeStamp

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description
 SEQUENCE OF
               // 5 elements
 {
   CHOICE
     Null data
                // 3 elements
     SEQUENCE
       PeakValue
       SEQUENCE // 2 elements
         Scaler
         unit
       PeakDateTimeStamp
   }
Null data
Null data when corresponding demand rate is not configured.
Data type: NULL
Authorized value:
 Default value:
PeakValue
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
<u>Scaler</u>
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
<u>unit</u>
Data type: ENUMERATED
Authorized values:
 27: W
28: VA
 29: var
255: No unit
Default value: W (27)
```

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

■ Attribute 3: capture_objects

Access rights (clients)

| Attribute description CROTCE { SEQUENCE OF | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|--|-------------------------------|------------------------|--------------------|--------------|--------------|--------------------|----------|--|
| CHOICE { SEQUENCE OF | | | | | | - | | |
| { SEQUENCE OF // 3 elements { class_id MaximumDemandRegisternOBISCode attribute_index data_index } } SEQUENCE OF // 0 elements { } SEQUENCE OF // 0 elements { } } Class_id Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255;55; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Attribute description | | | | | | | |
| { class_id MaximumDemandRegisternOBISCode attribute_index data_index } } } } SEQUENCE OF // 0 elements { } } } SEQUENCE OF // 0 elements { } } } } Class_id Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | { SEQUENCE OF { | | | | | | | |
| attribute_index data_index } SEQUENCE OF // 0 elements { } } class_id Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255;355; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | { class_id | | _ | | | | | |
| class_id Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | attribute_:
data_index | index | SCode | | | | | |
| Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | SEQUENCE OF { | // 0 elements | | | | | | |
| Authorized value: 0 to 65535 Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | class_id | | | | | | | |
| Default value: 0 MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Data type: UNSIGNI | ED16 | | | | | | |
| MaximumDemandRegisternOBISCode Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Authorized value: 0 | to 65535 | | | | | | |
| Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Default value: 0 | | | | | | | |
| Authorized value: Decoded as Decimal (Size = 6) Default value: 255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | MaximumDemandR | <u>egisternOBISCod</u> | <u>e</u> | | | | | |
| Default value: 255;255;255;255;255;255; attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Data type: OCTETS | TRING | | | | | | |
| attribute_index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Authorized value: Do | ecoded as Decima | al (Size = 6) | | | | | |
| Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Default value: 255;2 | 255;255;255;255;2 | 55; | | | | | |
| Authorized value: -128 to 127 Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | attribute_index | | | | | | | |
| Default value: 0 data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Data type: INTEGER | ₹8 | | | | | | |
| data_index Data type: UNSIGNED16 Authorized value: 0 to 65535 | Authorized value: -128 to 127 | | | | | | | |
| Data type: UNSIGNED16 Authorized value: 0 to 65535 | Default value: 0 | | | | | | | |
| Authorized value: 0 to 65535 | data_index | | | | | | | |
| | Data type: UNSIGNED16 | | | | | | | |
| Default value: 0 | Authorized value: 0 to 65535 | | | | | | | |
| | Default value: 0 | | | | | | | |

6.2.20 MaximumDemand22

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;82;25 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |
| 5 | | | | | | | | | | |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------|
| A1. logical_name | OCTETSTRING | MaximumDemand22OBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | CHOICE | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Null data

Null data when corresponding demand rate is not configured.

Data type: NULL Authorized value:

Default value:

PeakValue

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

Scaler

Data type: INTEGER8
Authorized value: -1 to 6

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized values:

27: W 28: VA 29: var 255: No unit Default value: W (27)

PeakDateTimeStamp

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

■ Attribute 3: capture_objects

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|---------------------------|---------------------|--------------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| CHOICE
{ | | | | | | |
| | // 3 elements | | | | | |
| • | // 4 elements | | | | | |
| {
class_id | | | | | | |
| MaximumDema | andRegisternOBI | SCode | | | | |
| attribute_i
data_index | ındex | | | | | |
| } | | | | | | |
| SEQUENCE OF | // 0 elements | | | | | |
| { | | | | | | |
| } | | | | | | |
| class_id | | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |
| MaximumDemandRo | egisternOBISCode | <u>e</u> | | | | |
| Data type: OCTETS | TRING | | | | | |
| Authorized value: De | ecoded as Decima | al (Size = 6) | | | | |
| Default value: 255;2 | 55;255;255;255;2 | 55; | | | | |
| attribute_index | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | 28 to 127 | | | | | |
| Default value: 0 | | | | | | |
| data_index | | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |

6.2.21 MaximumDemand23

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;83;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------|
| A1. logical_name | OCTETSTRING | MaximumDemand23OBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | CHOICE | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

```
SEQUENCE OF // 5 elements

{
   CHOICE
   {
     Null data
     SEQUENCE // 3 elements
     {
        PeakValue
        SEQUENCE // 2 elements
        {
            Scaler
            unit
        }
        PeakDateTimeStamp
     }
   }
}
```

Null data

Null data when corresponding demand rate is not configured.

Data type: NULL
Authorized value:
Default value:
PeakValue

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

<u>Scaler</u>

Data type: INTEGER8
Authorized value: -1 to 6

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized values:

```
27: W
28: VA
29: var
255: No unit

Default value: W (27)

PeakDateTimeStamp

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                            Get
                                                          Get
                                                                      Get
                                                                                                  Get
Attribute description
 CHOICE
   SEQUENCE OF
                     // 3 elements
     SEQUENCE
                     // 4 elements
       class_id
       MaximumDemandRegisternOBISCode
       attribute_index
       data_index
   SEQUENCE OF
                     // 0 elements
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
 attribute_index
 Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
data index
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
```

6.2.22 MaximumDemand24

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;84;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand24OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description
```

Null data

Null data when corresponding demand rate is not configured.

Data type: NULL

Authorized value:

Default value:

PeakValue

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>Scaler</u>

Data type: INTEGER8
Authorized value: -1 to 6

Default value: 0

unit Data type: ENUMERATED Authorized values: 27: W 28: VA 29: var 255: No unit Default value: W (27) PeakDateTimeStamp Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 12) Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

■ Attribute 3: capture_objects

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                            Get
                                                          Get
                                                                      Get
                                                                                                  Get
Attribute description
 CHOICE
   SEQUENCE OF
                      // 3 elements
     SEQUENCE
                     // 4 elements
       class_id
       MaximumDemandRegisternOBISCode
       attribute_index
       data_index
   SEQUENCE OF
                     // 0 elements
class_id
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
 attribute_index
Data type: INTEGER8
 Authorized value: -128 to 127
Default value: 0
 data_index
```

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6.2.23 MaximumDemand3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;63;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

Management Electricity End customer True True True

Electricity utility

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | MaximumDemand3OBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | CHOICE | See below |

■ Attribute 2: buffer

Access rights (clients)

```
Electricity laboratory
                                                             End customer Manufacturer Resources upgrader Engineer
         Get
                              Get
                                                  Get
                                                                  Get
                                                                                Get
                                                                                                               Get
Attribute description
```

Electricity reader

```
SEQUENCE OF
               // 5 elements
 CHOICE
   Null data
                 // 3 elements
   SEQUENCE
     PeakValue
     SEQUENCE
                 // 2 elements
       Scaler
        unit
     PeakDateTimeStamp
 }
}
```

Null data

Null data when corresponding demand rate is not configured.

Data type: NULL Authorized value: Default value: **PeakValue**

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

Scaler

Data type: INTEGER8

Authorized value: -1 to 6

Default value: 0

unit

Data type: ENUMERATED

Authorized values:
27: W
28: VA
29: var
255: No unit

Default value: W (27)

PeakDateTimeStamp

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

■ Attribute 3: capture_objects

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
        Get
                                           Get
                                                                      Get
Attribute description
 CHOICE
   SEQUENCE OF
                      // 3 elements
                    // 4 elements
     SEQUENCE
       class_id
       MaximumDemandRegisternOBISCode
       attribute_index
       data_index
   SEQUENCE OF
                     // 0 elements
class id
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
 Default value: 255;255;255;255;255;
attribute_index
 Data type: INTEGER8
```

Authorized value: -128 to 127

Default value: 0 data_index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6.2.24 MaximumDemand4

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;64;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

Management Electricity End customer
True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | MaximumDemand4OBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | CHOICE | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description
```

Null data

Null data when corresponding demand rate is not configured.

Data type: NULL

Authorized value:

Default value:

PeakValue

Data type: UNSIGNED16

Authorized value: 0 to 65535 Default value: 0 Scaler Data type: INTEGER8 Authorized value: -1 to 6 Default value: 0 unit Data type: ENUMERATED Authorized values: 27: W 28: VA 29: var 255: No unit Default value: W (27) **PeakDateTimeStamp** Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 12)

■ Attribute 3: capture_objects

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                                                                                  Get
Attribute description
 CHOICE
   SEQUENCE OF
                      // 3 elements
     SEQUENCE
                     // 4 elements
       class_id
       MaximumDemandRegisternOBISCode
       attribute_index
       data_index
     }
   SEQUENCE OF
                      // 0 elements
class_id
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
```

Default value: 255;255;255;255;255;

attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0
data index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6.2.25 MaximumDemand5

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;65;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

Electricity utility

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand5OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |

■ Attribute 2: buffer

Access rights (clients)

Electricity laboratory

| | Get | G | et | Get | Get | Get | - | Get |
|---|-----------------------|----------|--------|-----|-----|-----|---|-----|
| , | Attribute description | | | | | | | |
| | SEQUENCE OF | // 5 ele | ements | | | | | |

End customer Manufacturer Resources upgrader Engineer

Electricity reader

Null data

Null data when corresponding demand rate is not configured.

Data type: NULL

Authorized value:

```
Default value:
PeakValue
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Scaler
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
unit
Data type: ENUMERATED
Authorized values:
27: W
28: VA
29: var
255: No unit
Default value: W (27)
PeakDateTimeStamp
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                            Get
                                                           Get
                                                                       Get
                                                                                                   Get
Attribute description
 CHOICE
   SEQUENCE OF
                      // 3 elements
                     // 4 elements
     SEQUENCE
       class_id
       MaximumDemandRegisternOBISCode
       attribute_index
       data_index
   SEQUENCE OF
                      // 0 elements
class id
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
```

$\underline{MaximumDemandRegisternOBISCode}$

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 data index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6.2.26 MaximumDemand6

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;66;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | MaximumDemand6OBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | CHOICE | See below |

■ Attribute 2: buffer

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A thaile and a salar a sailer than | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 5 elements | | | | | |
| { | | | | | | |
| CHOICE | | | | | | |
| { | | | | | | |
| Null data | | | | | | |
| SEQUENCE | // 3 elements | | | | | |
| { | | | | | | |
| PeakValue | | | | | | |
| SEQUENCE | // 2 elements | 5 | | | | |
| { | | | | | | |
| Scaler | | | | | | |
| unit | | | | | | |
| } | | | | | | |
| PeakDateT: | imeStamp | | | | | |
| } | | | | | | |
| } | | | | | | |
| } | | | | | | |
| Null data | | | | | | |

Null data when corresponding demand rate is not configured. Data type: NULL Authorized value: Default value: **PeakValue** Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 Scaler Data type: INTEGER8 Authorized value: -1 to 6 Default value: 0 unit Data type: ENUMERATED Authorized values: 27: W 28: VA 29: var 255: No unit Default value: W (27) **PeakDateTimeStamp**

■ Attribute 3: capture_objects

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

Data type: OCTETSTRING

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                        End customer Manufacturer Resources upgrader Engineer
        Get
                            Get
                                             Get
                                                            Get
                                                                         Get
                                                                                                      Get
Attribute description
 CHOICE
   SEQUENCE OF
                      // 3 elements
     SEQUENCE
                     // 4 elements
        class_id
        {\tt MaximumDemandRegisternOBISCode}
        attribute_index
        data_index
   SEQUENCE OF
                       // 0 elements
 class id
```

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

<u>MaximumDemandRegisternOBISCode</u>

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 data_index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

6.2.27 MaximumDemand7

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;67;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

ManagementElectricityEnd customerTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | MaximumDemand7OBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | CHOICE | See below |

■ Attribute 2: buffer

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|----------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE OF { | // 5 elements | | | | | |
| CHOICE { | | | | | | |
| Null data | | | | | | |
| SEQUENCE
{ | // 3 elements | | | | | |
| PeakValue | | | | | | |
| SEQUENCE
{ | // 2 elements | 3 | | | | |
| Scaler
unit | | | | | | |
| } | | | | | | |
| PeakDateT: | imeStamp | | | | | |

```
Null data
Null data when corresponding demand rate is not configured.
Data type: NULL
Authorized value:
Default value:
PeakValue
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
<u>Scaler</u>
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
<u>unit</u>
Data type: ENUMERATED
Authorized values:
27: W
28: VA
29: var
255: No unit
Default value: W (27)
PeakDateTimeStamp
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get | | | |
|---|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|--|--|--|
| Attribute description | | | | | | | | | |
| CHOICE | | | | | | | | | |
| SEQUENCE OF | // 3 elements | | | | | | | | |
| SEQUENCE
{
class_id | // 4 elements | | | | | | | | |
| Class_id MaximumDemandRegisternOBISCode attribute_index data_index | | | | | | | | | |
| }
SEQUENCE OF
{ | // 0 elements | | | | | | | | |

class_id

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

MaximumDemandRegisternOBISCode

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;255;

attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

data_index

Data type: UNSIGNED16

Authorized value: 0 to 65535

6.2.28 MaximumDemand8

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;68;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

Default value: 0

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand8OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |

■ Attribute 2: buffer

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | 1 | | | | | |
| SEQUENCE OF | // 5 elements | | | | | |
| CHOICE | | | | | | |
| {
Null data | | | | | | |
| SEQUENCE
{ | // 3 elements | | | | | |
| PeakValue | | | | | | |
| SEQUENCE | // 2 elements | 5 | | | | |

```
Scaler
         unit
       PeakDateTimeStamp
  }
}
Null data
Null data when corresponding demand rate is not configured.
Data type: NULL
Authorized value:
Default value:
PeakValue
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Scaler
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
<u>unit</u>
Data type: ENUMERATED
Authorized values:
27: W
28: VA
29: var
255: No unit
Default value: W (27)
PeakDateTimeStamp
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | | Get |
| | | | | | | |
| Attribute description | | | | | | |
| CHOICE | | | | | | |
| { | | | | | | |
| SEQUENCE OF | // 3 elements | | | | | |
| { | | | | | | |
| SEQUENCE | // 4 elements | | | | | |
| { | | | | | | |
| class_id | | | | | | |
| MaximumDem | andRegisternOBI | SCode | | | | |
| attribute_ | index | | | | | |

```
data_index
  SEQUENCE OF // 0 elements
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
<u>MaximumDemandRegisternOBISCode</u>
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
attribute index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
data index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

6.2.29 MaximumDemand9

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;69;25
5 | 7 | 1 | 1 | 0 | RAM | 0 | 0 | 5 | 5 | 5 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | MaximumDemand9OBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | CHOICE | See below | |
| | | | |

■ Attribute 2: buffer

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF { CHOICE { | // 5 elements | | | | | |

```
Null data
                   // 3 elements
    SEQUENCE
      PeakValue
                    // 2 elements
       SEQUENCE
         Scaler
         unit
      PeakDateTimeStamp
    }
  }
}
Null data
Null data when corresponding demand rate is not configured.
Data type: NULL
Authorized value:
Default value:
PeakValue
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Scaler
Data type: INTEGER8
Authorized value: -1 to 6
Default value: 0
unit
Data type: ENUMERATED
Authorized values:
27: W
28: VA
29: var
255: No unit
Default value: W (27)
PeakDateTimeStamp
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;
```

```
SEQUENCE // 4 elements
      class_id
      MaximumDemandRegisternOBISCode
      attribute_index
      data_index
  SEQUENCE OF // 0 elements
class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
\underline{MaximumDemandRegisternOBISCode}
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
attribute index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
```

data_index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

7 Diagnostic & Tamper

7.1 Cosem objects

7.1.1 BatteryEndOfLifeDateParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;6;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--|--|
| A1. logical_name | OCTETSTRING | BatteryEndOfLifeDateParametersOBISCode | |
| A2. value | OCTETSTRING | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

BatteryEndOfLifeDateParameters

BatteryEndOfLifeDateParameters

Some fields only are managed in this UTC:

- Field 'year highbyte': when programmed, this field is not taken into account (it is calculated by the meter according to the year lowbyte).
- Field 'year lowbyte': range 0 .. 99.
- Field 'month' : range 1 .. 12.
- Field 'day' : range 1 .. 31.
- Other fields are not significative : when programmed, they are not taken into account ; when read, they are equal to 255, excepted 'deviation highbyte' (=128) and 'deviation lowbyte' (=0).

Default value: reference date (January 1st, 1992).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 7;200;1;1;255;255;255;255;128;0;255;

7.1.2 BatteryThresholdParameters

This object defines the battery management characteristics.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;140;0;1;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | BatteryThresholdParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| ricocco riginto (cherito | , | | | | | | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get | |
| { Duration | 2 elements | | | | | | |
| VoltageLevel } | | | | | | | |
| <u>Duration</u> | | | | | | | |
| The Duration is the number of days of the battey use time, relative to its characteristic. The default value corresponds to a meter without battery. Remark: In AIMSPRO, this Duration is always configured between 365 days and 1095 days (3 years). | | | | | | | |
| Data type: UNSIGNI | ED16 | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | |
| Default value: 65535 | 5 | | | | | | |
| <u>VoltageLevel</u> | | | | | | | |
| VoltageLevel is the threshold under which the battery need to be changed, expressed in 1/100th V. The default value corresponds to a meter without battery. Remark: In AIMSPRO, this VoltageLevel is always configured to 200 (2 V). | | | | | | | |
| Data type: UNSIGNI | ED16 | | | | | | |

7.1.3 CurrentFrequency

Default value: 0

Authorized value: 0 to 65535

This register holds the current frequency.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;14;7;0;255 | 3 | 0 | 2 | 0 | False | False | False |
| | | | | | | | |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------|--|
| A1. logical_name | OCTETSTRING | CurrentFrequencyOBISCode | |
| A2. value | UNSIGNED16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |
| | | | |

■ Attribute 2: value

Access rights (clients)

| | • | | | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | 1 | | | | | |
| CurrentFrequenc | У | | | | | |
| CurrentFrequency | | | | | | |

Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0

■ Attribute 3: scaler unit

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
         Get
                             Get
                                               Get
Attribute description
 SEQUENCE
                 // 2 elements
   Scaler
   Unit
 }
 Scaler
 Data type: INTEGER8
 Authorized value: -2
 Default value: -2
Unit
 Data type: ENUMERATED
 Authorized value: 44: Hz
 Default value: Hz (44)
```

7.1.4 CurrentReversalAlarmParameters

True

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance | | | |
|-----------------|-------------------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|--|--|--|
| 0;0;140;0;9;255 | 1 | 0 | 1 | 0 | False | False | False | | | |
| Logical device | Logical devices : | | | | | | | | | |
| Management | Ele | ectricity | End customer | | | | | | | |

Attributes / Methods

True

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | CurrentReversalAlarmParametersOBISCode |
| A2. value | BOOLEAN | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

CurrentReversalAggregateAlarm

CurrentReversalAggregateAlarm

Indicates if the Aggregate Current Reversal alarm detection is managed by the meter :

False

- TRUE : yes, it is managed
- FALSE : no, it is inhibited

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

7.1.5 CurrentTemperature

This object allows to read the temperature value as it is measured by the analog digital converter.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;128;7;1;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------------|--|
| A1. logical_name | OCTETSTRING | CurrentTemperatureOBISCode | |
| A2. value | UNSIGNED8 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

CurrentTemperature

CurrentTemperature

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| ttribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No ur | it (255) | | | | | |

7.1.6 CurrentTemperatureInDegrees

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;9;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------------------|--|
| A1. logical_name | OCTETSTRING | CurrentTemperatureInDegreesOBISCode | |
| A2. value | INTEGER8 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | Attribute description | | | | | | |
| 1 | • | | | | | | |
| | CurrentTemperatur | reInDegrees | | | | | |
| | CurrentTemperature | InDograda | | | | | |
| | Current lemperature | ilibegiees | | | | | |
| | Data type: INTEGER | 00 | | | | | |
| | Data type. INTEGER | 10 | | | | | |
| | Authorized value: -1 | 28 to 127 | | | | | |
| | riamonizoa raido. | 20 (0 12) | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| { | | | | | | |
| Scaler
Unit | | | | | | |
| } | | | | | | |
| Coolor | | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 9: | °C | | | | | |
| Default value: °C (9) |) | | | | | |
| | | | | | | |

7.1.7 ErrorLogbook

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;140;0;43;255 | 1 | 0 | 1 | 0 | False | False | False |
| Logical devices | s : | | | | | | |

Management End customer Electricity True False False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------|
| A1. logical_name | OCTETSTRING | ErrorLogbookOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

This object is manufacturer specific. The values of the fields ClassCode, MethodCode and ErrorCode are defined in the Excel document D0209124.

It is sorted by chronological order.

A reference date in the field CaptureTime indicates that the element is not significant (other fields set to 0).

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | Get | - | Get |

Attribute description

```
SEQUENCE OF
                // 50 elements
  SEQUENCE
               // 4 elements
    ClassCode
    MethodCode
    ErrorCode
    CaptureTime
```

ClassCode

ClassCode is defined in the Excel document D0209124.

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0 MethodCode

MethodCode is defined in the Excel document D0209124.

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0 ErrorCode

ErrorCode is defined in the Excel document D0209124.

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0 **CaptureTime**

A reference date in this field indicates that the element is not significant (other fields set to 0).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

7.1.8 ExternalChecksum

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;54;4;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|---------------|--------------------------|--|
| A1. logical_name | OCTETSTRING | ExternalChecksumOBISCode | |
| A2. value | VISIBLESTRING | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|---|----------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| ı | Get | Get | Get | Get | Get | - | Get | | | |
| , | Attribute description | | | | | | | | | |
| | ExternalChecksumType | | | | | | | | | |
| | ExternalChecksumT | <u>ype</u> | | | | | | | | |
| | Data type: VISIBLESTRING | | | | | | | | | |
| | Authorized value: Size = 8 | | | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value:

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description SEQUENCE // 2 { Scaler Unit | ? elements | | | | | |
| Scaler No scaler | | | | | | |
| Data type: INTEGER Authorized value: 0 | R8 | | | | | |
| Default value: 0 Unit | ATED | | | | | |
| Data type: ENUMER Authorized value: 25 Default value: No un | 5: No unit | | | | | |

7.1.9 InternalChecksum

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;54;3;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|--------------------------|
| A1. logical_name | OCTETSTRING | InternalChecksumOBISCode |
| A2. value | VISIBLESTRING | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | | | |
| | | | | | | | | | | | | |
| Attribute description | | | | | | | | | | | | |
| InternalChecksum | Туре | | | | | | | | | | | |
| InternalChecksumT | уре | | | | | | | | | | | |
| Data type: VISIBLE | STRING | | | | | | | | | | | |
| Authorized value: S | ize = 8 | | | | | | | | | | | |
| Default value: | | | | | | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---------------------------------------|-------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No un | nit (255) | | | | | |

7.1.10 MaxFrequency

This extended register object holds the maximum frequency in the billing period (since the last EOB).

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;14;6;0;255 | 4 | 0 | 2 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------|
| A1. logical_name | OCTETSTRING | MaxFrequencyOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |

MaxFrequency

MayEraguana

MaxFrequency

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| Scaler | | | | | | |

Unit }

<u>Scaler</u>

Data type: INTEGER8
Authorized value: -2

Default value: -2

<u>Unit</u>

Data type: ENUMERATED Authorized value: 44: Hz Default value: Hz (44)

■ Attribute 4: status

Not used

Access rights (clients)

| | tility Electricity reade | ei Liiu custoinei | Manufacturer | Resources upgrader | Engineer |
|---|--------------------------|-------------------|--------------|--------------------|----------|
| - | - | - | - | - | - |

Attribute description

Data type: NULL Authorized value: Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DateTime

DateTime

Date and time of the maximum frequency

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

7.1.11 MaxTemperature

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| | | | Hullibel | | parameter | programming | compliance |
| 0;0;128;6;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | MaxTemperatureOBISCode |
| A2. value | INTEGER8 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |

MaxTemperature

MaxTemperature

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Get Get Get Get - | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |

Attribute description

```
SEQUENCE // 2 elements
{
    Scaler
    Unit
}

Scaler
Data type: INTEGER8
Authorized value: 0
Default value: 0
Unit
Data type: ENUMERATED
Authorized value: 9: °C
Default value: °C (9)
```

■ Attribute 4: status

Not used

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|---|--|------------------------|--------------------|--------------|--------------|--------------------|----------|--|
| | Get | Get | Get | Get | Get | - | Get | |
| i | | | | | | | | |
| 4 | Attribute description | | | | | | | |
| | DateTime | | | | | | | |
| | | | | | | | | |
| | <u>DateTime</u> | | | | | | | |
| | Date and time of the | maximum tempe | erature | | | | | |
| | | • | | | | | | |
| | Data type: OCTETS1 | Data type: OCTETSTRING | | | | | | |
| | Authorized value: Decoded as Decimal (Size = 12) | | | | | | | |
| | Authorized value: De | coded as Decim | ai (Size = 12) | | | | | |
| | | | | | | | | |

7.1.12 MinFrequency

This extended register object holds the minimum frequency in the billing period (since the last EOB).

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;14;3;0;255 | 4 | 0 | 2 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------|
| A1. logical_name | OCTETSTRING | MinFrequencyOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|----------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| MinFrequency MinFrequency | | | | | | |
| Data type: UNSIGN | ED16 | | | | | |
| Authorized value: 0 | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---------------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -2 | | | | | | |
| Default value: -2 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 44 | l: Hz | | | | | |
| Default value: Hz (4 | 4) | | | | | |

■ Attribute 4: status

Not used

Access rights (clients)

Electricity laboratory

Electricity utility

| - | - | - | - | - | - | - |
|-----------------------|---|---|---|---|---|---|
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

Electricity reader End customer Manufacturer Resources upgrader Engineer

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| | Get | Get | Get | Get | Get | - | Get | | |
| , | Attribute description | | | | | | | | |
| | DateTime | | | | | | | | |
| | <u>DateTime</u> | | | | | | | | |
| | Date and time of the minimum frequency | | | | | | | | |
| | Data type: OCTETS | TRING | | | | | | | |

Authorized value: Decoded as Decimal (Size = 12)

7.1.13 MinTemperature

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;128;3;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | MinTemperatureOBISCode |
| A2. value | INTEGER8 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A thuilet. a la a a nim ti a m | | | | | | |
| Attribute description | | | | | | |
| MinTemperature | | | | | | |
| <u>MinTemperature</u> | | | | | | |
| Data type: INTEGER | 88 | | | | | |

Authorized value: -128 to 127

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|----|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - 1 | Get |
| | | | | | | | |
| Αt | tribute description | ı | | | | | |
| S | SEQUENCE // | 2 elements | | | | | |
| { | | | | | | | |
| • | Scaler | | | | | | |
| | Unit. | | | | | | |

<u>Scaler</u>

Data type: INTEGER8 Authorized value: 0 Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 9: °C Default value: °C (9)

■ Attribute 4: status

Not used

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

Default value:

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | ⊏ngmeer |
|---|---------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|---------|
| | Get | Get | Get | Get | Get | - | Get |
| | ۸ 44 سنام در ما مراسط کار در استان ما | | | | | | |
| , | Attribute description | | | | | | |
| | DateTime | | | | | | |
| | Data Tira | | | | | | |
| | <u>DateTime</u> | | | | | | |
| | Date and time of the | minimum tempe | rature | | | | |
| | | · | | | | | |
| | Data type: OCTETS1 | IRING | | | | | |
| | Authorized value: De | coded as Decim | al (Size = 12) | | | | |
| | Addition2cd value. De | ,coucu as Decim | idi (0120 - 12) | | | | |

7.1.14 NbrOfDaysWithoutExternalConsumption

Electricity

This object contains the number of days without any external consumption (without input pulses).

End customer

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;54;1;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | s: | | | | | | |

Management

| Management | Electricity | End customer | |
|-----------------------|-------------|-------------------|---|
| True | True | True | |
| Attributes / Meth | nods | | |
| Attribute (A) / Metho | d (M) | Data type | Content |
| A1. logical_name | | OCTETSTRING | NbrOfDaysWithoutExternalConsumptionOBISCode |
| A2. value | | UNSIGNED16 | See below |
| A3. scaler_unit | | SEQUENCE | See below |

■ Attribute 2: value

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get | | | | | |
|-----------------------------|------------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|--|--|--|--|--|
| Attribute description | | | | | | | | | | | |
| DaysCounter | | | | | | | | | | | |
| <u>DaysCounter</u> | <u>DaysCounter</u> | | | | | | | | | | |
| it contains a counte | r indicating how m | nany days the me | ter was on po | wer but with | out input pulses | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | | | | | |
| Authorized value: 0 | Authorized value: 0 to 65535 | | | | | | | | | | |
| Default value: 0 | | | | | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

```
Electricity laboratory
                        Electricity utility
                                          Electricity reader
                                                           End customer Manufacturer Resources upgrader Engineer
         Get
                             Get
                                                Get
                                                                             Get
                                                                                                           Get
Attribute description
 SEQUENCE
                 // 2 elements
   Scaler
   Unit
Scaler
Data type: INTEGER8
 Authorized value: 0
 Default value: 0
<u>Unit</u>
Data type: ENUMERATED
 Authorized value: 4: day
 Default value: day (4)
```

7.1.15 NbrOfDaysWithoutInternalConsumption

This object contains the number of days without any internal consumption (through the internal metrology : all phases in creep condition).

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID compliance | | | |
|--|----------|---------------|---------------------------------------|------------------------------|-------------------------|-------------------------|----------------|--|--|--|
| 0;0;96;54;2;255 | 3 | 0 | 1 | 0 | False | False | False | | | |
| Logical devices : | | | | | | | | | | |
| Management | Ele | ectricity | End customer | | | | | | | |
| True | | True | True | | | | | | | |
| Attributes / M | ethods | | | | | | | | | |
| Attribute (A) / Me | thod (M) | | Data type | Content | | | | | | |
| A1. logical_name
A2. value
A3. scaler_unit | | | OCTETSTRING
UNSIGNED16
SEQUENCE | NbrOfD
See bel
See bel | * | nsumptionOBISCode | | | | |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | |
| Attribute description DaysCounter | | | | | | | | | |
| <u>DaysCounter</u> It contains a counter indicating how many days the meter was on power but without consumption through the internal metrology (all phases in creep condition) | | | | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | |
| Default value: 0 | | | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | | | | Resources upgrader | |
|---------------------------------------|---------------------|-----|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 4: | day | | | | | |
| Default value: day (4 | l) | | | | | |

7.1.16 NetworkSurveyParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance | | | |
|--------------------|----------|---------------|-----------------|---------------------------------|-------------------------|-------------------------|----------------|--|--|--|
| 0;0;140;0;3;255 | 1 | 0 | 7 | 0 | False | False | False | | | |
| Logical devices : | | | | | | | | | | |
| Management | Ele | ectricity | End customer | | | | | | | |
| True | F | alse | False | | | | | | | |
| Attributes / M | ethods | | | | | | | | | |
| Attribute (A) / Me | thod (M) | | Data type | е | Content | | | | | |
| A1. logical_name | | OCTETS | TRING | NetworkSurveyParametersOBISCode | | | | | | |
| A2. value | | | SEQUEN | ICE | See below | | | | | |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

```
SEQUENCE  // 5 elements
{
  NeutralLossThreshold
  ZeroUThreshold
  ZeroIThreshold
  NoConsumptionThreshold
  ZeroSequenceIDurationThreshold
}
```

NeutralLossThreshold

It defines a threshold under which an alarm will be set for Neutral loss.

The threshold is the same for the 3 phases.

Simple voltages are concerned.

It is expressed in 1/10 V

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0
ZeroUThreshold

It defines threshold for voltage zero sequences.

When the voltage measured is above its threshold, a non fatal alarm is set.

They are expressed in 1/10 V

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 200

ZerolThreshold

It defines threshold for current zero sequences.

When the current measured is above its threshold, a non fatal alarm is set.

They are expressed in 1/100 A

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 1000

NoConsumptionThreshold

It defines thresholds expressed in days for non consumption duration.

When there is no consumption till this threshold is reached, a non fatal alarm is set

(thresholds are common for internal and external measurement)

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 5

ZeroSequencelDurationThreshold

The unit of this value is minute.

if the value is equal to 255, the coincident alarm "zero sequence I Trapped" is not detected

Data type: UNSIGNED8

Authorized value: 0 to 60 and 255

Default value: 255

7.1.17 PowerSupplyParameters

This object allows the programming of the power supply thresholds.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;140;0;7;255 | 1 | 0 | 1 | 0 | True | True | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------------|--|
| A1. logical_name | OCTETSTRING | PowerSupplyParametersOBISCode | |
| A2. value | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | Get/Set | - | Get |

Attribute description

```
SEQUENCE  // 3 elements
{
   AcFailHighThreshold
   AcFaillowThreshold
   PwrFailThreshold
}
```

AcFailHighThreshold

The value is for PSU 230 V.

Data type: UNSIGNED8

Authorized value: 169 to 199

Default value: 178

AcFaillowThreshold

The value is for PSU 230 V.
Data type: UNSIGNED8
Authorized value: 153 to 189

Default value: 171 PwrFailThreshold

The value is for PSU 230 V. Data type: UNSIGNED8

Authorized value: 91 to 129

Default value: 103

7.1.18 RmsMaximumCurrentPhase1

This object holds maximum current on phase 1 and its capture time.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;31;6;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | RmsMaximumCurrentPhase1OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| RmsMaximumCurrent | tPhase1 | | | | | |
| RmsMaximumCurrentPhase1 | | | | | | |
| Data type: UNSIGNI | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|----------------------|----------|
| Get | Get | Get | Get | Get | - resources upgrader | Get |
| Attribute description | | | | | | 001 |
| · | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -2 | | | | | | |
| Default value: -2 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 33 | :: A | | | | | |
| Default value: A (33) | | | | | | |

■ Attribute 4: status

Not used

| • , , | | | | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | O (| , | | | | | |
|---|--|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| | Get | Get | Get | Get | Get | - | Get |
| | Attribute description | | | | | | |
| 4 | Attribute description | | | | | | |
| | DateTime | | | | | | |
| | | | | | | | |
| | <u>DateTime</u> | | | | | | |
| | Date and time of the | mavimum currer | nt nhaca 1 | | | | |
| | Date and time of the | maximum cunter | it priase i | | | | |
| | Data type: OCTETSTRING | | | | | | |
| | Data type. Oo TETOTT (INC | | | | | | |
| | Authorized value: Decoded as Decimal (Size = 12) | | | | | | |
| | Additional value. Decoded de Decimal (Cize 12) | | | | | | |

7.1.19 RmsMaximumCurrentPhase2

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

This object holds maximum current on phase 2 and its capture time.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;51;6;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| 9 | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | RmsMaximumCurrentPhase2OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | ∟ngineer | | | |
|-------------------------|-------------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get | Get | Get | Get | Get | | Get | | | |
| | | | | | | | | | |
| Attribute description | | | | | | | | | |
| RmsMaximumCurrent | RmsMaximumCurrentPhase2 | | | | | | | | |
| RmsMaximumCurrentPhase2 | | | | | | | | | |
| Data type: UNSIGNED16 | | | | | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 0 to 65535

| Electricity laborato | bry Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------------------|-------------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute descript | ion | | | | | |
| SEQUENCE { Scaler Unit } | // 2 elements | | | | | |

Scaler

Data type: INTEGER8 Authorized value: -2 Default value: -2

Unit

Data type: ENUMERATED Authorized value: 33: A Default value: A (33)

■ Attribute 4: status

Not used

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description

Data type: NULL Authorized value: Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| DateTime | | | | | | |

DateTime

Date and time of the maximum current phase 2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12) Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

7.1.20 RmsMaximumCurrentPhase3

This object holds maximum current on phase 3 and its capture time.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;71;6;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

End customer Management Electricity True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | RmsMaximumCurrentPhase3OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Attribute description | | | | | | |
| RmsMaximumCurrentPhase3 | | | | | | |
| RmsMaximumCurre | ntPhase3 | | | | | |
| Data type: UNSIGN | ED16 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 0 to 65535

Access rights (clients)

| | | | | | _ | |
|------------------------|------------|-----|-----|-----|--------------------|-----|
| Electricity laboratory | | | | | Resources upgrader | |
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| { | | | | | | |
| Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| <u> </u> | | | | | | |
| | | | | | | |
| Data type: INTEGEI | R8 | | | | | |
| Authorized value: -2 |) | | | | | |
| Authorized value2 | _ | | | | | |
| Default value: -2 | | | | | | |
| Linit | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| | | | | | | |
| Authorized value: 33 | 3: A | | | | | |

■ Attribute 4: status

Default value: A (33)

Not used

| , , , , , , , , , , , , , , , , , , , | | | | | | |
|---------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| O (| , | | | | | | |
|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
| Get | Get | Get | Get | Get | - | Get | |
| A thelle out a called a socientia or | | | | | | | |
| Attribute description | | | | | | | |
| DateTime | | | | | | | |
| DataTara | | | | | | | |
| <u>DateTime</u> | | | | | | | |
| Date and time of the maximum current phase 3 | | | | | | | |
| · | | | | | | | |
| Data type: OCTETSTRING | | | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | | |
| / tatilonized value. D | Cooded as Decim | ai (0120 - 12) | | | | | |

7.1.21 RmsMaximumVoltagePhase1

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

This object holds maximum voltage on phase 1 (and its capture time), with reference to neutral for a 4 wires meter, and reference to phase 2 for a 3 wires meter.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;32;6;0;255 | 4 | 0 | 1 | 0 | False | False | False |

| L | ogical devices : | | |
|---|------------------|-------------|--------------|
| | Management | Electricity | End customer |
| | True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | RmsMaximumVoltagePhase1OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| RmsMaximumVoltage | Phase1 | | | | | |

RmsMaximumVoltagePhase1

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| , | Attribute description | | | | | | |
| | SEQUENCE // { Scaler | 2 elements | | | | | |

Unit
}
Scaler

Data type: INTECERS

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>Unit</u>

Data type: ENUMERATED Authorized value: 35: V Default value: V (35)

■ Attribute 4: status

not used

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | ⊏ngineer | | | |
|---|--------------------------|---|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | |
| | A theile of a selection | | | | | | | | | |
| 4 | Attribute description | | | | | | | | | |
| | DateTime | | | | | | | | | |
| | DataTima | | | | | | | | | |
| | <u>DateTime</u> | | | | | | | | | |
| | Date and time of the | maximum voltag | e phase 1 | | | | | | | |
| | Data to a COTETO | TDINO | | | | | | | | |
| | Data type: OCTETSTRING | | | | | | | | | |
| | Authorized value: De | coded as Decim | al (Size = 12) | | | | | | | |
| | , latino i Lou Valao. De | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | a. (5.25 12) | | | | | | | |

7.1.22 RmsMaximumVoltagePhase2

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

This object holds maximum voltage on phase 2 (and its capture time), with reference to neutral for a 4 wires meter, and reference to phase 2 for a 3 wires meter.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;52;6;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | RmsMaximumVoltagePhase2OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A 44 ! | | | | | | |
| Attribute description | | | | | | |
| RmsMaximumVoltage | ePhase2 | | | | | |
| RmsMaximumVoltad | naPhasa2 | | | | | |
| - ITIII SIVIAXIII ITII VOITA | ger riasez | | | | | |
| Data type: UNSIGNI | ED16 | | | | | |
| , p | | | | | | |
| Authorized value: 0 | to 65535 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---------------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| Scaler | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 35 | 5: V | | | | | |

■ Attribute 4: status

Default value: V (35)

not used

| | 5 (, | | | | | | |
|------|-----------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Е | lectricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| | - | - | - | - | - | - | - |
| Attı | ribute description | | | | | | |
| D | ata type: NULL | | | | | | |
| Αι | uthorized value: | | | | | | |
| D | efault value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| 3 (| • / | | | | | | | | |
|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
| Get | Get | Get | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| DateTime | | | | | | | | | |
| <u>DateTime</u> | | | | | | | | | |
| Date and time of the | e maximum voltag | e phase 2 | | | | | | | |
| Data type: OCTETSTRING | | | | | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | | |

7.1.23 RmsMaximumVoltagePhase3

True

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

This object holds maximum voltage on phase 3 (and its capture time), with reference to neutral for a 4 wires meter, and reference to phase 2 for a 3 wires meter.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;72;6;0;255 | 4 | 0 | 1 | 0 | False | False | False |

True

| Logical devices : | | |
|-------------------|-------------|--------------|
| Management | Electricity | End customer |

True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | RmsMaximumVoltagePhase3OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| RmsMaximumVoltage | Phase3 | | | | | |

RmsMaximumVoltagePhase3

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description SEQUENCE // { Scaler | 2 elements | | | | | |

Unit

<u>Scaler</u>

Data type: INTEGER8
Authorized value: -1
Default value: -1

Unit

Data type: ENUMERATED Authorized value: 35: V Default value: V (35)

■ Attribute 4: status

not used

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| , | Attribute description | | | | | | |
| | DateTime | | | | | | |
| | <u>DateTime</u> | | | | | | |
| | Date and time of the | maximum voltag | e phase 3 | | | | |
| | Data type: OCTETS | TRING | | | | | |

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

7.1.24 RTCCorrectionParameters

This object allows the set of the real time clock correction parameters.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;140;0;6;255 | 1 | 0 | 1 | 0 | True | True | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | RTCCorrectionParametersOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

| Access rights (clients | 5) | | | | | |
|--|---------------------|--------------------|-----------------|---------|--------------------|-----|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | | Resources upgrader | |
| - | - | - | - | Get/Set | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF | // 256 elements | | | | | |
| Correction | | | | | | |
| } | | | | | | |
| Correction | | | | | | |
| Default value : | | | | | | |
| 31, 31, 31, 31, 31, 3 | | | | | | |
| 30, 30, 30, 30, 30, 3
19, 18, 17, 16, 16, 1 | | | | | | |
| 8, 8, 8, 7, 7, 7, 7, 6, | | | 1, 10, 10, 0, 0 | , 0, | | |
| 4, 3, 3, 3, 3, 3, 3, 2, | 2, 2, 2, 2, 2, 2, | 2, 1, 1, 1, 1, | | | | |
| 1, 1, 1, 1, 1, 1, 1, 1, | | | | | | |
| 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 | | | | | | |
| 1, 1, 1, 2, 2, 2, 2, 2, | | | | | | |
| 3, 4, 4, 4, 4, 4, 4, 4, | | | | | | |
| 7, 7, 8, 8, 8, 8, 9, 9, | | | | 25 26 | | |
| 13, 14, 14, 15, 15, 1
27, 28, 30, 30, 30, 3 | | | | 25, 26, | | |
| | | 0., 0., 0., 0., 0 | ., • . | | | |
| Data type: INTEGER | | | | | | |
| Authorized value: -3 | 31 to 31 | | | | | |
| Default value: 0 | | | | | | |

7.1.25 TemperatureTableParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;140;0;5;255 | 1 | 0 | 1 | 0 | True | True | False |

Logical devices :

Management End customer Electricity True False False

Attributes / Methods

| F | Attribute (A) / Method (M) | Data type | Content |
|---|----------------------------|-------------|------------------------------------|
| F | A1. logical_name | OCTETSTRING | TemperatureTableParametersOBISCode |
| P | A2. value | ARRAY | See below |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | Get/Set | - | Get |
| Attribute description SEQUENCE OF | // 256 elements | | | | | |
| { | | | | | | |

```
Temperature
Temperature
The unit of the element of this table is implicit. It is volt per degree.
Default value:
100, 98, 96, 94, 93, 91, 89, 88, 87, 85, 84, 83, 81, 80, 79, 78, 77, 76, 75, 74,
73, 72, 71, 70, 69, 68, 68, 67, 66, 65, 64, 64, 63, 62, 61, 61, 60, 59, 59, 58,
57, 57, 56, 55, 55, 54, 54, 53, 52, 52, 51, 51, 50, 50, 49, 48, 48, 48, 47, 46,
46, 45, 45, 44, 44, 43, 43, 42, 42, 42, 41, 40, 40, 40, 39, 39, 38, 38, 37, 37,
36, 36, 36, 35, 35, 34, 34, 33, 33, 32, 32, 31, 31, 30, 30, 30, 29, 29, 28,
28, 28, 27, 27, 26, 26, 26, 25, 25, 24, 24, 24, 23, 23, 23, 22, 22, 21, 21, 21,
20, 20, 19, 19, 19, 18, 18, 18, 17, 17, 16, 16, 16, 15, 15, 14, 14, 14, 13, 13,
13, 12, 12, 11, 11, 10, 10, 10, 9, 9, 9, 8, 8, 7, 7, 6, 6, 6, 5, 5,
4, 4, 4, 3, 3, 2, 2, 1, 1, 0, 0, 0, -1, -1, -2, -2, -3, -3, -4, -4,
-5, -5, -6, -6, -6, -7, -8, -8, -9, -9, -10, -10, -11, -11, -12, -13, -13, -14, -14, -15,
-16, -16, -17, -18, -18, -19, -20, -21, -21, -22, -23, -24, -25, -26, -26, -27, -28, -30, -31, -32,
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
```

7.1.26 TestWatchdogCounter

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;97;97;5;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | TestWatchdogCounterOBISCode |
| A2. value | UNSIGNED32 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A () 1 | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |

Value

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

7.2 Cosem profiles

7.2.1 AllChecksums

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;135;5;25
5 | 7 | 1 | 1 | 0 | ROM | 2 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------|--|
| A1. logical_name | OCTETSTRING | AllChecksumsOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | | | |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | | | | | |
| | | | | | | | | | | | | | | |
| F | Attribute description | | | | | | | | | | | | | |
| | SEQUENCE OF | // 1 elements | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | SEQUENCE / | / 2 elements | | | | | | | | | | | | |
| | { | | | | | | | | | | | | | |
| | InternalChec | ksum (Att. Id: | 0, Abs. Number | c: 1) | | | | | | | | | | |
| | ExternalChec | ksum (Att. Id: | 0, Abs. Number | c: 1) | | | | | | | | | | |
| | } | | | | | | | | | | | | | |
| | } | | | | | | | | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Authorized value: Decoded as Decimal (Size = 6)

Index 1 (InternalChecksum): Obis_code = 0;0;96;54;3;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Index 2 (ExternalChecksum): Obis_code = 0;0;96;54;4;255, Class_id = 3, Attribute_index = 0, Data_index = 0

| | Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get | | | | | | | |
|---|----------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|--|--|--|--|--|--|--|
| ١ | | | Gei | Get | Gel | - | Get | | | | | | | |
| 1 | Attribute description | | | | | | | | | | | | | |
| | SEQUENCE OF { | // 2 elements | | | | | | | | | | | | |
| | SEQUENCE { | // 4 elements | | | | | | | | | | | | |
| | Class_id | | | | | | | | | | | | | |
| | Obis_code | | | | | | | | | | | | | |
| | Attribute_i | ndex | | | | | | | | | | | | |
| | Data_index | | | | | | | | | | | | | |
| | } | | | | | | | | | | | | | |
| | Class_id | | | | | | | | | | | | | |
| | Data type: UNSIGI | NED16 | | | | | | | | | | | | |
| | Authorized value: 0 | 0 to 65535 | | | | | | | | | | | | |
| | Default value: 0 | | | | | | | | | | | | | |
| | Obis_code | | | | | | | | | | | | | |
| | Data type: OCTET | STRING | | | | | | | | | | | | |

Default value: 0;0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

7.2.2 All Consumptions

Interface

| | Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|---|---------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0 | ;0;98;135;4;25
5 | 7 | 1 | 1 | 0 | ROM | 2 | 0 | 1 | 1 | 1 |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | AllConsumptionsOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End custom | ier Manufacturer | Resources upgrader | ∟ngineer |
|---------------------------|---------------------|--------------------|------------|------------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attailer de electricitées | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 1 elements | | | | | |
| { | | | | | | |
| SEQUENCE | // 2 elements | | | | | |
| { | | | | | | |
| NbrOfDaysWit | thoutInternalCon | sumption (Att. | . Id: 0, 2 | Abs. Number: | 1) | |
| NbrOfDaysWit | thoutExternalCon | sumption (Att. | . Id: 0, 2 | Abs. Number: | 1) | |
| } | | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (NbrOfDaysWithoutInternalConsumption): Obis_code = 0;0;96;54;2;255, Class_id = 3,

Attribute_index = 0, Data_index = 0

Index 2 (NbrOfDaysWithoutExternalConsumption): Obis_code = 0;0;96;54;1;255, Class_id = 3,

Attribute_index = 0, Data_index = 0

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | ۸ 44سالم ۱ ما م مانسطان م | | | | | | |
| , | Attribute description | | | | | | |
| | SEQUENCE OF | // 2 elements | | | | | |
| | { | | | | | | |

```
SEQUENCE
                 // 4 elements
  {
    Class_id
    Obis_code
    Attribute_index
    Data_index
}
Class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Obis_code
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
Attribute_index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
Data_index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

7.2.3 AllFrequencies

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;135;1;25
5 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| A1. logical_name OCTETSTRING AllFrequenciesOBISCode A2. buffer ARRAY See below A3. capture_objects ARRAY See below | Attribute (A) / Method (M) | Data type | Content | |
|--|----------------------------|-------------|------------------------|--|
| | A1. logical_name | OCTETSTRING | AllFrequenciesOBISCode | |
| A3 capture objects ARRAY See below | A2. buffer | ARRAY | See below | |
| 710. daptare_dbjoto | A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | n | | | | | |
| SEQUENCE OF | // 1 elements | | | | | |
| { | | | | | | |
| SEQUENCE | // 3 elements | | | | | |

```
{
    CurrentFrequency (Att. Id: 0, Abs. Number: 2)
    MaxFrequency (Att. Id: 0, Abs. Number: 2)
    MinFrequency (Att. Id: 0, Abs. Number: 2)
}
}
```

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (CurrentFrequency): Obis_code = 1;1;14;7;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Index 2 (MaxFrequency): Obis_code = 1;1;14;6;0;255, Class_id = 4, Attribute_index = 0, Data_index = 0 Index 3 (MinFrequency): Obis_code = 1;1;14;3;0;255, Class_id = 4, Attribute_index = 0, Data_index = 0

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|----------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | OCI | OCI | OCI | 001 | | OCI |
| • | // 3 elements | | | | | |
| { | | | | | | |
| SEQUENCE / | / 4 elements | | | | | |
| Class_id | | | | | | |
| Obis_code
Attribute_in | .dex | | | | | |
| Data_index | | | | | | |
| } | | | | | | |
| Class id | | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTETS | STRING | | | | | |
| Authorized value: D | ecoded as Decima | al (Size = 6) | | | | |
| Default value: 0;0;0 | ;0;0;0; | | | | | |
| Attribute_index | | | | | | |
| Data type: INTEGE | R8 | | | | | |
| Authorized value: -1 | 128 to 127 | | | | | |
| Default value: 0 | | | | | | |
| Data_index | | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |

7.2.4 AllRmsMaxValues

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;134;3;25
5 | 7 | 1 | 1 | 0 | ROM | 6 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------|
| A1. logical_name | OCTETSTRING | AllRmsMaxValuesOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electrici | ty reader | End custom | er Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|-----------|-----------|------------|-----------------|--------------------|----------|
| Get | Get | G | et | Get | Get | - | Get |
| | | | | | | | |
| Attribute description | | | | | | | |
| SEQUENCE OF { | // 1 elements | | | | | | |
| SEQUENCE / | / 6 elements | | | | | | |
| { | | | | | | | |
| RmsMaximumCu | rrentPhase1 (A | tt. Id: | 0, Abs. | Number: | 1) | | |
| RmsMaximumCu | rrentPhase2 (A | tt. Id: | 0, Abs. | Number: | 1) | | |
| RmsMaximumCu | rrentPhase3 (A | tt. Id: | 0, Abs. | Number: | 1) | | |
| RmsMaximumVo | ltagePhase1 (A | tt. Id: | 0, Abs. | Number: | 1) | | |
| RmsMaximumVo | ltagePhase2 (A | tt. Id: | 0, Abs. | Number: | 1) | | |
| RmsMaximumVo | ltagePhase3 (A | tt. Id: | 0, Abs. | Number: | 1) | | |
| } | | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (RmsMaximumCurrentPhase1): Obis_code = 1;1;31;6;0;255, Class_id = 4, Attribute_index = 0, Data index = 0

Index 2 (RmsMaximumCurrentPhase2): Obis_code = 1;1;51;6;0;255, Class_id = 4, Attribute_index = 0, Data_index = 0

Index 3 (RmsMaximumCurrentPhase3): Obis_code = 1;1;71;6;0;255, Class_id = 4, Attribute_index = 0, Data_index = 0

Index 4 (RmsMaximumVoltagePhase1): Obis_code = 1;1;32;6;0;255, Class_id = 4, Attribute_index = 0, Data_index = 0

Index 5 (RmsMaximumVoltagePhase2): Obis_code = 1;1;52;6;0;255, Class_id = 4, Attribute_index = 0, Data index = 0

Index 6 (RmsMaximumVoltagePhase3): Obis_code = 1;1;72;6;0;255, Class_id = 4, Attribute_index = 0, Data_index = 0

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                         End customer Manufacturer Resources upgrader Engineer
        Get
                            Get
                                              Get
                                                             Get
                                                                          Get
                                                                                                       Get
Attribute description
 SEQUENCE OF
                    // 6 elements
                   // 4 elements
   SEQUENCE
     Class_id
     Obis_code
     Attribute_index
     Data_index
 }
 Class id
 Data type: UNSIGNED16
```

Authorized value: 0 to 65535

Default value: 0
Obis code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

7.2.5 AllTemperatures

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;135;2;25
5 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 1 | 1 | 1 |

Logical devices:

| ī | | Etc. (C.) (C.) | E . 1 (| |
|---|------------|----------------|--------------|--|
| | Management | Electricity | End customer | |
| | True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | AllTemperaturesOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A () 1 | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 1 elements | | | | | |
| { | | | | | | |
| SEQUENCE / | / 3 elements | | | | | |
| { | | | | | | |
| CurrentTempe | ratureInDegrees | (Att. Id: 0, | Abs. Number | c: 1) | | |
| MaxTemperatu | re (Att. Id: 0, | Abs. Number: | 1) | | | |
| MinTemperatu | re (Att. Id: 0, | Abs. Number: | 1) | | | |
| } | | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (CurrentTemperatureInDegrees): Obis_code = 0;0;96;9;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 2 (MaxTemperature): Obis_code = 0;0;128;6;0;255, Class_id = 4, Attribute_index = 0, Data_index = 0 Index 3 (MinTemperature): Obis_code = 0;0;128;3;0;255, Class_id = 4, Attribute_index = 0, Data_index = 0 Access rights (clients)

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                            Get
                                                           Get
                                                                       Get
Attribute description
 SEQUENCE OF
                   // 3 elements
                  // 4 elements
   SEQUENCE
   {
     Class_id
     Obis_code
     Attribute_index
     Data_index
Class id
 Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
 Obis_code
 Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
 Default value: 0;0;0;0;0;0;0;
Attribute_index
 Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
Data_index
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
```

8 Display

8.1 Cosem objects

8.1.1 DisplayGeneralParameters

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;141;0;1;255 | 1 | 0 | 16 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | DisplayGeneralParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| Attribute description | | | | | | |

Attribute description

SEQUENCE // 23 elements

```
LeadingZero
Backlight
EOBConfirm
StringEOBConfirm
SeparatorsDisplay
TimeFormat
DateFormat
TimeOutforSetMode
DisplayOnTimeOut
DisplayOffTimeOut
NbDisplayedHistoSetsNormalMode
ExistenceOfEndOfText
EndOfTextString
NbDisplayedHistoSetsAltShort
NbDisplayedHistoSetsAltLong
TimeoutForAltMode
AutorizedEOB
TimeoutTestMode
WeekDayDisplayed
DisplayingOfLPMenus
DisplayingOfMIDMenu
DisplayingOfALTShortMenu
DisplayButtonEmulationByOpticalHead
```

LeadingZero

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 1: TRUE

Backlight

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 1: TRUE

EOBConfirm

Data type: BOOLEAN Authorized values:

0: FALSE 1: TRUE

Default value: 1: TRUE
StringEOBConfirm

Data type: VISIBLESTRING
Authorized value: Size = 8
Default value: V EOB
SeparatorsDisplay

Data type: BOOLEAN Authorized values:

0: FALSE 1: TRUE

Default value: 1: TRUE

TimeFormat

Complementary informations : - FALSE : 12 hours format - TRUE : 24 hours format

Data type: BOOLEAN Authorized values:

0: FALSE 1: TRUE

Default value: 1: TRUE

DateFormat

Data type: UNSIGNED8

Authorized values:
0: dd:mm:yy
1: mm:dd:yy
2: yy:mm:dd

Default value: dd:mm:yy (0)

TimeOutforSetMode

En secondes.

Data type: UNSIGNED8

Authorized value: 2 to 10

Default value: 10

DisplayOnTimeOut

En secondes.

Data type: UNSIGNED8
Authorized value: 1 to 60

Default value: 8

<u>DisplayOffTimeOut</u>
En secondes.

Data type: UNSIGNED8 Authorized value: 0 to 60

Default value: 2

<u>NbDisplayedHistoSetsNormalMode</u>

Data type: UNSIGNED8
Authorized value: 0 to 18

Default value: 1

ExistenceOfEndOfText

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

EndOfTextString

Data type: VISIBLESTRING Authorized value: Size = 8

Default value:

<u>NbDisplayedHistoSetsAltShort</u>

Data type: UNSIGNED8
Authorized value: 0 to 18

Default value: 18

NbDisplayedHistoSetsAltLong

Data type: UNSIGNED8
Authorized value: 0 to 18

Default value: 1
<u>TimeoutForAltMode</u>

En minutes.

Data type: UNSIGNED8
Authorized value: 1 to 60

Default value: 10
AutorizedEOB

Data type: BOOLEAN
Authorized values:

0: FALSE 1: TRUE

Default value: 1: TRUE

<u>TimeoutTestMode</u>

En secondes.

Data type: UNSIGNED8

Authorized value: 1 to 60

Default value: 10

WeekDayDisplayed

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 1: TRUE <u>DisplayingOfLPMenus</u>

This parameter determines if the menus of Load profile are avaliable or not.

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 1: TRUE

<u>DisplayingOfMIDMenu</u>

This parameter determines if the menu of Mid datas is avaliable or not.

Data type: BOOLEAN Authorized values:

0: FALSE 1: TRUE

1: TRUE

1: TRUE

Default value: 1: TRUE

<u>DisplayingOfALTShortMenu</u>

This parameter determines if the menu ALTShort is avaliable or not.

Data type: BOOLEAN Authorized values: 0: FALSE

Default value: 1: TRUE

<u>DisplayButtonEmulationByOpticalHead</u>

This parameter determines if Optical push button is available or not.

Data type: BOOLEAN Authorized values: 0: FALSE

Default value: 0: FALSE

9 Energy Registering

9.1 Cosem objects

9.1.1 EnergyChannelParameters

This object defines for each channel, the attributes relative to it, allowing its management. See the resourcesIdParameter for the définition of the number of available channels.

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|--------------------|----------|---------------|--------------------|--------------|-------------------------|-------------------------|----------------|
| 0;0;133;0;2;255 | 1 | 0 | 1 | 0 | True | True | False |
| Logical device | s: | | | | | | |
| Management | Ele | ectricity | End customer | | | | |
| True | ļ | False | False | | | | |
| Attributes / M | ethods | | | | | | |
| Attribute (A) / Me | thod (M) | | Data type |) | Content | | |

OCTETSTRING

Electricity reader

ARRAY

EnergyChannelParametersOBISCode

End customer Manufacturer Resources upgrader Engineer

See below

■ Attribute 2: value

A1. logical_name

A2. value

Access rights (clients)

Electricity laboratory

| ı | Get/Set | Get | Get | Get | Get/Set | - | Get |
|---|----------------------|----------------|-----|-----|---------|---|-----|
| / | Attribute descriptio | n | | | | | |
| | SEQUENCE OF | // 10 elements | | | | | |
| | {
SEQUENCE | // 7 elements | | | | | |
| | { | | | | | | |
| | QuantityId | | | | | | |
| | Scaler | | | | | | |

QuantityId

Unit

Fluid

NumberOfRate ExcessEnergy

QuantityType

It defines which energy quantity is allocated to this channel:

Electricity utility

- Default value for the first element : 3 (ImportActiveEnergyAgg)
- Default value for the others : 255 (No energy No allocation)

Data type: UNSIGNED8

Authorized values:

- 0: Import Active Energy Phase 1
- 1: Import Active Energy Phase 2
- 2: Import Active Energy Phase 3
- 3: Import Active Energy Aggregate
- 4: Export Active Energy Phase 1
- 5: Export Active Energy Phase 2
- 6: Export Active Energy Phase 3
- 7: Export Active Energy Aggregate
- 8: Import Reactive Energy Phase 1
- 9: Import Reactive Energy Phase 2

Unit

10: Import Reactive Energy Phase 3 11: Import Reactive Energy Aggregate 12: Export Reactive Energy Phase 1 13: Export Reactive Energy Phase 2 14: Export Reactive Energy Phase 3 15: Export Reactive Energy Aggregate 16: Q1 Energy Phase 1 17: Q1 Energy Phase 2 18: Q1 Energy Phase 3 19: Q1 Energy Aggregate 20: Q2 Energy Phase 1 21: Q2 Energy Phase 2 22: Q2 Energy Phase 3 23: Q2 Energy Aggregate 24: Q3 Energy Phase 1 25: Q3 Energy Phase 2 26: Q3 Energy Phase 3 27: Q3 Energy Aggregate 28: Q4 Energy Phase 1 29: Q4 Energy Phase 2 30: Q4 Energy Phase 3 31: Q4 Energy Aggregate 32: Import Apparent Energy Phase 1 33: Import Apparent Energy Phase 2 34: Import Apparent Energy Phase 3 35: Import Apparent Energy Aggregate 36: Export Apparent Energy Phase 1 37: Export Apparent Energy Phase 2 38: Export Apparent Energy Phase 3 39: Export Apparent Energy Aggregate 40: Import External Energy 1 41: Import External Energy 2 42: Import External Energy 3 43: Import External Energy 4 44: Export External Energy 1 45: Export External Energy 2 46: Export External Energy 3 47: Export External Energy 4 48: Summation Energy 1 49: Summation Energy 2 50: Summation Energy 3 51: Summation Energy 4 255: No energy - No allocation Default value: No energy - No allocation (255) Scaler It defines the scaler linked to this channel: - The allowed discrete values are 0, 3 and 6 Data type: INTEGER8 Authorized values: 0: unity 3: kilo 6: mega Default value: unity (0)

It defines the unit linked to this channel:

- Default value for the first element : 30 (Wh)

- Default value for the others : 255 (No unit)

Data type: UNSIGNED8

Authorized values:

30: Wh 31: VAh 32: VARh 255: No unit

Default value: No unit (255)

NumberOfRate

Defines how many rates are managed for this channel

Default value for the first element : 1Default value for the others : 0

Data type: UNSIGNED8 Authorized value: 0 to 8

Default value: 0 ExcessEnergy

Excess energy function cannot be allowed to process for an energy channel.

=> La seule valeur autorisée est FALSE.

Data type: BOOLEAN Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

<u>Fluid</u>

Default value for the first element : 0 (Electricity) Default value for the others : 255 (No fluid)

Data type: UNSIGNED8

Authorized values:

0: Electricity

1: Heat

2: Gas

3: Water

255: No fluid

Default value: No fluid (255)

QuantityType

Value of the OBIS code field C:
- Default value for the first element: 1
- Default value for the others: 82

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 82

9.1.2 EnergyParameters

This cosem object defines the time integral relative to the energy. It applies to all relevant registers.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;133;0;1;255 | 1 | 0 | 1 | 0 | True | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / N | Method (M) | Data type | Content |
|-------------------|------------|-------------|--------------------------|
| A1. logical_nar | ne | OCTETSTRING | EnergyParametersOBISCode |
| A2. value | | UNSIGNED8 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

TimeIntegral

TimeIntegral

The time integral defines the mode of management of the energies at the end of billing period. It can take discrete values 1 or 2:

- Mode 1 : allows the cumulation of the energy at the end of the billing period without any reset of the registers. Energies in the register are those from the previous end of billing periods, added by energies cumulated in the actual period.
- Mode 2 : leads to the current billing period energies rate registers reset at the immediate of the billing period.

Data type: UNSIGNED8

Authorized values:

1: Mode 1 2: Mode 2

Default value: Mode 1 (1)

9.2 Cosem profiles

9.2.1 AllEnergyRates

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;1;25
5 | 7 | 1 | 7 | 0 | RAM | 0 | 0 | 1 | 1 | 1 |

Logical devices:

| • | | | |
|------------|-------------|--------------|--|
| Management | Electricity | End customer | |
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | AllEnergyRatesOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

This object allows the reading of all energy rate registers as a whole.

One structure is included for each included register.

The real amount of included registers is calculated automatically through the configuration of the meter. The sort order is defined by the configuration of the meter (order of the channel configuration).

Access rights (clients)

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                     End customer Manufacturer Resources upgrader Engineer
        Get
                          Get
                                           Get
                                                         Get
                                                                     Get
                                                                                                 Get
Attribute description
 SEQUENCE OF
                   // 1 elements
   CHOICE
                    // 1..32 elements ("Array Of" view as "Sequence")
     SEQUENCE
        SEQUENCE
                      // 5 elements
          EnergyOBISCode
          EnergyRegisterValue
          SEQUENCE
                      // 2 elements
            Scaler
            Unit
          CHOICE
            RateOperatingTime
            RateOperatingTime
          Null
     Capture time
 }
EnergyOBISCode
 Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
 Default value: 255;255;255;255;255;
EnergyRegisterValue
 Data type: UNSIGNED32
Authorized value: 0 to 999999999
 Default value: 0
Scaler
Data type: INTEGER8
Authorized values:
0: unity
 3: kilo
6: mega
Default value: unity (0)
<u>Unit</u>
 Data type: ENUMERATED
Authorized values:
```

30: Wh 31: VAh 32: varh Default value: Wh (30) **RateOperatingTime** Data type: UNSIGNED32 Authorized value: 0 to 4294967295 Default value: 0 RateOperatingTime RateOperating time is always equal to NULL in historical sets Data type: NULL Authorized value: Default value: Null Data type: NULL Authorized value: Default value: Capture time Data type: NULL

■ Attribute 3: capture_objects

One structure is included for each included register.

The real amount of included registers is calculated automatically through the configuration of the meter.

The sort order is defined by the configuration of the meter (order of the channel configuration).

The captured objects attribute is created automatically when configuring the meter.

Access rights (clients)

Authorized value: Default value:

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|--|---------------------|--------------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF { | // 032 elemen | ts | | | | |
| SEQUENCE /
{
class_id | / 4 elements | | | | | |
| ConcernedQua
attribut_ind
data_index | ntityOBISCode
ex | | | | | |
| }
} | | | | | | |
| class_id | | | | | | |
| Data type: UNSIGN | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |
| ConcernedQuantity | <u>OBISCode</u> | | | | | |

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

attribut_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

data_index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10 Event Manager

10.1 Cosem objects

10.1.1 AlarmParameters

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;130;0;3;255 | 1 | 0 | 9 | 0 | False | False | False |

Logical devices:

Management Electricity End customer
True False False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | AlarmParametersOBISCode | |
| A2. value | ARRAY | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

$\underline{IndicAlarmToEmitOnControlOutput}$

Specifies if the concerned alarm must be send to a control ouput or not.

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

IndicAlarmToDisplay

Specifies if the concerned alarm is to be display when set or not.

Default value

- TRUE for the following alarm: INTERNAL_RAM_ERROR, EXTERNAL_RAM_ERROR, INTERNAL_PROGRAM_MEMORY_ERROR, EXTERNAL_PROGRAM_MEMORY_ERROR, WATCHDOG_ACTIVITY, CONFIGURATION_INCOHERENCE, PROGRAMMING_INCOHERENCE, COVER_OPENING, NO_INTERNAL_CONSUMPTION, CLOCK_LOSS, VOLTAGE_CUT_PHASE_1, VOLTAGE_CUT_PHASE_2, VOLTAGE_CUT_PHASE_3, BATTERY, MAGNET_SENSOR

- FALSE for the other alarms

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE Default value: 0: FALSE

PhoneNumberIdentifier

It is the ID of the phone number in the phone number list.

Values 255, equal no phone number.

Data type: UNSIGNED8

Authorized value: 0 to 2 and 255

Default value: 255

10.1.2 AlarmsMeterRestartedRegister

This object contains one Alarm Meter restarted immediately. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;42;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | AlarmsMeterRestartedRegisterOBISCode |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 5: capture_time

Date and time of the AlarmsMeterRestarted.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | _ | _ | _ | _ |

Attribute description

capture_time

capture_time

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.3 AlarmsMeterRestartedSummary

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|------------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| | | | Hullibel | | parameter | programming | Compliance |
| 1;0;96;51;43;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | AlarmsMeterRestartedSummaryOBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|-------------------------------|------------------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| - | - | - | - | Get | - | - | | |
| Attaile steed on a singli and | | | | | | | | |
| Attribute description | | | | | | | | |
| RestartMeterNumb | er | | | | | | | |
| D (04 (N) | | | | | | | | |
| RestartMeterNumbe | <u>er</u> | | | | | | | |
| Data to a LINIOLONI | ED40 | | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | | |
| Authorized value: 0 | Authorized value: 0 to 65535 | | | | | | | |
| Additionized value. 0 | Authorized value: 0 to 60000 | | | | | | | |
| Default value: 0 | | | | | | | | |

10.1.4 AlarmsMetrologyRestartedRegister

This object contains one Alarm Metrology restarted immediately. It is used to allow capture into a profile.

True

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;40;255 | 4 | 0 | 1 | 0 | False | False | False |
| Logical devices | s : | | | | | | |
| Management | Ele | ctricity | End customer | | | | |

Attributes / Methods

True

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | AlarmsMetrologyRestartedRegisterOBISCode |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 5: capture_time

Date and time of the AlarmsMetrologyRestarted.

True

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| capture_time | | | | | | |
| capture_time | | | | | | |
| Data type: OCTETS | TRING | | | | | |
| Authorized value: De | ecoded as Decim | al (Size = 12) | | | | |

10.1.5 AlarmsMetrologyRestartedSummary

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

Electricity

True

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;41;255 | 1 | 0 | 1 | 0 | False | False | False |
| Logical devices | 3: | | | | | | |

End customer

True

Management True

| Attributes / Methods | | |
|----------------------------|-------------|---|
| Attribute (A) / Method (M) | Data type | Content |
| A1. logical_name | OCTETSTRING | AlarmsMetrologyRestartedSummaryOBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
- - - Get - -

Attribute description

RestartMetrologyNumber

RestartMetrologyNumber

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.1.6 ApsParameter

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;130;0;6;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------|
| A1. logical_name | OCTETSTRING | ApsParameterOBISCode |
| A2. value | UNSIGNED8 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - 1 | Get |
| | | | | | | |
| Attribute description | | | | | | |
| ApsParameters | | | | | | |
| | | | | | | |
| <u>ApsParameters</u> | | | | | | |
| | | | | | | |
| Data type: UNSIGN | FD8 | | | | | |
| | | | | | | |

Authorized values: 0: Not connected

1: Connected

Default value: Not connected (0)

10.1.7 CalibrationSummary

This object contains the total number of calibrations and the last calibration date and time.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;2;5;255 | 4 | 0 | 5 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | CalibrationSummaryOBISCode |
| A2. value | OCTETSTRING | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Last calibration date and time.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| ۸ 44سنام 4 م ما م م مانم 4 نام م | | | | | | |
| Attribute description | | | | | | |
| capture_time | | | | | | |
| | | | | | | |
| <u>capture_time</u> | | | | | | |
| Last calibration date | and time. | | | | | |
| | | | | | | |
| Data type: OCTETS | TRING | | | | | |
| Authorized value: De | anded on Desim | al (Ciza = 12) | | | | |
| Authorized value: De | ecoded as Decim | ai (Size = 12) | | | | |
| Default value: 7;200; | 1:1:255:0:0:0:25 | 5:128:0:255: | | | | |
| , , , , | .,., | 0, . = 0, 0, = 00, | | | | |

■ Attribute 3: scaler_unit

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| SEQUENCE // 2 | elements | | | | | |
| ા
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGER | 18 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 25 | 5: No unit | | | | | |
| Default value: No un | it (255) | | | | | |

■ Attribute 4: status

Number of calibrations done

Access rights (clients)

NumberOfCalibrations

| E | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|----|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| At | ribute description | | | | | | |
| N | umberOfCalibratio | ons | | | | | |

Number of calibrations done

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

■ Attribute 5: capture_time

Last calibration date and time.

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| ŀ | Attribute description | | | | | | |

capture_time

capture time

Last calibration date and time.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12) Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.8 ConfigurationSummary

This register holds the total number of 'Start measurement' script activation and the date and time of the last one.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;2;10;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|------------------------------|
| A1. logical_name | OCTETSTRING | ConfigurationSummaryOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | VISIBLESTRING | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Number of Configuration

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

NbConfiguration

NbConfiguration

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description SEOUENCE // 2 elements Scaler Unit Scaler No scaler Data type: INTEGER8 Authorized value: 0 Default value: 0 <u>Unit</u> Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255)

■ Attribute 4: status

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| ConfigurationId | | | | | | |
| ConfigurationId | | | | | | |
| Data type: VISIBLES | STRING | | | | | |
| Authorized value: Siz | ze = 8 | | | | | |
| Default value: conf id | 1 | | | | | |

■ Attribute 5: capture_time

Date and time of the last meter start measurement.

Access rights (clients)

| • , | | | | | | | | |
|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | | | | | | | | |
| Attribute description | | | | | | | | |
| capture_time | | | | | | | | |
| | | | | | | | | |
| <u>capture_time</u> | <u>capture_time</u> | | | | | | | |
| Last configuration da | ate and time | | | | | | | |
| Last comigaration at | ate and time. | | | | | | | |
| Data type: OCTETS | TRING | | | | | | | |
| Data type. Core rormino | | | | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | |
| | | , | | | | | | |
| Default value: 7;200 | ;1;1;255;0;0;0;25 | 5;128;0;255; | | | | | | |

10.1.9 CosemUserConnectionsRegister

This object contains information relative to one Cosem user connection. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;143;1;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | CosemUserConnectionsRegisterOBISCode |
| A2. value | SEQUENCE | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Number of Configuration

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | _ | _ | _ | - | - |

```
Attribute description
```

```
SEQUENCE  // 3 elements
{
   Username
   Channel ID
   ClientType
}
```

<u>Username</u>

Data type: VISIBLESTRING
Authorized value: Size = 8
Default value: username

Channel ID

Data type: UNSIGNED8

Authorized values: 0: Undefined

1: Customer port

2: Utility port

Default value: Undefined (0)

ClientType

Data type: UNSIGNED8

Authorized values:

0: No_client

1: ElectricityUtilityLab

2: ElectricityUtilityField

3: ElectricityReader

4: GasReader

5: WaterReader

6: HeatReader

7: EndCustomer

16: Public

120: Manufacturer

121: ResourceUpgrader

122: Engineer

Default value: No_client (0)

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

```
Attribute description
```

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

Scaler

No scaler

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

LogbookId

Logbookld

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 65535

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

```
capture_time
```

capture time

Date and time of user connection.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.10 CosemUserConnectionsSummary

This object contains the total number of Cosem user connections.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;12;1;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | CosemUserConnectionsSummaryOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| 4 | Attribute description | | | | | | |
| | NumberOfUserConne | ections | | | | | |
| | NumberOfUserConn | ections | | | | | |
| | Data tupo: LINICIONI | -D16 | | | | | |
| | Data type: UNSIGNE | פועב | | | | | |
| | Authorized value: 0 t | to 65535 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEQUENCE // 2 elements
   Scaler
   Unit
 Scaler
No scaler
Data type: INTEGER8
 Authorized value: 0
 Default value: 0
<u>Unit</u>
 Data type: ENUMERATED
Authorized value: 255: No unit
 Default value: No unit (255)
```

10.1.11 CoverOpeningRegister

This object contains number of cover opening occurence. The date and the time of cover opening are stored in this object.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;52;12;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | CoverOpeningRegisterOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

This data contains the cover opening duration.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Duration | | | | | | |
| <u>Duration</u> | | | | | | |
| Data type: UNSIGNE | ED32 | | | | | |
| Authorized value: 0 t | o 4294967295 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEQUENCE
             // 2 elements
   Scaler
   Unit
 }
Scaler
No scaler
 Data type: INTEGER8
 Authorized value: 0
 Default value: 0
<u>Unit</u>
 Data type: ENUMERATED
Authorized value: 7: sec
 Default value: sec (7)
```

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

LogbookId

Logbookld

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 65535

■ Attribute 5: capture_time

This data contains the starting date and time of last cover opening.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

capture_time

capture time

Date description:

The 'year highbyte' field range from 7 to 8 The 'year lowbyte' field range from 0 to 254

The 'month' field range from 1 to 12

The 'day' field range from 1 to 31

The 'day of week' field range from 1 to 7

Time description:

The 'hour' field range from 0 to 23

The 'minute' field range from 0 to 59

The 'second' field range from 0 to 59

The 'hundredths' field is always equal to 0

Deviation description:

The 'deviation highbyte' field is equal to 128

The 'deviation lowbyte' field is equal to 0

The 'clock status' field give information about the activation of daylight saving time.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.12 CoverOpeningSummary

This object contains the total number of cover openings.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;52;13;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer
True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | CoverOpeningSummaryOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

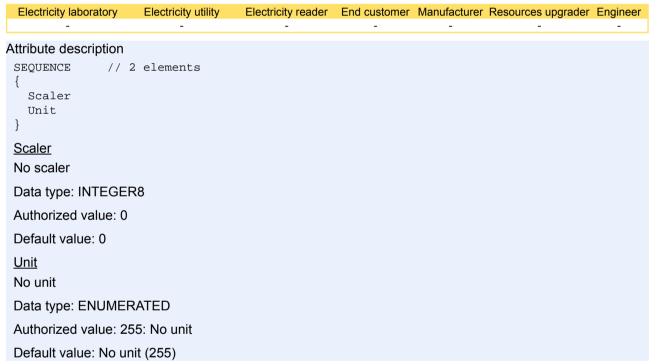
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description NumberOfCoverOper | ning | | | | | |
| <u>NumberOfCoverOpe</u> | <u>ening</u> | | | | | |
| Data type: UNSIGNI | ED16 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 0 to 65535

Access rights (clients)



10.1.13 CTVTRatioProgrammingRegister

This object contains information relative to one CT/VT ratio programming. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;51;50;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | CTVTRatioProgrammingRegisterOBISCode |
| A2. value | SEQUENCE | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

```
Attribute description
```

```
SEQUENCE // 5 elements
{
    ProgrammingSource
    CTNumerator
    CTDenominator
    VTNumerator
    VTDenominator
}
```

ProgrammingSource

Data type: UNSIGNED8

Authorized values:
0: By communication
1: By push button

Default value: By communication (0)

CTNumerator

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0 CTDenominator

Data type: UNSIGNED8
Authorized value: 0 to 255

Default value: 0

<u>VTNumerator</u>

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0 VTDenominator

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Not used.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description SEQUENCE // 2 elements Scaler Unit Scaler No scaler Data type: INTEGER8 Authorized value: 0 Default value: 0 <u>Unit</u>

Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255)

■ Attribute 4: status

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | ⊏ngineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| LogbookId | | | | | | |

Logbookld

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 65535

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laborator | y Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|-----------------------|--|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| - | - | - | - | - | - | - | | | |
| Attribute descripti | on | | | | | | | | |
| capture_time | capture_time | | | | | | | | |
| capture_time | | | | | | | | | |
| Date and time of | Date and time of the last CT/VT ratio programming. | | | | | | | | |
| Data type: OCT | ETSTRING | | | | | | | | |

Authorized value: Decoded as Decimal (Size = 12) Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.14 CTVTRatioProgrammingSummary

This register contains the total number of CT/VT ratio programming. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;51;60;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

A3. scaler_unit

| Management | Electricity | End customer |
|----------------------|-------------|--------------|
| True | True | True |
| Attributes / Me | | |
| Attribute (A) / Meth | od (M) | Data type |
| A1. logical_name | , | OCTETSTRIN |
| A2. value | | UNSIGNED16 |

CHOICE

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get Get | | Get | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| CTVTRatioProgramm | mingNumber | | | | | | | | |
| CTVTRatioProgrami | <u>mingNumber</u> | | | | | | | | |
| Data type: UNSIGNED16 | | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | |

See below

■ Attribute 3: scaler_unit

Not used.

Access rights (clients)

Attribute description

Default value: 0

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Unit } }

Scaler unit

NULL

Data type: NULL

Authorized value: Default value:

<u>Scaler</u> No scaler

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u> No unit

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

10.1.15 CurrentReversalPhase1Summary

This register contains the total number of phase 1 current reversals. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;31;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | CurrentReversalPhase1SummaryOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Ele | ctricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|-----|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| | - | - | - | - | - | - | - | | | |
| | Attribute description CurrentReversalNumberPhasel | | | | | | | | | |
| | CurrentReversalNumberPhase1 | | | | | | | | | |
| Dat | Data type: UNSIGNED16 | | | | | | | | | |
| Aut | horized value: 0 t | o 65535 | | | | | | | | |

■ Attribute 3: scaler_unit

Not used.

Access rights (clients)

Default value: 0

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEOUENCE
              // 2 elements
   Scaler
   Unit
 Scaler
 No scaler
 Data type: INTEGER8
 Authorized value: 0
 Default value: 0
<u>Unit</u>
 Data type: ENUMERATED
 Authorized value: 255: No unit
Default value: No unit (255)
```

10.1.16 CurrentReversalPhase2Summary

This register contains the total number of phase 2 current reversals. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;32;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | CurrentReversalPhase2SummaryOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| CurrentReversalNu | mberPhase2 | | | | | |
| CurrentReversalNum | nberPhase2 | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Authorized value: 0 t | o 65535 | | | | | |

■ Attribute 3: scaler_unit

Not used.

Access rights (clients)

Default value: 0

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEOUENCE
              // 2 elements
   Scaler
   Unit
 Scaler
No scaler
Data type: INTEGER8
 Authorized value: 0
 Default value: 0
<u>Unit</u>
 Data type: ENUMERATED
 Authorized value: 255: No unit
 Default value: No unit (255)
```

10.1.17 CurrentReversalPhase3Summary

This register contains the total number of phase 3 current reversals. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;96;51;33;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | CurrentReversalPhase3SummaryOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manutacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| CurrentReversalNu | mberPhase3 | | | | | |
| CurrentReversalNum | nberPhase3 | | | | | |
| Data type: UNSIGNE | D16 | | | | | |
| Authorized value: 0 to | o 65535 | | | | | |

■ Attribute 3: scaler_unit

Not used.

Access rights (clients)

Default value: 0

```
Electricity laboratory
                        Electricity utility
                                          Electricity reader
                                                           End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEQUENCE
              // 2 elements
   Scaler
   Unit
<u>Scaler</u>
 No scaler
 Data type: INTEGER8
 Authorized value: 0
 Default value: 0
<u>Unit</u>
 Data type: ENUMERATED
 Authorized value: 255: No unit
 Default value: No unit (255)
```

10.1.18 CurrentReversalRegister

This object contains one 'Current reversal' event. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;30;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | CurrentReversalRegisterOBISCode |
| A2. value | SEQUENCE | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

```
Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
```

Attribute description

PhaseNumber

Data type: UNSIGNED8

Authorized value: 0 to 2 and 255

Default value: 255

Direction

Always set to export : 1
Data type: UNSIGNED8
Authorized value: 1 and 255

Default value: 255

■ Attribute 3: scaler_unit

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| SEQUENCE //: { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u>
No scaler | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| Unit | | | | | | |

Data type: ENUMERATED
Authorized value: 255: No unit

Default value: No unit (255)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

LogbookID

LogbookID

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 65535

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.19 CurrentThdDefectNumber

This data provides the total number of THD defects on Current (defect detected using RelativeTHDThresholdParameters and THDRelativeCurrentValueAggregate).

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;11;36;124;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------|
| A1. logical_name | OCTETSTRING | CurrentThdDefectNumberOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

CurrentThdDefectNumber

CurrentThdDefectNumber

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | | Resources upgrader | Engineer |
|---------------------------------------|---------------------|--------------------|--------------|-----|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // : { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No ur | nit (255) | | | | | |

10.1.20 CurrentThdDefectRegister

This register provides the information related to a defect on Current THD. It's only available using a profile. The data format is the same than THD voltage defect register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
complian |
|-------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-----------------|
| 1;0;96;12;1;255 | 4 | 0 | 2 | 0 | False | False | False |
| Logical devices : | | | | | | | |
| Management | Ele | ectricity | End customer | | | | |

Attributes / Methods

| Data type | Content |
|-------------|---|
| OCTETSTRING | CurrentThdDefectRegisterOBISCode |
| SEQUENCE | See below |
| SEQUENCE | See below |
| UNSIGNED16 | See below |
| OCTETSTRING | See below |
| | OCTETSTRING
SEQUENCE
SEQUENCE
UNSIGNED16 |

■ Attribute 2: value

Contains 26 elements:

- The duration of the defect with its unit (2 elements)
- For the 3 phases the Urms, Irms, Uhrms and Ihrms (h for harmonique) values and their units (2 elements * 4 quantities * 3 phases)

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

```
Attribute description
SEQUENCE // 26 elements
  Duration
  SEQUENCE // 2 elements
    scaler
    unit
  UrmsPhase1
  SEQUENCE // 2 elements
    scaler
    unit
  UrmsPhase2
  SEQUENCE
           // 2 elements
    scaler
    unit
  UrmsPhase3
           // 2 elements
  SEQUENCE
    scaler
    unit
  IrmsPhase1
  SEQUENCE // 2 elements
    scaler
    unit
  IrmsPhase2
  SEQUENCE // 2 elements
    scaler
    unit
  IrmsPhase3
  SEOUENCE
            // 2 elements
    scaler
    unit
  UhrmsPhase1
           // 2 elements
  SEQUENCE
    scaler
    unit
  UhrmsPhase2
  SEQUENCE // 2 elements
    scaler
    unit
  UhrmsPhase3
  SEQUENCE // 2 elements
   scaler
```

<u>UrmsPhase2</u>

```
unit
  IhrmsPhase1
  SEQUENCE // 2 elements
    scaler
    unit
  IhrmsPhase2
  SEQUENCE // 2 elements
    scaler
    unit
  IhrmsPhase3
  SEQUENCE // 2 elements
    scaler
    unit
}
Duration
Data type: UNSIGNED32
Authorized value: 0 to 4294967295
Default value: 0
scaler
Data type: INTEGER8
Authorized value: 0
Default value: 0
<u>unit</u>
Data type: UNSIGNED8
Authorized value: 7: sec
Default value: sec (7)
<u>UrmsPhase1</u>
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
<u>scaler</u>
Data type: INTEGER8
Authorized value: -1
Default value: -1
unit
Data type: UNSIGNED8
Authorized value: 35: V
Default value: V (35)
```

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 35: V Default value: V (35)

UrmsPhase3

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

scaler

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 35: V Default value: V (35)

IrmsPhase1

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

scaler

-3 if the meter is a CT meter-2 if the meter is a DC meter

Data type: INTEGER8

Authorized value: -3 to -2

Default value: -2

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 33: A Default value: A (33)

IrmsPhase2

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

scaler

-3 if the meter is a CT meter-2 if the meter is a DC meter

Data type: INTEGER8
Authorized value: -3 to -2

Default value: -2

unit

Data type: UNSIGNED8
Authorized value: 33: A
Default value: A (33)

IrmsPhase3

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

scaler

-3 if the meter is a CT meter -2 if the meter is a DC meter

Data type: INTEGER8
Authorized value: -3 to -2

Default value: -2

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 33: A Default value: A (33)

UhrmsPhase1

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 35: V Default value: V (35)

UhrmsPhase2

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 35: V Default value: V (35)

UhrmsPhase3

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

scaler

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 35: V Default value: V (35)

IhrmsPhase1

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

scaler

-3 if the meter is a CT meter-2 if the meter is a DC meter

Data type: INTEGER8
Authorized value: -3 to -2

Default value: -2

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 33: A Default value: A (33)

IhrmsPhase2

Data type: UNSIGNED16

Authorized value: 0 to 65535 Default value: 0 scaler -3 if the meter is a CT meter -2 if the meter is a DC meter Data type: INTEGER8 Authorized value: -3 to -2 Default value: -2 unit Data type: UNSIGNED8 Authorized value: 33: A Default value: A (33) IhrmsPhase3 Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 scaler -3 if the meter is a CT meter -2 if the meter is a DC meter Data type: INTEGER8 Authorized value: -3 to -2 Default value: -2 <u>unit</u> Data type: UNSIGNED8

■ Attribute 3: scaler_unit

Authorized value: 33: A Default value: A (33)

no unit

Access rights (clients)

```
Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

SEQUENCE // 2 elements
{
    Scaler
    Unit
}

Scaler
No scaler
Data type: INTEGER8
Authorized value: 0
Default value: 0
Unit
```

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

LogbookId

Logbookld

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

dateTimeDefectDisappearance

dateTimeDefectDisappearance

date/time of defect disappearance

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

10.1.21 CurrentUnbalancePhase1Summary

Interface

| Logical name | Class Id | Class version | on Absolute Local Id | | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------------------|---|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;96;51;27;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer
True True True

Attributes / Methods

Attribute (A) / Method (M)

A1. logical_name

A2. value

Data type

Content

CurrentUnbalancePhase1SummaryOBISCode

See below

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

 ${\tt NumberOfCurrentUnbalanceDefectsPhases 12}$

NumberOfCurrentUnbalanceDefectsPhases12

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.1.22 CurrentUnbalancePhase2Summary

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;28;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------------|---|
| A1. logical_name | OCTETSTRING | CurrentUnbalancePhase2SummaryOBISCode | 7 |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| _ | _ | _ | _ | _ | _ | _ |

Attribute description

NumberOfCurrentUnbalanceDefectsPhases23

NumberOfCurrentUnbalanceDefectsPhases23

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

10.1.23 CurrentUnbalancePhase3Summary

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;96;51;29;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | CurrentUnbalancePhase3SummaryOBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

 ${\tt NumberOfCurrentUnbalanceDefectsPhases 13}$

NumberOfCurrentUnbalanceDefectsPhases13

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.1.24 CustomerSuccessfullCommunicationsSummary

This object holds the total number of successfull communication on the customer link and the date and time of the last one.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;2;129;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | CustomerSuccessfullCommunicationsSummaryOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | INTEGER8 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

 ${\tt NbOfCustomerSuccessfullCommunication}$

NbOfCustomerSuccessfullCommunication

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

Scaler

No scaler

Data type: INTEGER8 Authorized value: 0 Default value: 0

<u>Unit</u>

Data type: ENUMERATED

Authorized value: 255: No unit Default value: No unit (255)

■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| ctatuc | | | | | | |

status

status

Not used

Data type: INTEGER8 Authorized value: 0 Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get Get | | Get | Get | Get | - | Get | | | |
| Attribute description capture_time | | | | | | | | | |
| capture_time | | | | | | | | | |
| Date and time of the | last successfull (| customer commu | nication. | | | | | | |
| Data type: OCTETS | TRING | | | | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | | |
| Default value: 7;200;1;1;255;0;0;0;255;128;0;255; | | | | | | | | | |

10.1.25 DayProfileRegister

This object contains one day profile change. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;52;7;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| · · | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | DayProfileRegisterOBISCode |
| A2. value | UNSIGNED8 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

DayProfileNumber

DayProfileNumber

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

```
Attribute description
```

```
SEQUENCE // 2 elements {
    Scaler
    Unit
}
```

<u>Scaler</u>

No scaler

Data type: INTEGER8
Authorized value: 0
Default value: 0

Unit

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

LogbookId

Logbookld

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 65535

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

capture_time

capture time

Date and time of day profile change.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.26 DayProfilesSummary

This object contains the total number of day profile changes.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;52;8;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------------|--|
| A1. logical_name | OCTETSTRING | DayProfilesSummaryOBISCode | |
| A2. value | UNSIGNED16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

 ${\tt NumberOfDayProfilesChanges}$

NumberOfDayProfilesChanges

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | r Engineer | |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|------------|--|
| Т | - | - | - | - | - | - | - | |
| | | | | | | | | |

Attribute description

<u>Scaler</u>

No scaler

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

10.1.27 EOBCategoryParameters

This object defines EOB configuration characteristics.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;130;0;4;25 | 5 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | EOBCategoryParametersOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

The EOB sources are classified in 4 categories, and in following order:

- 1 : by communication interface command
- 2 : by the EOB reset push button
- 3 : by control input
- 4: by automatic end of billing period

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| | | | | | | |

```
Attribute description

SEQUENCE OF  // 4 elements
{

SEQUENCE  // 2 elements
{

SEQUENCE  // 3 elements
{

IndicAvailableCategory
IndicAvailableLockOutTime
LockOutTime
}

SEQUENCE OF  // 4 elements
{

ActionOnLockOutTim
}

}
```

IndicAvailableCategory

Default value = TRUE, except for category 3.

Data type: BOOLEAN

Authorized values:

0: FALSE

1: TRUE

Default value: 1: TRUE IndicAvailableLockOutTime

Default value = FALSE, except for category 2.

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

LockOutTime

LockOutTime is expressed in minutes.

Default value = 0, except for category 2 where Default value = 30.

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

<u>ActionOnLockOutTim</u>

It specifies the way to unlock.

Data type: UNSIGNED8

Authorized values:

- 0: No action
- 1: Cancel
- 2: Partial lock
- 3: Total lock

Default value: No action (0)

10.1.28 FatalAlarms

This object holds the fatal error status. The reset of the fatal alarms is performed with a script.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;97;97;1;255 | 3 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------|
| A1. logical_name | OCTETSTRING | FatalAlarmsOBISCode |
| A2. value | BITSTRING | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| 1 | Get | Get | Get | Get | Get | - | Get |

Attribute description

FatalAlarms

FatalAlarms

There are 4 fatal alarms. For each alarm, the value of the bit is:

- 0 : no alarm set
- 1: this alarm is set.

Alarm description, functions detecting the alarm and activation conditions are defined in the document 'D2001006'.

As the data format given here is a bitstring, the first bit is the one which is at the most left side, and the last one is the one at the most right side (bitstring = B1 B2 B3 B8).

```
Example: Internal RAM error and External program memory error will give:
01234567
10010000
Data type: BITSTRING
Authorized values:
Size = 8
ViewAsType = BitString
BIT 0: INTERNAL_RAM_ERROR
BIT 1: EXTERNAL RAM ERROR
BIT 2: INTERNAL_PROGRAM_MEMORY_ERROR
BIT 3: EXTERNAL_PROGRAM_MEMORY_ERROR
BIT 4: NOT_USED
BIT 5: NOT_USED
BIT 6: NOT_USED
BIT 7: NOT_USED
Default value: 0;0;0;0;0;0;0;0;0;
```

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | | | | Resources upgrader | |
|---------------------------------------|---------------------|-----|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | elements | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler. | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 25 | 5: No unit | | | | | |
| Default value: No un | it (255) | | | | | |

10.1.29 IndexManagerParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-------------------------------|----------|---------------|------------------|----------|-------------------------------|-------------------------|----------------|
| 0;0;130;0;1;255 | 1 | 0 | 1 | 0 | False | False | False |
| Logical device | s: | | | | | | |
| Management | Ele | ectricity | End customer | | | | |
| True | | True | False | | | | |
| Attributes / M | ethods | | | | | | |
| Attribute (A) / Me | thod (M) | | Data type | Э | Content | | |
| A1. logical_name
A2. value |) | | OCTETS
SEQUEN | | IndexManagerPara
See below | ametersOBISCode | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|----------------------|--------------------|----------------|---------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | = - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| { | _ | | | | | |
| IndexActivation | | | | | | |
| ClockLossDefaul | tIndex | | | | | |
| } | | | | | | |
| IndexActivationMode | <u> </u> | | | | | |
| IndexActivationMode | e indicates if the i | mode programme | ed is an immed | diate or dela | yed to the end of | |
| integration period. | | | | | , | |
| Data type: UNSIGNE | =D8 | | | | | |
| Data type. ONSIGNE | _D0 | | | | | |
| Authorized values: | | | | | | |

0: Immediate

1: Delayed

Default value: Immediate (0)

ClockLossDefaultIndex

ClockLossDefaultIndex specifies the default internal index number which has to be selected during clock loss.

If this parameter is set to 255, it is not significant and a clock loss does not trigger any index change.

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

10.1.30 IndexParameters

Here is defined the index table. It allows the definition of the current registers for energy and demand.

The dimension of this table is 50 index. Each index defines :

- 10 energy register (one per channel)
- 24 demand rates
- 8 control outputs

See the resourcesIdParameter for the définition of the number of available channel, rates and control output.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;130;0;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | IndexParametersOBISCode | |
| A2. value | ARRAY | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |
| | | | | | | |

Attribute description

```
SEQUENCE OF // 50 elements
               // 3 elements
  SEQUENCE
  {
    SEQUENCE OF
                    // 10 elements
     EnergyCurrentRates
    DemandCurrentRatesTable
    ControlOutputIndexPattern
}
EnergyCurrentRates
EnergyCurrentRatesTable identifies the current rate number to apply to each energy channel.
Default value for the first element: 0
Default value for the others: 255 (channel is not configured).
Data type: UNSIGNED8
Authorized value: 0 to 7 and 255
Default value: 255
DemandCurrentRatesTable
The DemandCurrentRatesTable is the indicator of the selection for each demand rate. Up to 24 are defined.
A bit set to 1 means that the corresponding rate is active.
Data type: BITSTRING
Authorized values:
Size = 24
ViewAsType = BitString
BIT 0: Rate 1
BIT 1: Rate 2
BIT 2: Rate 3
BIT 3: Rate 4
BIT 4: Rate 5
BIT 5: Rate 6
BIT 6: Rate 7
BIT 7: Rate 8
BIT 8: Rate 9
BIT 9: Rate 10
BIT 10: Rate 11
BIT 11: Rate 12
BIT 12: Rate 13
BIT 13: Rate 14
BIT 14: Rate 15
BIT 15: Rate 16
BIT 16: Rate 17
BIT 17: Rate 18
BIT 18: Rate 19
BIT 19: Rate 20
BIT 20: Rate 21
BIT 21: Rate 22
BIT 22: Rate 23
BIT 23: Rate 24
```

ControlOutputIndexPattern

The ControlOutputIndexPattern is the pattern to apply to the control output group dedicated to the current rate indication. Up to 8 are defined.

A bit set to 1 means that the corresponding C.O. is active.

Default value: '0;0;0;0;0;0;0;0;'

Data type: BITSTRING Authorized values:

Size = 8

ViewAsType = BitString

BIT 0: C.O. 1 BIT 1: C.O. 2 BIT 2: C.O. 3 BIT 3: C.O. 4 BIT 4: C.O. 5 BIT 5: C.O. 6 BIT 6: C.O. 7 BIT 7: C.O. 8

Default value: 0;0;0;0;0;0;0;0;0;

10.1.31 IndexRegister

This object contains one index change. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;52;9;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-----------------------|--|
| A1. logical_name | OCTETSTRING | IndexRegisterOBISCode | |
| A2. value | UNSIGNED8 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |
| A4. status | UNSIGNED16 | See below | |
| A5. capture time | OCTETSTRING | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

IndexNumber

<u>IndexNumber</u>

Data type: UNSIGNED8

Authorized value: 0 to 49 and 255

Default value: 255

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

```
SEQUENCE // 2 elements
{
    Scaler
    Unit
}

Scaler
No scaler
Data type: INTEGER8
Authorized value: 0
Default value: 0
Unit
Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)
```

■ Attribute 4: status

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| LogBookId | | | | | | |
| LogBookld | | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

Default value: 65535

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| A 44 miles 4 e el . e . e | | | | | | |
| Attribute description | | | | | | |
| DateTime | | | | | | |
| <u>DateTime</u> | | | | | | |
| Date and time of the | index change. | | | | | |
| | | | | | | |

Authorized value: Decoded as Decimal (Size = 12)

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.32 IndexSummary

Data type: OCTETSTRING

This object contains the total number of index changes.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;52;10;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|-----------------------|-------------|--------------|
| True | True | True |
| Attributes / Met | hods | |
| Attribute (A) / Metho | od (M) | Da |
| A1. logical_name | | 00 |
| A2. value | | 1U |
| A3. scaler_unit | | SE |

■ Attribute 2: value

Access rights (clients)

| Electricit | y laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|----------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| | Get | Get | Get | Get | Get | - | Get | | |
| Attribute description NumberOfIndexChanges | | | | | | | | | |
| | OfIndexChar | _ | | | | | | | |
| Data typ | e: UNSIGNE | ED16 | | | | | | | |
| Authoriz | zed value: 0 t | o 65535 | | | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                        End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEQUENCE // 2 elements
   Scaler
   Unit
Scaler
No scaler
Data type: INTEGER8
Authorized value: 0
 Default value: 0
Unit
Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)
```

10.1.33 LogbookParameters

This parameter defines for each event if it is logged or not in the logbook.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;130;0;5;255 | 1 | 0 | 25 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------|
| A1. logical_name | OCTETSTRING | LogbookParametersOBISCode |
| A2. value | BITSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

LogBookParameters

LogBookParameters

Each event has a bit representative of its setting or not:

- 0 : event not to log
- 1: event to log.

Default value: all events to log (value = 1, for each of n events) except:

EV_EVENT_PERIODICAL_EOI, EV_EVENT_PERIODICAL_EOB and

EV EVENT MANUFACTURER ALARM APPEARANCE.

Note: Whatever the value EV_EVENT_START_WAVE_FORM, the event will never be logged.

Data type: BITSTRING

Authorized values:

Size = 62

ViewAsType = BitString

BIT 0: EV EVENT PERIODICAL EOI

BIT 1: EV_EVENT_ASYNCHRONOUS_EOI

BIT 2: EV_EVENT_PERIODICAL_EOB

BIT 3: EV EVENT PROGRAMMED EOB

BIT 4: EV EVENT ASYNCHRONOUS EOB

BIT 5: EV EVENT INDEX DPM

BIT 6: EV EVENT RESTORE INTERNAL INDEX

BIT 7: EV_EVENT_INDEX_CI

BIT 8: EV_EVENT_DAY_PROFILE_CL

BIT 9: EV_EVENT_RESTORE_INTERNAL_DAY_PROFILE

BIT 10: EV_EVENT_DAY_PROFILE_CI

BIT 11: EV EVENT SEASON SM

BIT 12: EV EVENT RESTORE INTERNAL SEASON

BIT 13: EV_EVENT_SEASON_CI

BIT 14: EV EVENT DST WITH SEASON

BIT 15: EV_EVENT_EXTERNAL_SYNCHRO_AND_DST_WITH_SEASON

BIT 16: EV_EVENT_ENTER_DOWNLOAD_MODE

BIT 17: EV_EVENT_EOR

BIT 18: EV EVENT ASSOCIATION LN PROGRAMMING

BIT 19: EV_EVENT_DATA_PUSH_ACTIVATION

BIT 20: EV_EVENT_SAVE_MANUFACTURER_PARAMETERS

BIT 21: EV EVENT RESET TER

BIT 22: EV_EVENT_CLEAR_ONE_NON_FATAL_ALARM

BIT 23: EV_EVENT_NON_FATAL_ALARM_APPEARANCE

BIT 24: EV_EVENT_NON_FATAL_ALARM_DISAPPEARANCE

BIT 25: EV EVENT FATAL ALARM APPEARANCE

BIT 26: EV EVENT PARAMETERS SAVING

BIT 27: EV_EVENT_CLEAR_NON_FATAL_ALARMS

BIT 28: EV_EVENT_CLEAR_FATAL_ALARMS

BIT 29: EV EVENT INTERNAL CLOCK SYNCHRO

BIT 30: EV_EVENT_EXTERNAL_CLOCK_SYNCHRO

BIT 31: EV_EVENT_CLOCK_SETTING

BIT 32: EV_EVENT_EXTERNAL_SYNCHRO_AND_DST_WITHOUT_SEASON

BIT 33: EV_EVENT_DST_WITHOUT_SEASON

```
BIT 34: EV EVENT AC FAIL APPEARANCE
BIT 35: EV EVENT AC FAIL DISAPPEARANCE
BIT 36: EV EVENT PWR FAIL APPEARANCE
BIT 37: EV EVENT POWER UP
BIT 38: EV EVENT PROGRAMMING CM
BIT 39: EV EVENT PROGRAMMING DI
BIT 40: EV_EVENT_CANCEL_PROGRAMMING_DI
BIT 41: EV_EVENT_RESET_MEASUREMENT_DATA
BIT 42: EV EVENT START MEASUREMENT
BIT 43: EV EVENT STOP MEASUREMENT
BIT 44: EV EVENT START TRIGGERED TESTS
BIT 45: EV EVENT STOP TRIGGERED TESTS
BIT 46: EV EVENT END OF CURRENT DATA SAVING
BIT 47: EV EVENT LOAD PROFILE RESET
BIT 48: EV_EVENT_PASSWORD_RESTORATION
BIT 49: EV EVENT INDEX CLOCK LOSS
BIT 50: EV EVENT SUCCESSFUL COMMUNICATION
BIT 51: EV EVENT COMMUNICATION WITH CONTRACT
BIT 52: EV EVENT_PROGRAMMING_CM2
BIT 53: EV EVENT THD DEFECT
BIT 54: EV_EVENT_START_WAVE_FORM
BIT 55: EV_EVENT_MANUFACTURER_ALARM_APPEARANCE
BIT 56: EV_EVENT_CLEAR_MANUFACTURER ALARMS
BIT 57: EV EVENT TRACE UFER
BIT 58: EV EVENT INDEX PARAMETER
BIT 59: EV EVENT TEST WATCHDOG
BIT 60: EV EVENT HW RESET NOT PERFORMED CAUSE INHIBITION
BIT 61: EV EVENT RESET DIPS NUMBER
Default value:
1;1;1;1;1;
```

10.1.34 LogbookRegister

This object contains one logbook entry. It is not available alone and is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;52;20;255 | 4 | 0 | 25 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------|
| A1. logical_name | OCTETSTRING | LogbookRegisterOBISCode |
| A2. value | SEQUENCE | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

```
SEQUENCE
           // 2 elements
 EventType
 EventParameters
EventType
Logged event.
Data type: UNSIGNED8
Authorized values:
0: EV_EVENT_PERIODICAL_EOI
1: EV_EVENT_ASYNCHRONOUS_EOI
2: EV_EVENT_PERIODICAL_EOB
3: EV_EVENT_PROGRAMMED_EOB
4: EV EVENT ASYNCHRONOUS EOB
5: EV_EVENT_INDEX_DPM
6: EV_EVENT_RESTORE_INTERNAL_INDEX
7: EV_EVENT_INDEX_CI
8: EV_EVENT_DAY_PROFILE_CL
9: EV_EVENT_RESTORE_INTERNAL_DAY_PROFILE
10: EV_EVENT_DAY_PROFILE_CI
11: EV EVENT SEASON SM
12: EV_EVENT_RESTORE_INTERNAL_SEASON
13: EV_EVENT_SEASON_CI
14: EV_EVENT_DST_WITH_SEASON
15: EV_EVENT_EXTERNAL_SYNCHRO_AND_DST_WITH_SEASON
16: EV_EVENT_ENTER_DOWNLOAD_MODE
17: EV_EVENT_NOT_USED
18: EV EVENT ASSOCIATION LN PROGRAMMING
19: EV EVENT DATA PUSH ACTIVATION
20: EV_EVENT_SAVE_MANUFACTURER_PARAMETERS
21: EV_EVENT_RESET_TER
22: EV_EVENT_CLEAR_ONE_NON_FATAL_ALARM
23: EV_EVENT_NON_FATAL_ALARM_APPEARANCE
24: EV_EVENT_NON_FATAL_ALARM_DISAPPEARANCE
25: EV_EVENT_FATAL_ALARM_APPEARANCE
26: EV_EVENT_PARAMETERS_SAVING
27: EV_EVENT_CLEAR_NON_FATAL_ALARMS
28: EV_EVENT_CLEAR_FATAL_ALARMS
29: EV EVENT INTERNAL CLOCK SYNCHRO
30: EV_EVENT_EXTERNAL_CLOCK_SYNCHRO
31: EV_EVENT_CLOCK_SETTING
32: EV EVENT EXTERNAL SYNCHRO AND DST WITHOUT SEASON
33: EV EVENT DST WITHOUT SEASON
34: EV_EVENT_AC_FAIL_APPEARANCE
35: EV_EVENT_AC_FAIL_DISAPPEARANCE
36: EV_EVENT_PWR_FAIL_APPEARANCE
37: EV_EVENT_POWER_UP
38: EV_EVENT_PROGRAMMING_CM
39: EV_EVENT_PROGRAMMING_DI
40: EV EVENT CANCEL PROGRAMMING DI
41: EV_EVENT_RESET_MEASUREMENT_DATA
42: EV_EVENT_START_MEASUREMENT
43: EV_EVENT_STOP_MEASUREMENT
44: EV_EVENT_START_TRIGGERED_TESTS
45: EV_EVENT_STOP_TRIGGERED_TESTS
46: EV_EVENT_END_OF_CURRENT_DATA_SAVING
47: EV_EVENT_LOAD_PROFILE_RESET
```

```
48: EV EVENT PASSWORD RESTORATION
49: EV EVENT INDEX CLOCK LOSS
50: EV EVENT SUCCESSFUL COMMUNICATION
51: EV EVENT COMMUNICATION WITH CONTRACT
52: EV_EVENT_PROGRAMMING_CM2
53: EV EVENT THD DEFECT
54: EV_EVENT_START_WAVE_FORM
55: EV_EVENT_MANUFACTURER_ALARM_APPEARANCE
56: EV_EVENT_CLEAR_MANUFACTURER_ALARMS
57: EV EVENT TRACE UFER
58: EV EVENT INDEX PARAMETER
59: EV EVENT TEST WATCHDOG
60: EV EVENT HW RESET NOT PERFORMED CAUSE INHIBITION
61: EV EVENT RESET DIPS NUMBER
255: Undefined
Default value: Undefined (255)
EventParameters
Data type: UNSIGNED8
Authorized value: 0 to 255
Default value: 0
```

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity utility Electricity laboratory Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description SEQUENCE // 2 elements Scaler Unit Scaler No scaler Data type: INTEGER8 Authorized value: 0 Default value: 0 <u>Unit</u> Data type: ENUMERATED

■ Attribute 4: status

Authorized value: 255: No unit Default value: No unit (255)

ID of the event in the logbook.

Access rights (clients)

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EventRecordDateAndTime

EventRecordDateAndTime

Date and time stamp of the event.

Warning: The fields date (year high byte, year low byte, month, day of month, day of week) in UTC are set only once a day for the first event following midnight.

For all other elements in the same day, these fields are set to 0xFF.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

10.1.35 MagnetSensor

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;96;51;26;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------|--|
| A1. logical_name | OCTETSTRING | MagnetSensorOBISCode | |
| A4. status | OCTETSTRING | See below | |
| A5. capture_time | OCTETSTRING | See below | |

■ Attribute 4: status

Starting time stamp of the defect

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | | | | | | |

Attribute description

StartingTime

StartingTime

Starting date and time stamp of the defect

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

■ Attribute 5: capture_time

Ending date and time stamp of the defect

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingTime

EndingTime

Ending time stamp of the defect

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

10.1.36 ManufacturerAlarms

This object holds the manufacturer error status.

The reset of the manufacturer alarms is performed with a script.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;97;97;3;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | ManufacturerAlarmsOBISCode |
| A2. value | BITSTRING | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | Get | - | - |

Attribute description

ManufacturerErrorStatus

ManufacturerErrorStatus

0 : no alarm set 1 : this alarm is set.

Data type: BITSTRING

Authorized values:

Size = 2

ViewAsType = BitString

BIT 0: Metrology restarted error BIT 1: Meter restarted error

Default value: 0;0;

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

```
SEQUENCE // 2 elements
{
    Scaler
    Unit
}

Scaler
No scaler.
Data type: INTEGER8
Authorized value: 0
Default value: 0
Unit
Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)
```

10.1.37 MaximumPowerFailureDurationSummary

This object contains the maximum duration of long power failures. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;52;3;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| = | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | MaximumPowerFailureDurationSummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED8 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

MaximumDuration

$\underline{\text{MaximumDuration}}$

MaximumDuration of a long power failure

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

```
Attribute description

SEQUENCE // 2 elements

{
    Scaler
    Unit
}

Scaler

Data type: INTEGER8

Authorized value: 0

Default value: 0

Unit

Data type: ENUMERATED

Authorized value: 7: sec
```

■ Attribute 4: status

Default value: sec (7)

Not used

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| status | | | | | | |
| Not used | | | | | | |
| Data type: UNSIGNE | :D8 | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

Authorized value: 0
Default value: 0

| Electricity laboratory Electricity utility Ele | | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|--|--------------------|--------------------|--------------|--------------|--------------------|----------|--|
| - | - | - | - | - | - | - | |
| Attribute description | | | | | | | |
| DateTime | | | | | | | |
| <u>DateTime</u> | | | | | | | |
| Starting date and tim | e of the longest I | ong power failure | | | | | |
| Data type: OCTETS1 | ΓRING | | | | | | |
| Authorized value: De | coded as Decim | al (Size = 12) | | | | | |
| Default value: 7;200; | 1;1;255;0;0;0;25 | 5;128;0;255; | | | | | |

10.1.38 MinimumPowerFailureDurationSummary

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;52;2;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|-----------------------|-------------|--------------|--|
| True | True | True | |
| Attributes / Meth | nods | | |
| attribute (A) / Metho | d (M) | Data type | Content |
| 1. logical_name | | OCTETSTRING | MinimumPowerFailureDurationSummaryOBISCode |
| 2. value | | UNSIGNED32 | See below |
| A3. scaler_unit | | SEQUENCE | See below |
| \4. status | | UNSIGNED8 | See below |
| A5. capture time | | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

MinimumDuration

Minimum Duration

Minimum Duration of a long power failure

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description

SEQUENCE // 2 elements Scaler Unit

Scaler

Data type: INTEGER8 Authorized value: 0 Default value: 0

Unit

Data type: ENUMERATED Authorized value: 7: sec Default value: sec (7)

■ Attribute 4: status

Not used

Access rights (clients)

Electricity laboratory **Electricity utility** Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description

Status

Status

Not used

Data type: UNSIGNED8
Authorized value: 0
Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

DateTime

DateTime

Starting date and time of the shortest long power failure.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.39 NonFatalAlarms

The reset of the non fatal alarms is performed with a script.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;97;97;2;255 | 3 | 0 | 13 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) Data type Content | |
|---|--|
| A1. logical_name OCTETSTRING NonFatalAlarmsOBISCode | |
| A2. value BITSTRING See below | |
| A3. scaler_unit SEQUENCE See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

NonFatalAlarms

NonFatalAlarms

define in XMI

Data type: BITSTRING

Authorized values:

Size = 40

ViewAsType = BitString

BIT 0: WATCHDOG_ACTIVITY

BIT 1: EXTERNAL_CLOCK_INCOHERENCE BIT 2: CONFIGURATION_INCOHERENCE

BIT 3: NON_VOLATILE_MEMORY_NON_FATAL_ERROR

BIT 4: NOT_USED

BIT 5: PROGRAMMING INCOHERENCE

BIT 6: COVER_OPENING

```
BIT 7: NOT USED
BIT 8: MAGNET SENSOR
BIT 9: CURRENT REVERSAL AGGREGATE
BIT 10: ZERO SEQUENCE I TRAPPED
BIT 11: NOT USED
BIT 12: NOT USED
BIT 13: NOT_USED
BIT 14: NO_INTERNAL_CONSUMPTION
BIT 15: NO EXTERNAL CONSUMPTION
BIT 16: ZERO SEQUENCE U
BIT 17: ZERO SEQUENCE I
BIT 18: CLOCK LOSS
BIT 19: EXTERNAL_ALARM
BIT 20: CURRENT_REVERSAL_PHASE_1
BIT 21: CURRENT_REVERSAL_PHASE_2
BIT 22: CURRENT_REVERSAL_PHASE_3
BIT 23: TEMPERATURE ALARM
BIT 24: VOLTAGE CUT PHASE 1
BIT 25: VOLTAGE_CUT_PHASE_2
BIT 26: VOLTAGE CUT PHASE 3
BIT 27: VOLTAGE SAG PHASE
BIT 28: VOLTAGE_SAG_PHASE_2
BIT 29: VOLTAGE_SAG_PHASE_3
BIT 30: VOLTAGE SWELL PHASE 1
BIT 31: VOLTAGE SWELL PHASE 2
BIT 32: VOLTAGE_SWELL_PHASE_3
BIT 33: BATTERY
BIT 34: EXCESS_DEMAND
BIT 35: NOT_USED
BIT 36: NOT USED
BIT 37: NOT USED
BIT 38: NOT USED
BIT 39: NOT USED
```

■ Attribute 3: scaler_unit

Access rights (clients)

| recess rigine (enemic | , | | | | | |
|------------------------------|---------------------|-----|--------------|-----|--------------------|----------|
| Electricity laboratory | Electricity utility | • | End customer | | Resources upgrader | Engineer |
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE //: { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler. | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |

Default value: No unit (255)

10.1.40 NumberOfLongPowerFailures

Indicates the number of long power failures

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;7;5;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | NumberOfLongPowerFailuresOBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

NumberOfLongPowerFailures

NumberOfLongPowerFailures

Indicates the number of long power failures

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.1.41 NumberOfShortPowerFailures

Indicates the number of short power failures

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;52;18;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------------|--|
| A1. logical_name | OCTETSTRING | NumberOfShortPowerFailuresOBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

NumberOfShortPowerFailures

<u>NumberOfShortPowerFailures</u>

Indicates the number of short power failures

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.1.42 PowerFailureRegister

This object contains one long power failure.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;52;1;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | PowerFailureRegisterOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Not used

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | _ | - | _ | _ | - | _ |

Attribute description

PowerFailureDuration

PowerFailureDuration

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

Scaler

no scaler

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 7: sec
Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

LogbookId

Logbookld

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 65535

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

Starting date and time of the power failure

Starting date and time of the power failure

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.43 SeasonRegister

This object contains one season change. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;52;5;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | SeasonRegisterOBISCode |
| A2. value | UNSIGNED8 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

SeasonNumber

<u>SeasonNumber</u>

Data type: UNSIGNED8

Authorized value: 0 to 11 and 255

Default value: 255

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

```
Attribute description
```

```
SEQUENCE // 2 elements {
    Scaler Unit }
```

Scaler No scaler

Data type: INTEGER8
Authorized value: 0
Default value: 0

Unit

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

LogbookId

Logbookld

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 65535

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

DateTimeSeasonChange

<u>DateTimeSeasonChange</u>

Date and time of season change

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.44 SeasonsSummary

This object contains the total number of season changes.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;52;6;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | SeasonsSummaryOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get Get | | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

NumberOfSeasonChanges

<u>NumberOfSeasonChanges</u>

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

```
SEQUENCE // 2 elements {
   Scaler
   Unit
```

Scaler

No scaler

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

10.1.45 SuccessfullProgrammingSummary

This register contains the total number of programming and its capture time is the date and time of last programming.

The number is incremented at each successful SET or ACTION access to an object, after actually accepting the parameters.

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| | | | Hullibel | | parameter | programming | compliance |
| 0;0;96;2;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | SuccessfullProgrammingSummaryOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | VISIBLESTRING | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description NbProgramming | | | | | | |
| NbProgramming | | | | | | |
| Data type: UNSIGNE | D16 | | | | | |

Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity labor | ratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------|--------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | | - | - | - | - | - | - |
| Attribute descr | iption | | | | | | |
| SEQUENCE | // 2 | elements | | | | | |

```
Scaler
Unit
}
Scaler
```

No scaler

Data type: INTEGER8

Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 255: No unit

Default value: No unit (255)

■ Attribute 4: status

Access rights (clients)

| • | Access rights (chefits) | | | | | | |
|---|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| | Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |
| | A (' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' | | | | | | |
| , | Attribute description | | | | | | |
| | ProgrammingId | | | | | | |
| | <u>ProgrammingId</u> | | | | | | |
| | | | | | | | |
| | Data type: VISIBLES | TRING | | | | | |
| | | | | | | | |

Authorized value: Size = 8
Default value: prog id

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| DateTime | | | | | | |
| <u>DateTime</u> | | | | | | |
| Date and time of last | programming | | | | | |
| Data type: OCTETS | TRING | | | | | |
| | | | | | | |

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.46 TEPProgrammingRegister

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;51;70;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------|
| A1. logical_name | OCTETSTRING | TEPProgrammingRegisterOBISCode |
| A2. value | SEQUENCE | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laborate | ory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|----------------------|------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | | - | - | - | - | - | - |
| Attribute descript | tion | | | | | | |
| SEQUENCE | // 2 | elements | | | | | |
| { | | | | | | | |
| Scaler | | | | | | | |

```
Unit
Scaler
Defines the scaler of active energy.
Default value = 3 (kilo)
When the meter is "MID compliant" (MIDComplianceParameters = TRUE), possible values for ACTIVE
energy group are 3 and 6.
Data type: INTEGER8
Authorized values:
0: unity
3: kilo
6: mega
Default value: kilo (3)
Unit
Defines the unit of active energy.
Values shall always be Wh (30) for active energy
Data type: UNSIGNED8
Authorized values:
30: Wh
31: VAh
32: VARh
255: No unit
Default value: Wh (30)
```

■ Attribute 3: scaler_unit

Not used.

Access rights (clients)

```
Electricity laboratory
                        Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEQUENCE
               // 2 elements
   Scaler
   Unit
 }
 Scaler
 No scaler
 Data type: INTEGER8
 Authorized value: 0
 Default value: 0
<u>Unit</u>
Data type: ENUMERATED
 Authorized value: 255: No unit
 Default value: No unit (255)
```

■ Attribute 4: status

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | _ | - | - | - | - | - |

Attribute description

LogbookId

Logbookld

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 65535

■ Attribute 5: capture time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

capture_time

capture time

Date and time of the last CT/VT ratio programming.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.47 TEPProgrammingSummary

Interface

| Logical name | Class Id | Class version | ion Absolute Local Id Co | | Configuration | Restrictive | MID |
|------------------|----------|---------------|--------------------------|---|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;51;71;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | TEPProgrammingSummaryOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | CHOICE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | _ | Get |

Attribute description

TEPProgrammingNumber

TEPProgrammingNumber

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Not used.

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
Attribute description
 CHOICE
   Scaler unit
   SEQUENCE // 2 elements
     Scaler
     Unit
Scaler unit
NULL
Data type: NULL
 Authorized value:
 Default value:
 Scaler
No scaler
Data type: INTEGER8
 Authorized value: 0
 Default value: 0
Unit
No unit
Data type: ENUMERATED
 Authorized value: 255: No unit
Default value: No unit (255)
```

10.1.48 TotalDurationOfLongPowerFailuresSummary

True

This object contains the total duration of long power failures. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;52;4;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | s : | | | | | | |
| Management | Fla | actricity | End customer | | | | |

Attributes / Methods

True

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | TotalDurationOfLongPowerFailuresSummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| | | | | | | |

Attribute description

TotalDurationOfLongPowerFailures

True

<u>TotalDurationOfLongPowerFailures</u>

Cumulated duration of long power failures.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 7: | sec | | | | | |
| Default value: sec (7 | ') | | | | | |

10.1.49 UtilitySuccessfullCommunicationsSummary

This object holds the total number of successfull communication on the utility link and the date and time of the last one.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0:0:96:2:128:255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |
| | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | UtilitySuccessfullCommunicationsSummaryOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | INTEGER8 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

NbOfUtilitySuccessfullCommunication

NbOfUtilitySuccessfullCommunication

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                        End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEQUENCE // 2 elements
   Scaler
   Unit
 }
 Scaler
 No scaler
Data type: INTEGER8
 Authorized value: 0
 Default value: 0
Unit
Data type: ENUMERATED
Authorized value: 255: No unit
 Default value: No unit (255)
```

■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| status | | | | | | |
| <u>status</u> | | | | | | |
| Not used | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| | | | | | | |

■ Attribute 5: capture_time

Date and time of the last successfull utility communication.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| capture_time | | | | | | |
| capture time | | | | | | |

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12) Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.50 VoltageCutMaxPhase1Summary

This register holds the maximum value of phase 1 voltage cuts. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;17;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| = | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageCutMaxPhase1SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED32 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| | | | | | | |
| Attribute description | | | | | | |

MaxCutDurationPhase1

MaxCutDurationPhase1

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| _ | _ | _ | _ | _ | _ | _ |

Attribute description

```
SEOUENCE
         // 2 elements
 Scaler
 unit
```

<u>Scaler</u>

Data type: INTEGER8 Authorized value: -2 Default value: -2

unit

Data type: ENUMERATED

Authorized value: 7: sec Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

CumulatedDuration

CumulatedDuration

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.51 VoltageCutMaxPhase2Summary

This register holds the maximum value of phase 2 voltage cuts. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;96;51;19;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageCutMaxPhase2SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED32 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | = | - | - | - ' | - |

Attribute description

MaxCutDurationPhase2

MaxCutDurationPhase2

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory **Electricity utility** Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description SEQUENCE // 2 elements Scaler unit Scaler Data type: INTEGER8 Authorized value: -2 Default value: -2 unit Data type: ENUMERATED Authorized value: 7: sec

■ Attribute 4: status

Default value: sec (7)

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

CumulatedDuration

CumulatedDuration

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

End customer Manufacturer Resources upgrader Engineer

10.1.52 VoltageCutMaxPhase3Summary

This register holds the maximum value of phase 3 voltage cuts. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;21;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageCutMaxPhase3SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED32 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| _ | _ | _ | _ | _ | _ | _ |

Attribute description

MaxCutDurationPhase3

MaxCutDurationPhase3

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Electricity utility

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory

| | | | | | | 3 |
|-----------------------|----------|---|---|---|---|---|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| SEQUENCE // 2 { | elements | | | | | |
| Scaler | | | | | | |
| unit
l | | | | | | |
| Caslan | | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | 8 | | | | | |
| Authorized value: -2 | | | | | | |
| Default value: -2 | | | | | | |
| <u>unit</u> | | | | | | |

Electricity reader

■ Attribute 4: status

Data type: ENUMERATED Authorized value: 7: sec Default value: sec (7)

Default value: 0

■ Attribute 5: capture_time

Authorized value: 0 to 4294967295

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.53 VoltageCutMinPhase1Summary

This register holds the minimum value of phase 1 voltage cuts. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;16;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------------|--|
| A1. logical_name | OCTETSTRING | VoltageCutMinPhase1SummaryOBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |
| A4. status | UNSIGNED16 | See below | |
| A5. capture time | OCTETSTRING | See below | |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

MinCutDurationPhase1

MinCutDurationPhase1

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory Electricity utility End customer Manufacturer Resources upgrader Engineer Attribute description SEQUENCE // 2 elements Scaler unit Scaler Data type: INTEGER8 Authorized value: -2 Default value: -2 unit Data type: ENUMERATED Authorized value: 7: sec Default value: sec (7) ■ Attribute 4: status Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description CutsNumber **CutsNumber** Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 ■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.54 VoltageCutMinPhase2Summary

This register holds the minimum value of phase 2 voltage cuts. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;18;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------------|--------|
| A1. logical_name | OCTETSTRING | VoltageCutMinPhase2SummaryOBISCode | \Box |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |
| A4. status | UNSIGNED16 | See below | |
| A5. capture_time | OCTETSTRING | See below | |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

MinCutDurationPhase2

MinCutDurationPhase2

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

```
SEQUENCE // 2 elements {
   Scaler unit }
```

Scaler

Data type: INTEGER8
Authorized value: -2

Default value: -2

<u>unit</u>

Data type: ENUMERATED
Authorized value: 7: sec
Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

CutsNumber

CutsNumber

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.55 VoltageCutMinPhase3Summary

This register holds the minimum value of phase 3 voltage cuts. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;0;96;51;20;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageCutMinPhase3SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

MinCutDurationPhase3

MinCutDurationPhase3

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| _ | - | - | - | - | _ | _ |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   unit
}
```

Scaler

Data type: INTEGER8
Authorized value: -2
Default value: -2

unit

Data type: ENUMERATED
Authorized value: 7: sec
Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

CutsNumber

CutsNumber

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.56 VoltageCutRegister

This object contains the duration of cutting on one phase, the phase(s) number in default and the starting date and time of this occurence.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;15;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | | |
|-----------------------|-------------|--------------|--------|----------------------------|
| True | True | True | | |
| Attributes / Meth | nods | | | |
| Attribute (A) / Metho | d (M) | Data typ | oe . | Content |
| A1. logical_name | | OCTET | STRING | VoltageCutRegisterOBISCode |
| A2. value | | SEQUE | NCE | See below |
| A3. scaler_unit | | SEQUE | NCE | See below |
| A4. status | | UNSIGI | NED16 | See below |
| A5. capture_time | | OCTET | STRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

```
Attribute description
```

```
SEQUENCE // 6 elements
{
    PhaseNumber
    SEQUENCE // 2 elements
    {
        scaler
        Unit
    }
    Duration
    SEQUENCE // 2 elements
    {
        scaler
        Unit
    }
    Magnitude
    SEQUENCE // 2 elements
    {
        scaler
        Unit
    }
    scaler
    Unit
}
```

<u>PhaseNumber</u>

Data type: UNSIGNED8

Authorized value: 0 to 2 and 255

Default value: 255

<u>scaler</u>

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: UNSIGNED8

Authorized value: 255: No unit Default value: No unit (255)

Duration

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

<u>scaler</u>

Data type: INTEGER8
Authorized value: -2
Default value: -2

<u>Unit</u>

Data type: UNSIGNED8

Authorized value: 7: sec

Default value: sec (7)

Magnitude

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

scaler

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>Unit</u>

Data type: UNSIGNED8 Authorized value: 35: V Default value: V (35)

■ Attribute 3: scaler_unit

Not used

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

```
Attribute description
```

```
SEQUENCE // 2 elements {
    Scaler
    Unit
}
```

Scaler No scaler

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

LogbookID

LogbookID

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 65535

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.57 VoltageIsolationPhase1Summary

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;23;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageIsolationPhase1SummaryOBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

 ${\tt NumberOfVoltageIsolationDefectsPhase1}$

<u>NumberOfVoltageIsolationDefectsPhase1</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

10.1.58 VoltageIsolationPhase2Summary

Interface

| Logical name | Class Id | Class version | version Absolute Local Id | | Configuration | Restrictive | MID |
|------------------|----------|---------------|---------------------------|---|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;96;51;24;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------------|--|
| A1. logical_name | OCTETSTRING | VoltageIsolationPhase2SummaryOBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| _ | _ | _ | _ | _ | _ | _ |

Attribute description

 ${\tt NumberOfVoltageIsolationDefectsPhase 2}$

NumberOfVoltageIsolationDefectsPhase2

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.1.59 VoltageIsolationPhase3Summary

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;25;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageIsolationPhase3SummaryOBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

NumberOfVoltageIsolationDefectsPhase3

NumberOfVoltageIsolationDefectsPhase3

Data type: UNSIGNED16
Authorized value: 0 to 65535

10.1.60 VoltageIsolationRegister

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;96;51;22;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | VoltageIsolationRegisterOBISCode |
| A2. value | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

```
Attribute description
```

```
SEQUENCE  // 4 elements
{
   VoltageIsolationPhaseNumber
   SEQUENCE  // 2 elements
   {
      Scaler
      Unit
   }
  VoltageIsolationDuration
   SEQUENCE  // 2 elements
   {
      Scaler
      Unit
   }
}
```

VoltageIsolationPhaseNumber

Data type: UNSIGNED8

Authorized values:

0: Phase 1 1: Phase 2 2: Phase 3 255: Undefined

Default value: Undefined (255)

Scaler No scaler

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: UNSIGNED8

Authorized value: 255: No unit

Default value: No unit (255)

VoltageIsolationDuration

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

Scaler

Data type: INTEGER8
Authorized value: -2
Default value: -2

<u>Unit</u>

Data type: UNSIGNED8 Authorized value: 7: sec Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

LogbookId

Logbookld

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.61 VoltageSagMaxPhase1Summary

This register holds the maximum value of phase 1 voltage sags. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;3;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer
True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSagMaxPhase1SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED32 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

MaxSagDurationPhase1

MaxSagDurationPhase1

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | _ | _ | _ | _ | - | _ |

Attribute description

<u>Scaler</u>

Data type: INTEGER8
Authorized value: -2
Default value: -2

<u>unit</u>

Data type: ENUMERATED
Authorized value: 7: sec
Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

CumulatedDuration

CumulatedDuration

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

■ Attribute 5: capture_time

| Access rights (clients |) | | | | | | | | |
|--|------------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
| - | - | - | - | - | - | - | | | |
| Attribute description | Attribute description | | | | | | | | |
| EndingDateTime | | | | | | | | | |
| <u>EndingDateTime</u> | | | | | | | | | |
| Ending date time of | the defect | | | | | | | | |
| Data type: OCTETS | Data type: OCTETSTRING | | | | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | | |

10.1.62 VoltageSagMaxPhase2Summary

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

This register holds the maximum value of phase 2 voltage sags. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| 1;0;96;51;5;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSagMaxPhase2SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED32 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | - | - | - | - | - | - | - |
| | | | | | | | |
| Α | ttribute description | | | | | | |
|] | MaxSagDurationPha | se2 | | | | | |
| | MaxSagDurationPha | se2 | | | | | |
| | | | | | | | |
| | Data type: UNSIGNE | D32 | | | | | |

Default value: 0

Authorized value: 0 to 4294967295

■ Attribute 3: scaler_unit

Scaler

Data type: INTEGER8
Authorized value: -2
Default value: -2

<u>unit</u>

Data type: ENUMERATED Authorized value: 7: sec Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

■ Attribute 5: capture_time

Access rights (clients)

Default value: 0

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| EndingDateTime | | | | | | |
| <u>EndingDateTime</u> | | | | | | |
| Ending date time of | the defect | | | | | |
| Data type: OCTETS | TRING | | | | | |
| Authorized value: De | ecoded as Decim | al (Size = 12) | | | | |

10.1.63 VoltageSagMaxPhase3Summary

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

This register holds the maximum value of phase 3 voltage sags. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;7;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices :

ManagementElectricityEnd customerTrueTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSagMaxPhase3SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED32 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

MaxSagDurationPhase3

MaxSagDurationPhase3

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | _ | _ | _ | _ | - | _ |

Attribute description

<u>Scaler</u>

Data type: INTEGER8 Authorized value: -2 Default value: -2

unit

Data type: ENUMERATED
Authorized value: 7: sec
Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| _ | _ | _ | _ | _ | _ | _ |

Attribute description

CumulatedDuration

CumulatedDuration

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

■ Attribute 5: capture_time

| Access rights (clients |) | | | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| EndingDateTime | | | | | | |
| <u>EndingDateTime</u> | | | | | | |
| Ending date time of | the defect | | | | | |
| Data type: OCTETS | TRING | | | | | |
| Authorized value: De | ecoded as Decim | al (Size = 12) | | | | |

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.64 VoltageSagMinPhase1Summary

This register holds the minimum value of phase 1 voltage sags. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;2;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| • | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSagMinPhase1SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients) Electricity laboratory

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description MinSagDurationPha | asel | | | | | |
| MinSagDurationPha | ise1 | | | | | |

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

unit

■ Attribute 3: scaler_unit

```
Electricity laboratory
                        Electricity utility
                                           Electricity reader
                                                            End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEQUENCE
               // 2 elements
   Scaler
```

Scaler

Data type: INTEGER8
Authorized value: -2
Default value: -2

unit

Data type: ENUMERATED Authorized value: 7: sec Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

■ Attribute 5: capture_time

Access rights (clients)

Default value: 0

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.65 VoltageSagMinPhase2Summary

This register holds the minimum value of phase 2 voltage sags. It is used to allow capture into a profile.

Interface

Logical name Class Id Class version Absolute Local Id Configuration Restrictive MID number parameter programming compliance 1;0;96;51;4;255 0 0 False False False

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSagMinPhase2SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

MinSagDurationPhase2

MinSagDurationPhase2

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | _ | - | _ | - | _ | - |

Attribute description

<u>Scaler</u>

Data type: INTEGER8
Authorized value: -2
Default value: -2

unit

Data type: ENUMERATED
Authorized value: 7: sec
Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| _ | - | _ | _ | _ | _ | _ |

Attribute description

SagsNumber

SagsNumber

Data type: UNSIGNED16 Authorized value: 0 to 65535

■ Attribute 5: capture_time

| Access rights (clients | 5) | | | | | | | | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | |
| - | - | - | - | - | - | - | | | | | |
| Attribute description | | | | | | | | | | | |
| EndingDateTime | · | | | | | | | | | | |
| <u>EndingDateTime</u> | | | | | | | | | | | |
| Ending date time of | the defect | | | | | | | | | | |
| Data type: OCTETSTRING | | | | | | | | | | | |
| Authorized value: D | ecoded as Decim | al (Size = 12) | | | | | | | | | |

10.1.66 VoltageSagMinPhase3Summary

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

This register holds the minimum value of phase 3 voltage sags. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;6;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices

| Logical acvices. | | |
|------------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Electricity utility

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSagMinPhase3SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients) Electricity laboratory

| Liectricity laboratory | Liectricity utility | Liectricity reader | Life Custoffiel | Manufacturer | rtesources apgrader | Lilgineer |
|------------------------|---------------------|--------------------|-----------------|--------------|---------------------|-----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| MinSagDurationPha | se3 | | | | | |
| MinSagDurationPhas | <u>se3</u> | | | | | |
| Data type: UNSIGNE | ED32 | | | | | |

Flectricity reader End customer Manufacturer Resources ungrader Engine

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

```
Electricity laboratory
                        Electricity utility
                                           Electricity reader
                                                            End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEQUENCE
               // 2 elements
   Scaler
   unit
```

Scaler

Data type: INTEGER8
Authorized value: -2
Default value: -2

unit

Data type: ENUMERATED Authorized value: 7: sec Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

SagsNumber

SagsNumber

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.67 VoltageSagRegister

This object contains one 'Voltage sag' event. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;1;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | VoltageSagRegisterOBISCode |
| A2. value | SEQUENCE | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

PhaseNumber

Data type: UNSIGNED8

Authorized value: 0 to 2 and 255

Default value: 255

<u>scaler</u>

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: UNSIGNED8

Authorized value: 255: No unit Default value: No unit (255)

Duration

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

<u>scaler</u>

Data type: INTEGER8 Authorized value: -2 Default value: -2

<u>Unit</u>

Data type: UNSIGNED8
Authorized value: 7: sec
Default value: sec (7)

Magnitude

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

scaler

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>Unit</u>

Data type: UNSIGNED8 Authorized value: 35: V Default value: V (35)

■ Attribute 3: scaler_unit

Not used

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

Scaler No scaler

Data type: INTEGER8
Authorized value: 0

Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

■ Attribute 4: status

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description LogbookID **LogbookID** Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 65535 ■ Attribute 5: capture_time Access rights (clients) **Electricity laboratory Electricity utility** End customer Manufacturer Resources upgrader Engineer Electricity reader Attribute description EndingDateTime

EndingDateTime

Ending date time of the defect Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.68 VoltageSwellMaxPhase1Summary

This register holds the maximum value of phase 1 voltage swells. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;10;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| NA | Electricite. | F |
|------------|--------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSwellMaxPhase1SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED32 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

MaxSwellDurationPhase1

MaxSwellDurationPhase1

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory Electricity utility End customer Manufacturer Resources upgrader Engineer Attribute description SEQUENCE // 2 elements Scaler unit Scaler Data type: INTEGER8 Authorized value: -2 Default value: -2 unit Data type: ENUMERATED Authorized value: 7: sec Default value: sec (7) ■ Attribute 4: status Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description CumulatedDuration CumulatedDuration Data type: UNSIGNED32 Authorized value: 0 to 4294967295 Default value: 0 ■ Attribute 5: capture_time

Access rights (clients)

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.69 VoltageSwellMaxPhase2Summary

This register holds the maximum value of phase 2 voltage swells. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;12;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSwellMaxPhase2SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED32 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

MaxSwellDurationPhase2

MaxSwellDurationPhase2

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

```
SEQUENCE // 2 elements {
   Scaler unit }
```

Scaler

Data type: INTEGER8
Authorized value: -2

Default value: -2

<u>unit</u>

Data type: ENUMERATED
Authorized value: 7: sec
Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

CumulatedDuration

CumulatedDuration

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.70 VoltageSwellMaxPhase3Summary

This register holds the maximum value of phase 3 voltage swells. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;14;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSwellMaxPhase3SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED32 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

 ${\tt MaxSwellDurationPhase3}$

MaxSwellDurationPhase3

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | _ | _ |

Attribute description

```
SEQUENCE
         // 2 elements
 Scaler
 unit
```

Scaler

Data type: INTEGER8 Authorized value: -2 Default value: -2

unit

Data type: ENUMERATED Authorized value: 7: sec Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

CumulatedDuration

CumulatedDuration

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |

EndingDateTime

EndingDateTime

Ending date time of the defect

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12) Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.71 VoltageSwellMinPhase1Summary

This register holds the minimum value of phase 1 voltage swells. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;9;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|-----------------------|-------------|--------------|--------------------------------------|
| True | True | True | |
| Attributes / Meth | nods | | |
| Attribute (A) / Metho | d (M) | Data type | Content |
| A1. logical_name | | OCTETSTRING | VoltageSwellMinPhase1SummaryOBISCode |
| A2. value | | UNSIGNED32 | See below |
| A3. scaler_unit | | SEQUENCE | See below |
| A4. status | | UNSIGNED16 | See below |
| A5. capture_time | | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

MinSwellDurationPhase1

MinSwellDurationPhase1

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

<u>Scaler</u>

}

Data type: INTEGER8
Authorized value: -2
Default value: -2

unit

Data type: ENUMERATED
Authorized value: 7: sec
Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

SwellsNumber

SwellsNumber

Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

Attribute description

EndingDateTime

EndingDateTime

Ending date time of the defect

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12) Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.1.72 VoltageSwellMinPhase2Summary

This register holds the minimum value of phase 2 voltage swells. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;11;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSwellMinPhase2SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity | laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------|------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| _ | | - | - | - | - | - | - |
| Attribute de | escription | | | | | | |
| MinSwell | DurationPh | nase2 | | | | | |

MinSwellDurationPhase2

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

```
// 2 elements
SEQUENCE
  Scaler
```

unit
}
Scaler
Data type: INTEGER8
Authorized value: -2
Default value: -2
unit

Data type: ENUMERATED
Authorized value: 7: sec
Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

SwellsNumber

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

10.1.73 VoltageSwellMinPhase3Summary

Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

This register holds the minimum value of phase voltage swells. It is used to allow capture into a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;13;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSwellMinPhase3SummaryOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

MinSwellDurationPhase3

MinSwellDurationPhase3

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| _ | _ | _ | _ | _ | _ | _ |

Attribute description

<u>Scaler</u>

Data type: INTEGER8 Authorized value: -2 Default value: -2

unit

Data type: ENUMERATED
Authorized value: 7: sec
Default value: sec (7)

■ Attribute 4: status

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| _ | - | _ | _ | _ | _ | _ |

Attribute description

SwellsNumber

<u>SwellsNumber</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 5: capture_time

Access rights (clients)

| Access rights (clients) |) | | | | | | | | |
|--|------------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
| - | - | - | - | - | - | - | | | |
| Attribute description | | | | | | | | | |
| EndingDateTime | | | | | | | | | |
| <u>EndingDateTime</u> | EndingDateTime | | | | | | | | |
| Ending date time of t | the defect | | | | | | | | |
| Data type: OCTETS | Data type: OCTETSTRING | | | | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | | |
| Default value: 7;200; | ;1;1;255;0;0;0;25 | 5;128;0;255; | | | | | | | |

10.1.74 VoltageSwellRegister

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;51;8;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| Truo | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | VoltageSwellRegisterOBISCode |
| A2. value | SEQUENCE | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | UNSIGNED16 | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

```
Electricity laboratory
                     Electricity utility
                                     Electricity reader
                                                    End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEQUENCE
            // 6 elements
   PhaseNumber
             // 2 elements
   SEQUENCE
     scaler
     Unit
   Duration
                // 2 elements
   SEQUENCE
     scaler
     Unit
   Magnitude
                 // 2 elements
   SEQUENCE
     scaler
     Unit
```

<u>PhaseNumber</u>

Data type: UNSIGNED8

Authorized value: 0 to 2 and 255

Default value: 255

<u>scaler</u>

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: UNSIGNED8

Authorized value: 255: No unit Default value: No unit (255)

Duration

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

<u>scaler</u>

Data type: INTEGER8
Authorized value: -2
Default value: -2

<u>Unit</u>

Data type: UNSIGNED8 Authorized value: 7: sec Default value: sec (7)

<u>Magnitude</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>Unit</u>

Data type: UNSIGNED8
Authorized value: 35: V
Default value: V (35)

■ Attribute 3: scaler_unit

Not used

End customer Manufacturer Resources upgrader Engineer

Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description SEOUENCE // 2 elements Scaler Unit Scaler No scaler Data type: INTEGER8 Authorized value: 0 Default value: 0 **Unit**

■ Attribute 4: status

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

Electricity utility

Access rights (clients)

Electricity laboratory

Attribute description

LogbookID

LogbookID

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 65535

Electricity reader

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|------------------------|--------------------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| - | - | - | - | - | - | - | | | |
| Attribute description | | | | | | | | | |
| EndingDateTime | | | | | | | | | |
| EndingDateTime | | | | | | | | | |
| Ending date time of | Ending date time of the defect | | | | | | | | |
| Data type: OCTETS | TRING | | | | | | | | |
| Authorized value: D | ecoded as Decim | al (Size = 12) | | | | | | | |
| Default value: 7;200 | ;1;1;255;0;0;0;25 | 5;128;0;255; | | | | | | | |

10.1.75 VoltageThdDefectNumber

This data provides the total number of THD defects on voltage (defect detected using RelativeTHDThresholdParameters and RelativeTHDVoltageValueAggregate).

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;12;36;124;25
5 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| • | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------|
| A1. logical_name | OCTETSTRING | VoltageThdDefectNumberOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| VoltageThdDefectN | Number | | | | | |
| <u>VoltageThdDefectNu</u> | <u>umber</u> | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| | Electricity laboratory | Electricity utility Get | | | | Resources upgrader | |
|---|------------------------|-------------------------|-----|-----|-----|--------------------|-----|
| L | Get | Gel | Get | Get | Get | - | Get |
| ŀ | Attribute description | | | | | | |
| | SEQUENCE // | 2 elements | | | | | |
| | { | | | | | | |
| | Scaler
Unit | | | | | | |
| | } | | | | | | |
| | Coolon | | | | | | |
| | <u>Scaler</u> | | | | | | |
| | No scaler | | | | | | |
| | Data type: INTEGER | ₹8 | | | | | |
| | Authorized value: 0 | | | | | | |
| | Default value: 0 | | | | | | |
| | <u>Unit</u> | | | | | | |
| | Data type: ENUMER | RATED | | | | | |
| | • | | | | | | |
| | Authorized value: 25 | 55: No unit | | | | | |
| | Default value: No ur | nit (255) | | | | | |
| | | , , | | | | | |

10.1.76 VoltageThdDefectRegister

This register provides the information related to a defect on Voltage THD. It's only available using a profile.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;96;11;1;255 | 4 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------------------|--|
| A1. logical_name | OCTETSTRING | VoltageThdDefectRegisterOBISCode | |
| A2. value | SEQUENCE | See below | |
| A3. scaler_unit | SEQUENCE | See below | |
| A4. status | UNSIGNED16 | See below | |
| A5. capture_time | OCTETSTRING | See below | |

■ Attribute 2: value

Contains 26 elements:

- The duration of the defect with its unit (2 elements)
- For the 3 phases the Urms, Irms, Uhrms and Ihrms (h for harmonique) values and their units (2 elements * 4 quantities * 3 phases)

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

```
Attribute description
```

```
SEQUENCE
           // 26 elements
  Duration
  SEQUENCE
               // 2 elements
   scaler
   unit
 UrmsPhase1
  SEQUENCE
              // 2 elements
   scaler
    unit
  UrmsPhase2
               // 2 elements
  SEQUENCE
    scaler
   unit
  UrmsPhase3
  SEQUENCE
               // 2 elements
    scaler
    unit
  IrmsPhase1
               // 2 elements
  SEQUENCE
    scaler
    unit
  IrmsPhase2
  SEQUENCE
               // 2 elements
    scaler
    unit
```

```
IrmsPhase3
  SEQUENCE // 2 elements
   scaler
   unit
  UhrmsPhase1
  SEQUENCE // 2 elements
   scaler
   unit
  UhrmsPhase2
  SEQUENCE // 2 elements
   scaler
   unit
  UhrmsPhase3
  SEQUENCE
             // 2 elements
    scaler
   unit
  IhrmsPhase1
           // 2 elements
  SEQUENCE
    scaler
   unit
  IhrmsPhase2
  SEQUENCE // 2 elements
   scaler
   unit
  IhrmsPhase3
  SEQUENCE // 2 elements
    scaler
    unit
Duration
Data type: UNSIGNED32
Authorized value: 0 to 4294967295
Default value: 0
scaler
Data type: INTEGER8
Authorized value: 0
Default value: 0
<u>unit</u>
Data type: UNSIGNED8
Authorized value: 7: sec
Default value: sec (7)
```

<u>UrmsPhase1</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>unit</u>

Data type: UNSIGNED8
Authorized value: 35: V
Default value: V (35)

<u>UrmsPhase2</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

scaler

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>unit</u>

Data type: UNSIGNED8
Authorized value: 35: V
Default value: V (35)

<u>UrmsPhase3</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 35: V Default value: V (35)

IrmsPhase1

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

scaler

-3 if the meter is a CT meter -2 if the meter is a DC meter

Data type: INTEGER8
Authorized value: -3 to -2

Default value: -2

unit

Data type: UNSIGNED8
Authorized value: 33: A
Default value: A (33)

IrmsPhase2

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

-3 if the meter is a CT meter -2 if the meter is a DC meter

Data type: INTEGER8
Authorized value: -3 to -2

Default value: -2

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 33: A Default value: A (33)

IrmsPhase3

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

-3 if the meter is a CT meter -2 if the meter is a DC meter

Data type: INTEGER8
Authorized value: -3 to -2

Default value: -2

unit

Data type: UNSIGNED8 Authorized value: 33: A Default value: A (33) <u>UhrmsPhase1</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 35: V Default value: V (35)

<u>UhrmsPhase2</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 35: V Default value: V (35)

<u>UhrmsPhase3</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

Data type: INTEGER8
Authorized value: -1
Default value: -1

<u>unit</u>

Data type: UNSIGNED8
Authorized value: 35: V
Default value: V (35)

<u>IhrmsPhase1</u>

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

scaler

-3 if the meter is a CT meter -2 if the meter is a DC meter

Data type: INTEGER8
Authorized value: -3 to -2

Default value: -2

unit

Data type: UNSIGNED8
Authorized value: 33: A
Default value: A (33)

IhrmsPhase2

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

scaler

-3 if the meter is a CT meter -2 if the meter is a DC meter

Data type: INTEGER8
Authorized value: -3 to -2

Default value: -2

<u>unit</u>

Data type: UNSIGNED8 Authorized value: 33: A Default value: A (33)

IhrmsPhase3

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

<u>scaler</u>

-3 if the meter is a CT meter -2 if the meter is a DC meter

Data type: INTEGER8
Authorized value: -3 to -2

Default value: -2

unit

Data type: UNSIGNED8 Authorized value: 33: A Default value: A (33)

■ Attribute 3: scaler_unit

no unit

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                                          End customer Manufacturer Resources upgrader Engineer
                                         Electricity reader
Attribute description
 SEQUENCE
               // 2 elements
   Scaler
   Unit
 Scaler
 No scaler
 Data type: INTEGER8
 Authorized value: 0
 Default value: 0
Unit
 Data type: ENUMERATED
 Authorized value: 255: No unit
 Default value: No unit (255)
■ Attribute 4: status
Access rights (clients)
 Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
Attribute description
 LogbookId
 Logbookld
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
■ Attribute 5: capture_time
```

Access rights (clients)

10.1.77 WatchdogSummary

This object contains the total number of watchdog resets and the date and time of the last one.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;52;11;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | WatchdogSummaryOBISCode | |
| A2. value | UNSIGNED16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |
| A4. status | UNSIGNED8 | See below | |
| A5. capture_time | OCTETSTRING | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attuilet. e. el e. e. e. i.e. ti e. e. | | | | | | |
| Attribute description | | | | | | |
| NbOfOccurrences | | | | | | |
| <u>NbOfOccurrences</u> | | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |

Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

```
SEQUENCE // 2 elements {
    Scaler
    Unit
}
```

<u>Scaler</u>

No scaler

Data type: INTEGER8 Authorized value: 0

Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

■ Attribute 4: status

not used

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description status status Not used Data type: UNSIGNED8 Authorized value: 0 Default value: 0 ■ Attribute 5: capture_time Access rights (clients) Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Get Get Get Get

Attribute description

Date and time of the last occurence

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12) Default value: 7;200;1;1;255;0;0;0;255;128;0;255;

10.2 Cosem profiles

10.2.1 AlarmsMeterRestartedElements

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;130;7;25
5 | 7 | 1 | 1 | 0 | ROM | 1 | 0 | 10 | 10 | 10 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | AlarmsMeterRestartedElementsOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients) Electricity laboratory

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | Get | - | - |
| Attribute description | n | | | | | |
| SEQUENCE OF { | // 10 elements | | | | | |
| SEQUENCE
{ | // 1 elements | | | | | |
| AlarmsMeter | rRestartedRegiste: | r (Att. Id: 5 | , Abs. Numbe | er: 1) | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (AlarmsMeterRestartedRegister): Obis_code = 1;0;96;51;42;255, Class_id = 4, Attribute_index = 5, Data index = 0

Access rights (clients)

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
                                                                       Get
Attribute description
 SEQUENCE OF
                   // 1 elements
                  // 4 elements
   SEQUENCE
     Class_id
     Obis_code
     Attribute_index
     Data_index
 }
Class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
 Obis code
 Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
 Default value: 0;0;0;0;0;0;0;
Attribute index
 Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
Data index
 Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

10.2.2 AlarmsMetrologyRestartedElements

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;130;6;25
5 | 7 | 1 | 1 | 0 | ROM | 1 | 0 | 10 | 10 | 10 |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

Attributes / Methods

End customer Manufacturer Resources upgrader Engineer

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | AlarmsMetrologyRestartedElementsOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

Electricity laboratory

```
Attribute description

SEQUENCE OF // 10 elements
{
SEQUENCE // 1 elements
{
AlarmsMetrologyRestartedRegister (Att. Id: 5, Abs. Number: 1)
}
```

Electricity reader

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Electricity utility

Index 1 (AlarmsMetrologyRestartedRegister): Obis_code = 1;0;96;51;40;255, Class_id = 4, Attribute_index = 5, Data index = 0

Access rights (clients)

```
Attribute description
```

Class_id

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

Obis_code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data index</u>

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

10.2.3 CoverOpeningElements

version 1: elements are triggered in non chronological order

version 2: elements are triggered in chronological order

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;130;5;25
5 | 7 | 1 | 1 | 0 | ROM | 4 | 0 | 10 | 10 | 10 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | CoverOpeningElementsOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reade | End customer | Manufacturer | Resources upgrader | ⊏ngineer |
|------------------------|---------------------|-------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| SEOUENCE OF | // 10 elements | | | | | |
| { | , , | | | | | |
| SEQUENCE / | / 4 elements | | | | | |
| { | | | | | | |
| CoverOpening | Register (Att. | Id: 2, Abs. 3 | Number: 1) | | | |
| CoverOpening | Register (Att. | Id: 3, Abs. | Number: 1) | | | |
| CoverOpening | Register (Att. | Id: 4, Abs. | Number: 1) | | | |
| CoverOpening | Register (Att. | Id: 5, Abs. | Number: 1) | | | |
| } | | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (CoverOpeningRegister): Obis_code = 0;0;96;52;12;255, Class_id = 4, Attribute_index = 2, Data index = 0

Index 2 (CoverOpeningRegister): Obis_code = 0;0;96;52;12;255, Class_id = 4, Attribute_index = 3, Data index = 0

Index 3 (CoverOpeningRegister): Obis_code = 0;0;96;52;12;255, Class_id = 4, Attribute_index = 4, Data index = 0

Index 4 (CoverOpeningRegister): Obis_code = 0;0;96;52;12;255, Class_id = 4, Attribute_index = 5, Data index = 0

```
Electricity utility
 Electricity laboratory
                                          Electricity reader
                                                           End customer Manufacturer Resources upgrader Engineer
         Get
                             Get
                                                Get
                                                               Get
                                                                             Get
                                                                                                           Get
Attribute description
 SEQUENCE OF
                     // 4 elements
   SEQUENCE
                    // 4 elements
      Class_id
      Obis_code
```

```
Attribute_index
    Data_index
Class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Obis_code
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
Attribute_index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
Data_index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

10.2.4 CTVTRatioProgrammingElements

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;130;8;25
5 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 10 | 10 | 10 |

Logical devices:

| _ | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | CTVTRatioProgrammingElementsOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute descriptio | n | | | | | |
| SEQUENCE OF { | // 10 elements | | | | | |
| SEQUENCE
{ | // 3 elements | | | | | |
| CTVTRatioP: | rogrammingRegister | (Att. Id: 2 | 2, Abs. Numb | er: 1) | | |
| CTVTRatioP: | rogrammingRegister | (Att. Id: | l, Abs. Numb | er: 1) | | |
| CTVTRatioP: | rogrammingRegister | (Att. Id: ! | , Abs. Numb | er: 1) | | |

```
}
```

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (CTVTRatioProgrammingRegister): Obis_code = 0;0;96;51;50;255, Class_id = 4, Attribute_index = 2, Data index = 0

Index 2 (CTVTRatioProgrammingRegister): Obis_code = 0;0;96;51;50;255, Class_id = 4, Attribute_index = 4, Data_index = 0

Index 3 (CTVTRatioProgrammingRegister): Obis_code = 0;0;96;51;50;255, Class_id = 4, Attribute_index = 5, Data_index = 0

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|---------------------------|---------------------|--------------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | // 2 -1 | | | | | |
| SEQUENCE OF { | // 3 elements | | | | | |
| SEQUENCE / | / 4 elements | | | | | |
| Class_id | | | | | | |
| Obis_code
Attribute_in | dex | | | | | |
| Data_index | | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNSIGN | FD16 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | 10 00000 | | | | | |
| Obis code | | | | | | |
| _ | TDING | | | | | |
| Data type: OCTETS | | -1 (0: 0) | | | | |
| Authorized value: D | | al (Size = 6) | | | | |
| Default value: 0;0;0 | 0;0;0; | | | | | |
| Attribute_index | | | | | | |
| Data type: INTEGE | ₹8 | | | | | |
| Authorized value: -1 | 28 to 127 | | | | | |
| Default value: 0 | | | | | | |
| Data_index | | | | | | |
| Data type: UNSIGN | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |

10.2.5 CurrentReversalElements

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;99;128;34;25
5 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 10 | 10 | 10 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | CurrentReversalElementsOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 10 elements | | | | | |
| { | | | | | | |
| SEQUENCE / | / 3 elements | | | | | |
| { | | | | | | |
| CurrentRever | salRegister (Att | . Id: 2, Abs | . Number: 1 |) | | |
| CurrentRever | salRegister (Att | . Id: 4, Abs | . Number: 1 |) | | |
| CurrentRever | salRegister (Att | . Id: 5, Abs | . Number: 1 |) | | |
| } | | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (CurrentReversalRegister): Obis_code = 1;0;96;51;30;255, Class_id = 4, Attribute_index = 2, Data_index = 0

Index 2 (CurrentReversalRegister): Obis_code = 1;0;96;51;30;255, Class_id = 4, Attribute_index = 4, Data index = 0

Index 3 (CurrentReversalRegister): Obis_code = 1;0;96;51;30;255, Class_id = 4, Attribute_index = 5, Data_index = 0

| Electricity laborator | y Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | | Get |
| Attribute description | on | | | | | |
| SEQUENCE OF | // 3 elements | | | | | |
| { | | | | | | |
| SEQUENCE | // 4 elements | | | | | |
| { | | | | | | |
| Class_id | | | | | | |
| Obis_code
Attribute_ | index | | | | | |
| Data_index | | | | | | |
| } | • | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNSI | GNED16 | | | | | |
| Authorized value | e: 0 to 65535 | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTE | ETSTRING | | | | | |
| Authorized value | e: Decoded as Decima | al (Size = 6) | | | | |
| Default value: 0; | 0;0;0;0;0; | | | | | |

Attribute index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

10.2.6 CurrentReversalSummary

Interface

| 1:0:98:129:35:25 7 1 1 0 ROM 3 0 1 | | |
|------------------------------------|---|---|
| 1;0;98;129;35;25 7 1 1 0 ROM 3 0 1 | 1 | 1 |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------|
| A1. logical_name | OCTETSTRING | CurrentReversalSummaryOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A ((') | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 1 elements | | | | | |
| { | | | | | | |
| SEQUENCE / | // 3 elements | | | | | |
| { | | | | | | |
| CurrentRever | rsalPhase1Summary | (Att. Id: 2 | , Abs. Numbe | er: 1) | | |
| CurrentRever | rsalPhase2Summary | (Att. Id: 2 | , Abs. Numbe | er: 1) | | |
| CurrentRever | rsalPhase3Summary | (Att. Id: 2 | , Abs. Numbe | er: 1) | | |
| } | | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (CurrentReversalPhase1Summary): Obis_code = 1;0;96;51;31;255, Class_id = 3, Attribute_index = 2, Data_index = 0

Index 2 (CurrentReversalPhase2Summary): Obis_code = 1;0;96;51;32;255, Class_id = 3, Attribute_index = 2, Data index = 0

Index 3 (CurrentReversalPhase3Summary): Obis_code = 1;0;96;51;33;255, Class_id = 3, Attribute_index = 2, Data_index = 0

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

```
SEQUENCE OF // 3 elements
  SEQUENCE
                // 4 elements
    Class_id
    Obis_code
   Attribute_index
    Data_index
}
Class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Obis_code
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
Attribute_index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
Data_index
Data type: UNSIGNED16
Authorized value: 0 to 65535
```

10.2.7 CurrentThdDefectHistory

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;99;12;124;25
5 | 7 | 1 | 2 | 0 | ROM | 3 | 0 | 10 | 10 | 10 |

Logical devices:

Default value: 0

| J | | | |
|------------|-------------|--------------|--|
| Management | Electricity | End customer | |
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | CurrentThdDefectHistoryOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

■ Attribute 3: capture_objects

```
Here below, the details of each index in the array:
```

```
Index 1 (CurrentThdDefectRegister): Obis_code = 1;0;96;12;1;255, Class_id = 4, Attribute_index = 2,
```

Data_index = 0

Index 2 (CurrentThdDefectRegister): Obis_code = 1;0;96;12;1;255, Class_id = 4, Attribute_index = 4,

 $Data_index = 0$

Index 3 (CurrentThdDefectRegister): Obis_code = 1;0;96;12;1;255, Class_id = 4, Attribute_index = 5,

Data index = 0

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                        End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                             Get
                                                            Get
                                                                        Get
                                                                                                     Get
Attribute description
 SEQUENCE OF
                    // 3 elements
   SEQUENCE
                   // 4 elements
     Class_id
     Obis_code
     Attribute_index
     Data_index
 }
 Class id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
 Obis code
 Data type: OCTETSTRING
 Authorized value: Decoded as Decimal (Size = 6)
 Default value: 0;0;0;0;0;0;0;
 Attribute index
 Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
 Data index
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
```

10.2.8 CurrentUnbalanceSummary

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;98;129;33;25
5 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 1 | 1 | 1 |

Logical devices:

Management Electricity End customer
True True False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | CurrentUnbalanceSummaryOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (CurrentUnbalancePhase1Summary): Obis_code = 1;0;96;51;27;255, Class_id = 3, Attribute_index = 2, Data_index = 0

Index 2 (CurrentUnbalancePhase2Summary): Obis_code = 1;0;96;51;28;255, Class_id = 3, Attribute_index = 2, Data index = 0

Index 3 (CurrentUnbalancePhase3Summary): Obis_code = 1;0;96;51;29;255, Class_id = 3, Attribute_index = 2, Data_index = 0

Access rights (clients)

Attribute description

Class id

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

Obis code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

Data index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.2.9 CutElements

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;99;10;3;255 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 10 | 10 | 10 |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------|--|
| A1. logical_name | OCTETSTRING | CutElementsOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 10 elements | | | | | |
| { | | | | | | |
| SEQUENCE / | / 3 elements | | | | | |
| { | | | | | | |
| VoltageCutRe | gister (Att. Id | : 2, Abs. Numb | oer: 1) | | | |
| VoltageCutRe | gister (Att. Id | : 4, Abs. Numb | oer: 1) | | | |
| VoltageCutRe | gister (Att. Id | : 5, Abs. Numb | oer: 1) | | | |
| } | | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (VoltageCutRegister): Obis_code = 1;0;96;51;15;255, Class_id = 4, Attribute_index = 2, Data_index = 0

Index 2 (VoltageCutRegister): Obis_code = 1;0;96;51;15;255, Class_id = 4, Attribute_index = 4, Data_index = 0

Index 3 (VoltageCutRegister): Obis_code = 1;0;96;51;15;255, Class_id = 4, Attribute_index = 5, Data_index = 0

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|------------------------|---------------------|--------------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| attribute description | | | | | | |
| SEQUENCE OF { | // 3 elements | | | | | |
| | / 4 elements | | | | | |
| {
Class_id | | | | | | |
| Obis_code | | | | | | |
| Attribute_ind | dex | | | | | |
| Data_index
} | | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNSIGN | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTETS | STRING | | | | | |
| Authorized value: D | ecoded as Decim | al (Size = 6) | | | | |
| Default value: 0;0;0; | ;0;0;0; | | | | | |
| Attribute_index | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -1 | 28 to 127 | | | | | |
| Default value: 0 | | | | | | |
| Data_index | | | | | | |
| Data type: UNSIGN | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |
| | | | | | | |

10.2.10 CutSummary

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;98;129;20;25
5 | 7 | 1 | 1 | 0 | ROM | 24 | 0 | 1 | 1 | 1 |

Logical devices :

| • | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------|
| A1. logical_name | OCTETSTRING | CutSummaryOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

```
Electricity laboratory
                    Electricity utility
                                  Electricity reader
                                                End customer Manufacturer Resources upgrader Engineer
       Get
                        Get
                                                    Get
                                                                                       Get
Attribute description
 SEQUENCE OF
                 // 1 elements
   SEQUENCE
                // 24 elements
     VoltageCutMinPhase1Summary (Att. Id: 2, Abs. Number: 1)
     VoltageCutMinPhase1Summary (Att. Id: 3, Abs. Number: 1)
     VoltageCutMinPhaselSummary (Att. Id: 4, Abs. Number: 1)
     VoltageCutMinPhaselSummary (Att. Id: 5, Abs. Number: 1)
     VoltageCutMaxPhase1Summary (Att. Id: 2, Abs. Number: 1)
     VoltageCutMaxPhaselSummary (Att. Id: 3, Abs. Number:
     VoltageCutMaxPhase1Summary (Att. Id: 4, Abs. Number: 1)
     VoltageCutMaxPhase1Summary (Att. Id: 5, Abs. Number: 1)
     VoltageCutMinPhase2Summary (Att. Id: 2, Abs. Number: 1)
     VoltageCutMinPhase2Summary (Att. Id: 3, Abs. Number: 1)
     VoltageCutMinPhase2Summary (Att. Id: 4, Abs. Number: 1)
     VoltageCutMinPhase2Summary (Att. Id: 5, Abs. Number: 1)
     VoltageCutMaxPhase2Summary (Att. Id: 2, Abs. Number: 1)
     VoltageCutMaxPhase2Summary (Att. Id: 3, Abs. Number: 1)
     VoltageCutMaxPhase2Summary (Att. Id: 4, Abs. Number: 1)
     VoltageCutMaxPhase2Summary (Att. Id: 5, Abs. Number: 1)
     VoltageCutMinPhase3Summary (Att. Id: 2, Abs. Number: 1)
     VoltageCutMinPhase3Summary (Att. Id: 3, Abs. Number: 1)
     VoltageCutMinPhase3Summary (Att. Id: 4, Abs. Number: 1)
     VoltageCutMinPhase3Summary (Att. Id: 5, Abs. Number: 1)
     VoltageCutMaxPhase3Summary (Att. Id: 2, Abs. Number: 1)
     VoltageCutMaxPhase3Summary (Att. Id: 3, Abs. Number: 1)
     VoltageCutMaxPhase3Summary (Att. Id: 4, Abs. Number: 1)
     VoltageCutMaxPhase3Summary (Att. Id: 5, Abs. Number: 1)
   }
}
```

■ Attribute 3: capture_objects

```
Here below, the details of each index in the array:
```

```
Index 1 (VoltageCutMinPhase1Summary): Obis_code = 1;0;96;51;16;255, Class_id = 4, Attribute_index = 2, Data index = 0
```

Index 2 (VoltageCutMinPhase1Summary): Obis_code = 1;0;96;51;16;255, Class_id = 4, Attribute_index = 3, Data index = 0

Index 3 (VoltageCutMinPhase1Summary): Obis_code = 1;0;96;51;16;255, Class_id = 4, Attribute_index = 4, Data index = 0

Index 4 (VoltageCutMinPhase1Summary): Obis_code = 1;0;96;51;16;255, Class_id = 4, Attribute_index = 5, Data_index = 0

Index 5 (VoltageCutMaxPhase1Summary): Obis_code = 1;0;96;51;17;255, Class_id = 4, Attribute_index = 2, Data index = 0

Index 6 (VoltageCutMaxPhase1Summary): Obis_code = 1;0;96;51;17;255, Class_id = 4, Attribute_index = 3, Data index = 0

Index 7 (VoltageCutMaxPhase1Summary): Obis_code = 1;0;96;51;17;255, Class_id = 4, Attribute_index = 4, Data_index = 0

Index 8 (VoltageCutMaxPhase1Summary): Obis_code = 1;0;96;51;17;255, Class_id = 4, Attribute_index = 5, Data index = 0

Index 9 (VoltageCutMinPhase2Summary): Obis_code = 1;0;96;51;18;255, Class_id = 4, Attribute_index = 2, Data index = 0

Index 10 (VoltageCutMinPhase2Summary): Obis_code = 1;0;96;51;18;255, Class_id = 4, Attribute_index = 3, Data_index = 0

Index 11 (VoltageCutMinPhase2Summary): Obis_code = 1;0;96;51;18;255, Class_id = 4, Attribute_index = 4, Data_index = 0

Index 12 (VoltageCutMinPhase2Summary): Obis_code = 1;0;96;51;18;255, Class_id = 4, Attribute_index = 5, Data_index = 0

```
Index 13 (VoltageCutMaxPhase2Summary): Obis code = 1;0;96;51;19;255, Class id = 4, Attribute index =
2. Data index = 0
Index 14 (VoltageCutMaxPhase2Summary): Obis code = 1;0;96;51;19;255, Class id = 4, Attribute index =
3. Data index = 0
Index 15 (VoltageCutMaxPhase2Summary): Obis code = 1;0;96;51;19;255, Class id = 4, Attribute index =
4, Data index = 0
Index 16 (VoltageCutMaxPhase2Summary): Obis code = 1;0;96;51;19;255, Class id = 4, Attribute index =
5. Data index = 0
Index 17 (VoltageCutMinPhase3Summary): Obis_code = 1;0;96;51;20;255, Class_id = 4, Attribute_index = 2,
Data index = 0
Index 18 (VoltageCutMinPhase3Summary): Obis code = 1:0:96:51:20:255, Class id = 4, Attribute index = 3,
Data index = 0
Index 19 (VoltageCutMinPhase3Summary): Obis code = 1;0;96;51;20;255, Class id = 4, Attribute index = 4,
Data index = 0
Index 20 (VoltageCutMinPhase3Summary): Obis code = 1;0;96;51;20;255, Class id = 4, Attribute index = 5,
Data index = 0
Index 21 (VoltageCutMaxPhase3Summary): Obis code = 1;0;96;51;21;255, Class id = 4, Attribute index =
2. Data index = 0
Index 22 (VoltageCutMaxPhase3Summary): Obis_code = 1;0;96;51;21;255, Class_id = 4, Attribute_index =
3. Data index = 0
Index 23 (VoltageCutMaxPhase3Summary): Obis code = 1;0;96;51;21;255, Class id = 4, Attribute index =
4. Data index = 0
Index 24 (VoltageCutMaxPhase3Summary): Obis code = 1;0;96;51;21;255, Class id = 4, Attribute index =
5. Data index = 0
Access rights (clients)
```

```
Attribute description

SEQUENCE OF // 24 elements
{
    SEQUENCE // 4 elements
    {
        Class_id
        Obis_code
        Attribute_index
        Data_index
    }
}
```

Class_id

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

Obis code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

10.2.11 DayProfileElements

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;130;3;25
5 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 10 | 10 | 10 |

Logical devices:

 Management
 Electricity
 End customer

 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------------|---|
| A1. logical_name | OCTETSTRING | DayProfileElementsOBISCode | П |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| · | | | | | | |
| SEQUENCE OF | // 10 elements | | | | | |
| ſ | | | | | | |
| l | | | | | | |
| SEQUENCE / | / 3 elements | | | | | |
| { | | | | | | |
| DayProfileRe | gister (Att. Id | : 2, Abs. Numl | ber: 1) | | | |
| DayProfileRe | gister (Att. Id | : 4, Abs. Numb | ber: 1) | | | |
| DayProfileRe | gister (Att. Id | : 5, Abs. Numb | ber: 1) | | | |
| 1 | • | | | | | |
| , , | | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (DayProfileRegister): Obis_code = 0;0;96;52;7;255, Class_id = 4, Attribute_index = 2, Data_index = 0

Index 2 (DayProfileRegister): Obis_code = 0;0;96;52;7;255, Class_id = 4, Attribute_index = 4, Data_index = 0

Index 3 (DayProfileRegister): Obis_code = 0;0;96;52;7;255, Class_id = 4, Attribute_index = 5, Data_index = 0

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                         End customer Manufacturer Resources upgrader Engineer
         Get
                            Get
                                              Get
                                                              Get
                                                                                                        Get
Attribute description
 SEQUENCE OF
                    // 3 elements
   SEQUENCE
                   // 4 elements
     Class_id
     Obis_code
      Attribute_index
      Data_index
```

Class_id

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0
Obis_code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

Attribute index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.2.12 IndexElements

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;130;4;25 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 100 | 100 | 100 |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-----------------------|--|
| A1. logical_name | OCTETSTRING | IndexElementsOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| GROUPNOR OR | // 100 -1 | | | | | |
| SEQUENCE OF | // 100 elements | | | | | |
| { | | | | | | |
| SEOUENCE / | / 3 elements | | | | | |
| SEQUENCE / | / 5 CICHCIICB | | | | | |
| { | | | | | | |
| IndexRegiste | er (Att. Id: 2, | Abs. Number: | 1) | | | |
| IndexRegiste | er (Att. Id: 4, | Abs. Number: | 1) | | | |
| IndexRegiste | er (Att. Id: 5, | Abs. Number: | 1) | | | |
| } | | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

```
Here below, the details of each index in the array:
```

Index 1 (IndexRegister): Obis_code = 0;0;96;52;9;255, Class_id = 4, Attribute_index = 2, Data_index = 0

Index 2 (IndexRegister): Obis_code = 0;0;96;52;9;255, Class_id = 4, Attribute_index = 4, Data_index = 0

Index 3 (IndexRegister): Obis_code = 0;0;96;52;9;255, Class_id = 4, Attribute_index = 5, Data_index = 0

Access rights (clients)

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                             Get
                                                            Get
                                                                        Get
Attribute description
 SEQUENCE OF
                   // 3 elements
   SEQUENCE
                  // 4 elements
     Class_id
     Obis_code
     Attribute_index
     Data_index
 }
 Class_id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
 Obis code
 Data type: OCTETSTRING
 Authorized value: Decoded as Decimal (Size = 6)
 Default value: 0;0;0;0;0;0;0;
 Attribute index
 Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
 Data index
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
```

10.2.13 Logbook

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;98;0;255 | 7 | 1 | 24 | 701C | ROM | 3 | 0 | 0 | 0 | 600 |
| Logical device | es : | | | | | | | | | |
| Management | E | lectricity | End customer | | | | | | | |
| True | | True | False | | | | | | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------|
| A1. logical_name | OCTETSTRING | LogbookOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
        Get
                                            Get
                                                          Get
                                                                      Get
                                                                                                  Get
                           Get
Attribute description
SEQUENCE OF
                   // 0..600 elements
   SEQUENCE
                  // 3 elements
     LogbookRegister (Att. Id: 2, Abs. Number: 25)
     LogbookRegister (Att. Id: 4, Abs. Number: 25)
     LogbookRegister (Att. Id: 5, Abs. Number: 25)
```

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (LogbookRegister): Obis_code = 0;0;96;52;20;255, Class_id = 4, Attribute_index = 2, Data_index = 0 Index 2 (LogbookRegister): Obis_code = 0;0;96;52;20;255, Class_id = 4, Attribute_index = 4, Data_index = 0 Index 3 (LogbookRegister): Obis_code = 0;0;96;52;20;255, Class_id = 4, Attribute_index = 5, Data_index = 0 Access rights (clients)

```
End customer Manufacturer Resources upgrader Engineer
 Electricity laboratory
                      Electricity utility
                                       Electricity reader
                           Get
                                             Get
                                                            Get
                                                                        Get
                                                                                                     Get
Attribute description
 SEQUENCE OF
                    // 3 elements
   SEQUENCE
                   // 4 elements
     Class_id
     Obis_code
     Attribute_index
     Data_index
 }
 Class id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
 Obis code
 Data type: OCTETSTRING
 Authorized value: Decoded as Decimal (Size = 6)
 Default value: 0;0;0;0;0;0;0;
 Attribute index
 Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
 Data index
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
```

Default value: 0

10.2.14 MagnetSensorElements

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;99;128;2;25
5 | 7 | 1 | 1 | 0 | ROM | 2 | 0 | 10 | 10 | 10 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | MagnetSensorElementsOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| F | Attribute description | | | | | | |
| | SEQUENCE OF | // 10 elements | | | | | |
| | { | | | | | | |
| | SEQUENCE / | / 2 elements | | | | | |
| | { | | | | | | |
| | MagnetSensor | (Att. Id: 4, A | bs. Number: 1) |) | | | |
| | MagnetSensor | (Att. Id: 5, A | bs. Number: 1) |) | | | |
| | } | | | | | | |
| | } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (MagnetSensor): Obis_code = 1;0;96;51;26;255, Class_id = 4, Attribute_index = 4, Data_index = 0 Index 2 (MagnetSensor): Obis_code = 1;0;96;51;26;255, Class_id = 4, Attribute_index = 5, Data_index = 0 Access rights (clients)

```
End customer Manufacturer Resources upgrader Engineer
 Electricity laboratory
                       Electricity utility
                                        Electricity reader
        Get
                           Get
                                             Get
                                                            Get
                                                                         Get
                                                                                                     Get
Attribute description
 SEQUENCE OF
                   // 2 elements
   SEQUENCE
                  // 4 elements
     Class_id
     Obis_code
     Attribute_index
     Data_index
Class id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
 Obis_code
```

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.2.15 PowerFailureElements

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;130;0;25
5 | 7 | 1 | 1 | 0 | ROM | 4 | 0 | 10 | 10 | 10 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------|--|
| A1. logical_name | OCTETSTRING | PowerFailureElementsOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 10 elements | | | | | |
| { | , , | | | | | |
| SEOUENCE / | / 4 elements | | | | | |
| SEQUENCE / | / 4 CICILCIICS | | | | | |
| ١ | | | | | | |
| PowerFailure | Register (Att. | Id: 2, Abs. N | umber: 1) | | | |
| PowerFailure | Register (Att. | Id: 3, Abs. N | umber: 1) | | | |
| PowerFailure: | Register (Att. | Id: 4, Abs. N | umber: 1) | | | |
| PowerFailure | Register (Att. | Id: 5, Abs. N | umber: 1) | | | |
| } | _ | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (PowerFailureRegister): Obis_code = 0;0;96;52;1;255, Class_id = 4, Attribute_index = 2, Data_index = 0

Index 2 (PowerFailureRegister): Obis_code = 0;0;96;52;1;255, Class_id = 4, Attribute_index = 3, Data_index = 0

Index 3 (PowerFailureRegister): Obis_code = 0;0;96;52;1;255, Class_id = 4, Attribute_index = 4, Data_index = 0

Index 4 (PowerFailureRegister): Obis_code = 0;0;96;52;1;255, Class_id = 4, Attribute_index = 5, Data_index = 0

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|------------------------|---------------------|--------------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF { | // 4 elements | | | | | |
| | // 4 elements | | | | | |
| { | | | | | | |
| Class_id
Obis_code | | | | | | |
| Attribute_i | ndex | | | | | |
| Data_index } | | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNSIG | NED16 | | | | | |
| Authorized value: | 0 to 65535 | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTET | STRING | | | | | |
| Authorized value: | Decoded as Decima | al (Size = 6) | | | | |
| Default value: 0;0; | 0;0;0;0; | | | | | |
| Attribute_index | | | | | | |
| Data type: INTEG | ER8 | | | | | |
| Authorized value: | -128 to 127 | | | | | |
| Default value: 0 | | | | | | |
| Data_index | | | | | | |
| Data type: UNSIG | NED16 | | | | | |
| Authorized value: | 0 to 65535 | | | | | |
| Default value: 0 | | | | | | |

10.2.16 PowerFailureSummary

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;130;1;25
5 | 7 | 1 | 2 | 0 | ROM | 12 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | PowerFailureSummaryOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

```
Access rights (clients)
  Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                     End customer Manufacturer Resources upgrader Engineer
        Get
                                           Get
                                                         Get
                                                                     Get
                          Get
                                                                                                Get
Attribute description
 SEQUENCE OF
                   // 1 elements
   SEQUENCE
                  // 12 elements
     MinimumPowerFailureDurationSummary (Att. Id: 2, Abs. Number: 1)
     MinimumPowerFailureDurationSummary (Att. Id: 3, Abs. Number: 1)
     MinimumPowerFailureDurationSummary (Att. Id: 4, Abs. Number: 1)
     MinimumPowerFailureDurationSummary (Att. Id: 5, Abs. Number: 1)
     MaximumPowerFailureDurationSummary (Att. Id: 2, Abs. Number: 1)
     MaximumPowerFailureDurationSummary (Att. Id: 3, Abs. Number: 1)
     MaximumPowerFailureDurationSummary (Att. Id: 4, Abs. Number: 1)
     MaximumPowerFailureDurationSummary (Att. Id: 5, Abs. Number: 1)
     TotalDurationOfLongPowerFailuresSummary (Att. Id: 2, Abs. Number: 1)
     TotalDurationOfLongPowerFailuresSummary (Att. Id: 3, Abs. Number: 1)
     NumberOfLongPowerFailures (Att. Id: 2, Abs. Number: 1)
     NumberOfShortPowerFailures (Att. Id: 2, Abs. Number: 1)
■ Attribute 3: capture_objects
Here below, the details of each index in the array:
Index 1 (MinimumPowerFailureDurationSummary): Obis code = 0;0;96;52;2;255, Class id = 4,
Attribute index = 2, Data index = 0
Index 2 (MinimumPowerFailureDurationSummary): Obis_code = 0;0;96;52;2;255, Class_id = 4,
Attribute index = 3, Data index = 0
Index 3 (MinimumPowerFailureDurationSummary): Obis_code = 0;0;96;52;2;255, Class_id = 4,
Attribute index = 4, Data index = 0
Index 4 (MinimumPowerFailureDurationSummary): Obis_code = 0;0;96;52;2;255, Class_id = 4,
Attribute index = 5, Data index = 0
Index 5 (MaximumPowerFailureDurationSummary): Obis_code = 0;0;96;52;3;255, Class_id = 4,
Attribute_index = 2, Data_index = 0
Index 6 (MaximumPowerFailureDurationSummary): Obis code = 0;0;96;52;3;255, Class id = 4,
Attribute index = 3, Data index = 0
Index 7 (MaximumPowerFailureDurationSummary): Obis_code = 0;0;96;52;3;255, Class_id = 4,
Attribute index = 4, Data index = 0
Index 8 (MaximumPowerFailureDurationSummary): Obis code = 0;0;96;52;3;255, Class id = 4,
Attribute index = 5, Data index = 0
Index 9 (TotalDurationOfLongPowerFailuresSummary): Obis_code = 0;0;96;52;4;255, Class_id = 3,
Attribute_index = 2, Data_index = 0
Index 10 (TotalDurationOfLongPowerFailuresSummary): Obis_code = 0;0;96;52;4;255, Class_id = 3,
Attribute_index = 3, Data_index = 0
Index 11 (NumberOfLongPowerFailures): Obis code = 0;0;96;7;5;255, Class id = 1, Attribute index = 2,
Data index = 0
Index 12 (NumberOfShortPowerFailures): Obis code = 0;0;96;52;18;255, Class id = 1, Attribute index = 2,
Data index = 0
Access rights (clients)
  Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                     End customer Manufacturer Resources upgrader Engineer
        Get
                          Get
                                           Get
                                                         Get
                                                                     Get
                                                                                                Get
Attribute description
```

```
Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Get Get Get Get Get - Get

Attribute description

SEQUENCE OF // 12 elements {
SEQUENCE // 4 elements {
```

```
Class_id
    Obis_code
    Attribute_index
    Data_index
}
Class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Obis code
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
Attribute index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
Data_index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

10.2.17 SagElements

Interface

| interrace | | | | | | | | | | |
|--------------------|-----------|---------------|--------------------|----------|--------------|------------|-----------|----------|----------|----------|
| Logical name | Class Id | Class version | Absolute
number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
| 1;0;99;10;1;255 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 10 | 10 | 10 |
| Logical device | es: | | | | | | | | | |
| Management | Е | lectricity | End customer | • | | | | | | |
| True | | True | False | | | | | | | |
| Attributes / N | lethods | ; | | | | | | | | |
| Attribute (A) / Me | ethod (M) | | | Data ty | /pe | Cont | ent | | | |
| A1. logical_name | е | | | OCTE | TSTRING | SagE | ElementsC | DBISCode | | |
| A2. buffer | | | | ARRA\ | Y | See | below | | | |
| A3. capture_obje | ects | | | ARRA\ | Y | See | below | | | |

■ Attribute 2: buffer

| Electricity laboratory | Electricity utility | Electricity rea | der End custo | mer Manufacturer | Resources upgrader | Engineer |
|--|---------------------|-----------------|---------------|------------------|--------------------|----------|
| Get | Get | Get | Get | Get | | Get |
| ۸ ۱ السنام ما | _ | | | | | |
| Attribute descriptio | n | | | | | |
| SEQUENCE OF | // 10 elements | | | | | |
| { | | | | | | |
| SEQUENCE | // 3 elements | | | | | |
| { | | | | | | |
| VoltageSagI | Register (Att. Id | : 2, Abs. 1 | Number: 1) | | | |
| VoltageSagI | Register (Att. Id | : 4, Abs. 1 | Number: 1) | | | |

```
VoltageSagRegister (Att. Id: 5, Abs. Number: 1)
}
```

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (VoltageSagRegister): Obis_code = 1;0;96;51;1;255, Class_id = 4, Attribute_index = 2, Data_index = 0

Index 2 (VoltageSagRegister): Obis_code = 1;0;96;51;1;255, Class_id = 4, Attribute_index = 4, Data_index =

Index 3 (VoltageSagRegister): Obis_code = 1;0;96;51;1;255, Class_id = 4, Attribute_index = 5, Data_index = 0

Access rights (clients)

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                                           Get
                                                                                                    Get
                                             Get
                                                                        Get
Attribute description
 SEQUENCE OF
                   // 3 elements
   SEQUENCE
                  // 4 elements
     Class_id
     Obis_code
     Attribute_index
     Data index
 }
Class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
Obis_code
Data type: OCTETSTRING
 Authorized value: Decoded as Decimal (Size = 6)
 Default value: 0;0;0;0;0;0;0;
Attribute_index
Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
Data index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

10.2.18 SagSummary

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;98;129;0;25
5 | 7 | 1 | 1 | 0 | ROM | 24 | 0 | 1 | 1 | 1 |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------|--|
| A1. logical_name | OCTETSTRING | SagSummaryOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

```
Electricity laboratory
                    Electricity utility
                                  Electricity reader
                                                End customer Manufacturer Resources upgrader Engineer
       Get
                        Get
                                       Get
                                                    Get
                                                               Get
                                                                                       Get
Attribute description
 SEQUENCE OF
                 // 1 elements
   SEOUENCE
                // 24 elements
     VoltageSagMinPhaselSummary (Att. Id: 2, Abs. Number: 1)
     VoltageSagMinPhase1Summary (Att. Id: 3, Abs. Number: 1)
     VoltageSagMinPhase1Summary (Att. Id: 4, Abs. Number: 1)
     VoltageSagMinPhase1Summary (Att. Id: 5, Abs. Number: 1)
     VoltageSagMaxPhase1Summary (Att. Id: 2, Abs. Number: 1)
     VoltageSagMaxPhase1Summary (Att. Id: 3, Abs. Number:
     VoltageSagMaxPhase1Summary (Att. Id: 4, Abs. Number: 1)
     VoltageSagMaxPhase1Summary (Att. Id: 5, Abs. Number: 1)
     VoltageSagMinPhase2Summary (Att. Id: 2, Abs. Number: 1)
     VoltageSagMinPhase2Summary (Att. Id: 3, Abs. Number: 1)
     VoltageSagMinPhase2Summary (Att. Id: 4, Abs. Number: 1)
     VoltageSagMinPhase2Summary (Att. Id: 5, Abs. Number: 1)
     VoltageSagMaxPhase2Summary (Att. Id: 2, Abs. Number: 1)
     VoltageSagMaxPhase2Summary (Att. Id: 3, Abs. Number: 1)
     VoltageSagMaxPhase2Summary (Att. Id: 4, Abs. Number: 1)
     VoltageSagMaxPhase2Summary (Att. Id: 5, Abs. Number: 1)
     VoltageSagMinPhase3Summary (Att. Id: 2, Abs. Number: 1)
     VoltageSagMinPhase3Summary (Att. Id: 3, Abs. Number: 1)
     VoltageSagMinPhase3Summary (Att. Id: 4, Abs. Number: 1)
     VoltageSagMinPhase3Summary (Att. Id: 5, Abs. Number: 1)
     VoltageSagMaxPhase3Summary (Att. Id: 2, Abs. Number: 1)
     VoltageSagMaxPhase3Summary (Att. Id: 3, Abs. Number: 1)
     VoltageSagMaxPhase3Summary (Att. Id: 4, Abs. Number: 1)
     VoltageSagMaxPhase3Summary (Att. Id: 5, Abs. Number: 1)
   }
```

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (VoltageSagMinPhase1Summary): Obis_code = 1;0;96;51;2;255, Class_id = 4, Attribute_index = 2, Data_index = 0

Index 2 (VoltageSagMinPhase1Summary): Obis_code = 1;0;96;51;2;255, Class_id = 4, Attribute_index = 3, Data index = 0

Index 3 (VoltageSagMinPhase1Summary): Obis_code = 1;0;96;51;2;255, Class_id = 4, Attribute_index = 4, Data index = 0

Index 4 (VoltageSagMinPhase1Summary): Obis_code = 1;0;96;51;2;255, Class_id = 4, Attribute_index = 5, Data_index = 0

Index 5 (VoltageSagMaxPhase1Summary): Obis code = 1;0;96;51;3;255, Class id = 4, Attribute index = 2,

Data index = 0

```
Index 6 (VoltageSagMaxPhase1Summary): Obis code = 1;0;96;51;3;255, Class id = 4, Attribute index = 3,
Data index = 0
Index 7 (VoltageSagMaxPhase1Summary): Obis code = 1;0;96;51;3;255, Class id = 4, Attribute index = 4,
Data index = 0
Index 8 (VoltageSagMaxPhase1Summary): Obis code = 1;0;96;51;3;255, Class id = 4, Attribute index = 5,
Data index = 0
Index 9 (VoltageSagMinPhase2Summary): Obis code = 1;0;96;51;4;255, Class id = 4, Attribute index = 2,
Data index = 0
Index 10 (VoltageSagMinPhase2Summary): Obis code = 1;0;96;51;4;255, Class id = 4, Attribute index = 3,
Data index = 0
Index 11 (VoltageSagMinPhase2Summary): Obis code = 1;0;96;51;4;255, Class id = 4, Attribute index = 4,
Data index = 0
Index 12 (VoltageSagMinPhase2Summary): Obis code = 1;0;96;51;4;255, Class id = 4, Attribute index = 5,
Data index = 0
Index 13 (VoltageSagMaxPhase2Summary): Obis code = 1;0;96;51;5;255, Class id = 4, Attribute index = 2,
Data index = 0
Index 14 (VoltageSagMaxPhase2Summary): Obis code = 1;0;96;51;5;255, Class id = 4, Attribute index = 3,
Data index = 0
Index 15 (VoltageSagMaxPhase2Summary): Obis code = 1;0;96;51;5;255, Class id = 4, Attribute index = 4,
Data index = 0
Index 16 (VoltageSagMaxPhase2Summary): Obis code = 1;0;96;51;5;255, Class id = 4, Attribute index = 5,
Data index = 0
Index 17 (VoltageSagMinPhase3Summary): Obis code = 1;0;96;51;6;255, Class id = 4, Attribute index = 2,
Data index = 0
Index 18 (VoltageSagMinPhase3Summary): Obis code = 1;0;96;51;6;255, Class id = 4, Attribute index = 3,
Data index = 0
Index 19 (VoltageSagMinPhase3Summary): Obis code = 1;0;96;51;6;255, Class id = 4, Attribute index = 4,
Data index = 0
Index 20 (VoltageSagMinPhase3Summary): Obis code = 1;0;96;51;6;255, Class id = 4, Attribute index = 5,
Data index = 0
Index 21 (VoltageSagMaxPhase3Summary): Obis code = 1;0;96;51;7;255, Class id = 4, Attribute index = 2,
Data index = 0
Index 22 (VoltageSagMaxPhase3Summary): Obis code = 1;0;96;51;7;255, Class id = 4, Attribute index = 3,
Data index = 0
Index 23 (VoltageSagMaxPhase3Summary): Obis code = 1;0;96;51;7;255, Class id = 4, Attribute index = 4,
Data index = 0
Index 24 (VoltageSagMaxPhase3Summary): Obis code = 1;0;96;51;7;255, Class id = 4, Attribute index = 5,
Data index = 0
Access rights (clients)
```

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                         End customer Manufacturer Resources upgrader Engineer
         Get
                            Get
                                              Get
                                                              Get
                                                                          Get
                                                                                                        Get
Attribute description
                     // 24 elements
 SEOUENCE OF
   SEQUENCE
                   // 4 elements
   {
      Class_id
      Obis code
      Attribute_index
      Data_index
 }
 Class_id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
```

Default value: 0

Obis_code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.2.19 SeasonElements

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;130;2;25
5 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 2 | 2 | 2 |

Logical devices:

Management Electricity End customer
True True False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | SeasonElementsOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity u | tility | Electri | city reader | End custome | r Manutacturer | Resources upgrader | Engineer |
|------------------------|---------------|--------|---------|-------------|-------------|----------------|--------------------|----------|
| Get | Get | | | Get | Get | Get | - | Get |
| | | | | | | | | |
| Attribute description | | | | | | | | |
| GROTIENIGE OF | // 0 -7 | | | | | | | |
| SEQUENCE OF | // 2 eleme: | nts | | | | | | |
| { | | | | | | | | |
| SEQUENCE / | / 3 elemen | ts | | | | | | |
| { | | | | | | | | |
| SeasonRegist | er (Att. I | d: 2, | Abs. | Number: | 1) | | | |
| SeasonRegist | er (Att. I | d: 4, | Abs. | Number: | 1) | | | |
| SeasonRegist | er (Att. I | d: 5, | Abs. | Number: | 1) | | | |
| } | | | | | | | | |
| } | | | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

```
Index 1 (SeasonRegister): Obis_code = 0;0;96;52;5;255, Class_id = 4, Attribute_index = 2, Data_index = 0 Index 2 (SeasonRegister): Obis_code = 0;0;96;52;5;255, Class_id = 4, Attribute_index = 4, Data_index = 0 Index 3 (SeasonRegister): Obis_code = 0;0;96;52;5;255, Class_id = 4, Attribute_index = 5, Data_index = 0
```

| Electricity laboratory | Electricity utility | | | | Resources upgrader | |
|----------------------------|---------------------|---------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF { | // 3 elements | | | | | |
| | / 4 elements | | | | | |
| {
Class_id | | | | | | |
| Obis_code | | | | | | |
| Attribute_in
Data_index | ıdex | | | | | |
| } | | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTETS | STRING | | | | | |
| Authorized value: D | ecoded as Decima | al (Size = 6) | | | | |
| Default value: 0;0;0 | ;0;0;0; | | | | | |
| Attribute_index | | | | | | |
| Data type: INTEGE | R8 | | | | | |
| Authorized value: - | 128 to 127 | | | | | |
| Default value: 0 | | | | | | |
| Data_index | | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |

10.2.20 SwellElements

Interface

| Logical name (| Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|---------------------|----------|---------------|-----------------|-----------|--------------|------------|---------|---------|----------|----------|
| 1;0;99;10;2;255 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 10 | 10 | 10 |
| Logical devices | | ectricity | End customer | | | | | | | |
| True | _ | True | False | | | | | | | |
| Attributes / Mo | ethods | | | | | | | | | |
| Attribute (A) / Met | hod (M) | | | Data type | е | Content | | | | |

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-----------------------|--|
| A1. logical_name | OCTETSTRING | SwellElementsOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |
| | | | |

■ Attribute 2: buffer

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (VoltageSwellRegister): Obis_code = 1;0;96;51;8;255, Class_id = 4, Attribute_index = 2, Data_index = 0

Index 2 (VoltageSwellRegister): Obis_code = 1;0;96;51;8;255, Class_id = 4, Attribute_index = 4, Data_index = 0

Index 3 (VoltageSwellRegister): Obis_code = 1;0;96;51;8;255, Class_id = 4, Attribute_index = 5, Data_index = 0

| Electricity laboratory | | Electricity reader | | Manufacturer | Resources upgrader | Engineer |
|--------------------------|------------------|--------------------|-----|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | 1 | | | | | |
| | // 3 elements | | | | | |
| {
SEQUENCE | // 4 elements | | | | | |
| SEQUENCE | // 4 elements | | | | | |
| Class_id | | | | | | |
| Obis_code
Attribute_i | ndox | | | | | |
| Data_index | index | | | | | |
| } | | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNSIG | NED16 | | | | | |
| Authorized value: | 0 to 65535 | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTE1 | STRING | | | | | |
| Authorized value: | Decoded as Decim | al (Size = 6) | | | | |
| Default value: 0;0; | 0;0;0;0; | | | | | |
| Attribute_index | | | | | | |
| Data type: INTEG | ER8 | | | | | |
| Authorized value: | -128 to 127 | | | | | |
| Default value: 0 | | | | | | |
| <u>Data_index</u> | | | | | | |
| Data type: UNSIG | NED16 | | | | | |
| Authorized value: | 0 to 65535 | | | | | |
| Default value: 0 | | | | | | |

10.2.21 SwellSummary

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;98;129;10;25
5 | 7 | 1 | 1 | 0 | ROM | 24 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------|--|
| A1. logical_name | OCTETSTRING | SwellSummaryOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Attribute description SEQUENCE OF // 1 elements { VoltageSwellMinPhase1Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase1Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase1Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase1Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase1Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase1Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase1Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase1Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase1Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 5, Abs. Number: 1) | Ele | ctricity laboratory | Electricity utility | | | er | | | | Resources upgrader | |
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| VoltageSwellMaxPhaselSummary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhaselSummary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | -
lMaxPhase1Summary | (Att. | <pre>Id:</pre> | 2, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMaxPhaselSummary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | lMaxPhase1Summary | (Att. | <pre>Id:</pre> | 3, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMinPhase2Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | lMaxPhase1Summary | (Att. | <pre>Id:</pre> | 4, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMinPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | lMaxPhase1Summary | (Att. | <pre>Id:</pre> | 5, | Abs. | Numbe | r: 1) | | |
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| VoltageSwellMinPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | lMinPhase2Summary | (Att. | <pre>Id:</pre> | 3, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMaxPhase2Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | lMinPhase2Summary | (Att. | <pre>Id:</pre> | 4, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMaxPhase2Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase2Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | lMinPhase2Summary | (Att. | <pre>Id:</pre> | 5, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMaxPhase2Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | ${\tt lMaxPhase2Summary}$ | (Att. | <pre>Id:</pre> | 2, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMaxPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | ${\tt lMaxPhase2Summary}$ | (Att. | <pre>Id:</pre> | 3, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMinPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | ${\tt lMaxPhase2Summary}$ | (Att. | <pre>Id:</pre> | 4, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMinPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | ${\tt lMaxPhase2Summary}$ | (Att. | <pre>Id:</pre> | 5, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMinPhase3Summary (Att. Id: 4, Abs. Number: 1) VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | lMinPhase3Summary | (Att. | <pre>Id:</pre> | 2, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMinPhase3Summary (Att. Id: 5, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | lMinPhase3Summary | (Att. | <pre>Id:</pre> | 3, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMaxPhase3Summary (Att. Id: 2, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | lMinPhase3Summary | (Att. | <pre>Id:</pre> | 4, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMaxPhase3Summary (Att. Id: 3, Abs. Number: 1) VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | lMinPhase3Summary | (Att. | <pre>Id:</pre> | 5, | Abs. | Numbe | r: 1) | | |
| VoltageSwellMaxPhase3Summary (Att. Id: 4, Abs. Number: 1) | | VoltageSwel | ${\tt lMaxPhase3Summary}$ | (Att. | <pre>Id:</pre> | 2, | Abs. | Numbe | r: 1) | | |
| | | VoltageSwel | ${\tt lMaxPhase3Summary}$ | (Att. | <pre>Id:</pre> | 3, | Abs. | Numbe | r: 1) | | |
| <pre>VoltageSwellMaxPhase3Summary (Att. Id: 5, Abs. Number: 1) } </pre> | | VoltageSwel | ${\tt lMaxPhase3Summary}$ | (Att. | <pre>Id:</pre> | 4, | Abs. | Numbe | r: 1) | | |
| }
} | | VoltageSwel | ${\tt lMaxPhase3Summary}$ | (Att. | <pre>Id:</pre> | 5, | Abs. | Numbe | r: 1) | | |
| } | } | | | | | | | | | | |
| | } | | | | | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

```
Index 1 (VoltageSwellMinPhase1Summary): Obis_code = 1;0;96;51;9;255, Class_id = 4, Attribute_index = 2, Data_index = 0
```

Index 2 (VoltageSwellMinPhase1Summary): Obis_code = 1;0;96;51;9;255, Class_id = 4, Attribute_index = 3, Data_index = 0

Index 3 (VoltageSwellMinPhase1Summary): Obis_code = 1;0;96;51;9;255, Class_id = 4, Attribute_index = 4, Data_index = 0

```
Index 4 (VoltageSwellMinPhase1Summary): Obis code = 1;0;96;51;9;255, Class id = 4, Attribute index = 5,
Data index = 0
Index 5 (VoltageSwellMaxPhase1Summary): Obis code = 1;0;96;51;10;255, Class id = 4, Attribute index =
2. Data index = 0
Index 6 (VoltageSwellMaxPhase1Summary): Obis code = 1;0;96;51;10;255, Class id = 4, Attribute index =
3. Data index = 0
Index 7 (VoltageSwellMaxPhase1Summary): Obis code = 1;0;96;51;10;255, Class id = 4, Attribute index =
4, Data index = 0
Index 8 (VoltageSwellMaxPhase1Summary): Obis code = 1;0;96;51;10;255, Class id = 4, Attribute index =
5. Data index = 0
Index 9 (VoltageSwellMinPhase2Summary): Obis code = 1;0;96;51;11;255, Class id = 4, Attribute index =
2. Data index = 0
Index 10 (VoltageSwellMinPhase2Summary): Obis_code = 1;0;96;51;11;255, Class_id = 4, Attribute_index =
3. Data index = 0
Index 11 (VoltageSwellMinPhase2Summary): Obis_code = 1;0;96;51;11;255, Class_id = 4, Attribute_index =
4. Data index = 0
Index 12 (VoltageSwellMinPhase2Summary): Obis code = 1;0;96;51;11;255, Class id = 4, Attribute index =
5. Data index = 0
Index 13 (VoltageSwellMaxPhase2Summary): Obis_code = 1;0;96;51;12;255, Class_id = 4, Attribute_index =
2. Data index = 0
Index 14 (VoltageSwellMaxPhase2Summary): Obis code = 1:0:96:51:12:255, Class id = 4, Attribute index =
3. Data index = 0
Index 15 (VoltageSwellMaxPhase2Summary): Obis code = 1;0;96;51;12;255, Class id = 4, Attribute index =
4. Data index = 0
Index 16 (VoltageSwellMaxPhase2Summary): Obis code = 1;0;96;51;12;255, Class id = 4, Attribute index =
5. Data index = 0
Index 17 (VoltageSwellMinPhase3Summary): Obis code = 1;0;96;51;13;255, Class id = 4, Attribute index =
2. Data index = 0
Index 18 (VoltageSwellMinPhase3Summary): Obis code = 1;0;96;51;13;255, Class id = 4, Attribute index =
3. Data index = 0
Index 19 (VoltageSwellMinPhase3Summary): Obis_code = 1;0;96;51;13;255, Class_id = 4, Attribute_index =
4. Data index = 0
Index 20 (VoltageSwellMinPhase3Summary): Obis_code = 1;0;96;51;13;255, Class_id = 4, Attribute_index =
5. Data index = 0
Index 21 (VoltageSwellMaxPhase3Summary): Obis code = 1;0;96;51;14;255, Class id = 4, Attribute index =
2. Data index = 0
Index 22 (VoltageSwellMaxPhase3Summary): Obis code = 1;0;96;51;14;255, Class id = 4, Attribute index =
3, Data index = 0
Index 23 (VoltageSwellMaxPhase3Summary): Obis code = 1;0;96;51;14;255, Class id = 4, Attribute index =
4. Data index = 0
Index 24 (VoltageSwellMaxPhase3Summary): Obis code = 1;0;96;51;14;255, Class id = 4, Attribute index =
5, Data index = 0
Access rights (clients)
```

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF { | // 24 elements | | | | | |
| SEQUENCE { Class_id Obis_code | | | | | | |
| Attribute_index } Attribute_index } | ndex | | | | | |
| Class_id | | | | | | |

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

Obis code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.2.22 TEPProgrammingElement

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;130;10;25
5 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 10 | 10 | 10 |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------------|--|
| A1. logical_name | OCTETSTRING | TEPProgrammingElementOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | y c | | CILY I | eauei | Ena custo | mei | Manufacturer | Resources upgrader | ⊏ngmeer |
|---------------------------|---------------------|------|-----|--------|-------|-----------|-----|--------------|--------------------|---------|
| Get | Get | | | Get | | Get | | Get | - | Get |
| Attailer to also suintism | | | | | | | | | | |
| Attribute description | | | | | | | | | | |
| SEQUENCE OF | // 10 elemen | ts | | | | | | | | |
| { | | | | | | | | | | |
| SEQUENCE / | / 3 elements | | | | | | | | | |
| { | | | | | | | | | | |
| TEPProgrammi | ngRegister (| Att. | Id: | 2, | Abs. | Number: | 1) | | | |
| TEPProgrammi | ngRegister (| Att. | Id: | 4, | Abs. | Number: | 1) | | | |
| TEPProgrammi | ngRegister (| Att. | Id: | 5, | Abs. | Number: | 1) | | | |
| } | | | | | | | | | | |
| } | | | | | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (TEPProgrammingRegister): Obis_code = 0;0;96;51;70;255, Class_id = 4, Attribute_index = 2,

```
Data_index = 0
Index 2 (TEPProgrammingRegister): Obis_code = 0;0;96;51;70;255, Class_id = 4, Attribute_index = 4,
Data_index = 0
Index 3 (TEPProgrammingRegister): Obis_code = 0;0;96;51;70;255, Class_id = 4, Attribute_index = 5,
Data_index = 0
Access rights (clients)
```

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                                            Get
                           Get
                                                           Get
                                                                        Get
                                                                                                    Get
Attribute description
SEQUENCE OF
                   // 3 elements
   SEQUENCE
                  // 4 elements
     Class_id
     Obis_code
     Attribute_index
     Data_index
 }
Class id
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
Obis code
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
 Default value: 0;0;0;0;0;0;0;
Attribute_index
Data type: INTEGER8
Authorized value: -128 to 127
 Default value: 0
Data_index
Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
```

10.2.23 UserConnectionsElements

True

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;12;0;255 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 10 | 10 | 10 |
| Logical device | es: | | | | | | | | | |
| Management | E | lectricity | End customer | r | | | | | | |

False

Attributes / Methods

True

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------|--|
| A1. logical_name | OCTETSTRING | UserConnectionsElementsOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electri | city laboratory | Electricity utility | Electricity | y reade | er | End cu | stomer l | Manufacturer | Resources upgrader | Engineer |
|-----------|-----------------|---------------------|-------------|----------------|----|--------|----------|--------------|--------------------|----------|
| | Get | Get | Ge | et | | G | et | Get | = | Get |
| | | | | | | | | | | |
| Attribute | e description | | | | | | | | | |
| SEOUE | NCE OF | // 10 elements | | | | | | | | |
| { | | ,, _, _, | | | | | | | | |
| (
SEO | UENCE / | // 3 elements | | | | | | | | |
| l
SEQ | OBNCE / | 7 3 CICILCITES | | | | | | | | |
| ı | | | | _ | _ | _ | _ | | | |
| C | osemUserCor | nnectionsRegister | (Att. | Id: | 2, | Abs. | Number | r: 1) | | |
| C | osemUserCor | nnectionsRegister | (Att. | <pre>Id:</pre> | 4, | Abs. | Number | r: 1) | | |
| C | osemUserCor | nnectionsRegister | (Att. | <pre>Id:</pre> | 5, | Abs. | Number | r: 1) | | |
| } | | | | | | | | | | |
| } | | | | | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (CosemUserConnectionsRegister): Obis_code = 0;0;143;1;0;255, Class_id = 4, Attribute_index = 2, Data index = 0

Index 2 (CosemUserConnectionsRegister): Obis_code = 0;0;143;1;0;255, Class_id = 4, Attribute_index = 4, Data index = 0

Index 3 (CosemUserConnectionsRegister): Obis_code = 0;0;143;1;0;255, Class_id = 4, Attribute_index = 5, Data_index = 0

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description

SEQUENCE OF // 3 elements
{
    SEQUENCE // 4 elements
    {
        Class_id
        Obis_code
        Attribute_index
        Data_index
    }
}
```

Class id

Data type: UNSIGNED16

Authorized value: 0 to 65535 Default value: 0

Obis code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

```
Authorized value: -128 to 127
```

Default value: 0

Data index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

10.2.24 VoltageIsolationElements

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;99;128;1;25
5 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 10 | 10 | 10 |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A | A) / Method (M) | Data type | Content |
|--------------|-----------------|-------------|----------------------------------|
| A1. logical | _name | OCTETSTRING | VoltageIsolationElementsOBISCode |
| A2. buffer | | ARRAY | See below |
| A3. captur | e_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

```
Attribute description
```

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

// 4 elements

Index 1 (VoltageIsolationRegister): Obis_code = 1;0;96;51;22;255, Class_id = 4, Attribute_index = 2, Data_index = 0

Index 2 (VoltageIsolationRegister): Obis_code = 1;0;96;51;22;255, Class_id = 4, Attribute_index = 4, Data index = 0

Index 3 (VoltageIsolationRegister): Obis_code = 1;0;96;51;22;255, Class_id = 4, Attribute_index = 5, Data_index = 0

Access rights (clients)

SEOUENCE

```
519 / 948
```

```
Class_id
    Obis_code
    Attribute_index
    Data_index
Class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Obis code
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
Attribute index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
Data_index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

10.2.25 VoltageIsolationSummary

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;98;129;31;25
5 | 7 | 1 | 1 | 0 | ROM | 3 | 0 | 1 | 1 | 1 |

Logical devices:

| • | | | |
|------------|-------------|--------------|--|
| Management | Electricity | End customer | |
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | VoltageIsolationSummaryOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

| Electricity laborator | y Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | on | | | | | |
| SEQUENCE OF { | // 1 elements | | | | | |
| SEQUENCE
{ | // 3 elements | | | | | |
| VoltageIsc | lationPhase1Summa | ry (Att. Id: 2 | 2, Abs. Numb | per: 1) | | |

```
VoltageIsolationPhase2Summary (Att. Id: 2, Abs. Number: 1)
VoltageIsolationPhase3Summary (Att. Id: 2, Abs. Number: 1)
}
}
```

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (VoltageIsolationPhase1Summary): Obis_code = 1;0;96;51;23;255, Class_id = 3, Attribute_index = 2, Data index = 0

Index 2 (VoltageIsolationPhase2Summary): Obis_code = 1;0;96;51;24;255, Class_id = 3, Attribute_index = 2, Data index = 0

Index 3 (VoltageIsolationPhase3Summary): Obis_code = 1;0;96;51;25;255, Class_id = 3, Attribute_index = 2, Data index = 0

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer

```
Attribute description
 SEQUENCE OF
                  // 3 elements
   SEQUENCE
                  // 4 elements
     Class_id
     Obis_code
     Attribute index
     Data_index
 }
Class id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
 Obis code
Data type: OCTETSTRING
 Authorized value: Decoded as Decimal (Size = 6)
 Default value: 0;0;0;0;0;0;0;
Attribute index
 Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
Data index
```

10.2.26 VoltageThdDefectHistory

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;99;11;124;25
5 | 7 | 1 | 2 | 0 | ROM | 3 | 0 | 10 | 10 | 10 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | VoltageThdDefectHistoryOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                     End customer Manufacturer Resources upgrader Engineer
        Get
                          Get
                                           Get
                                                          Get
                                                                                                 Get
                                                                      Get
Attribute description
 SEOUENCE OF
                   // 10 elements
   SEQUENCE
                  // 3 elements
     VoltageThdDefectRegister (Att. Id: 2, Abs. Number: 2)
     VoltageThdDefectRegister (Att. Id: 4, Abs. Number: 2)
     VoltageThdDefectRegister (Att. Id: 5, Abs. Number: 2)
   }
 }
```

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (VoltageThdDefectRegister): Obis_code = 1;0;96;11;1;255, Class_id = 4, Attribute_index = 2, Data_index = 0

Index 2 (VoltageThdDefectRegister): Obis_code = 1;0;96;11;1;255, Class_id = 4, Attribute_index = 4, Data_index = 0

Index 3 (VoltageThdDefectRegister): Obis_code = 1;0;96;11;1;255, Class_id = 4, Attribute_index = 5, Data_index = 0

Access rights (clients)

Obis_code

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---------------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | 1 | | | | | |
| SEQUENCE OF | // 3 elements | | | | | |
| SEQUENCE { Class_id Obis_code | // 4 elements | | | | | |
| Attribute_i Data_index | ndex | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNSIG | NED16 | | | | | |
| Authorized value: | 0 to 65535 | | | | | |
| Default value: 0 | | | | | | |

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

11 Load Profile

11.1 Cosem objects

11.1.1 LoadProfile1ChannelParameters

This object defines all the attributes needed for the load profile (type 1) management. See the resourcesIdParameter for the définition of the number of available channels.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;136;0;2;255 | 1 | 0 | 17 | 0 | True | True | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile1ChannelParametersOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

The Load profile channel number authorized is defined in the field "Load profile channel" of ResourcesIdParameters.

Access rights (clients)

| Electricity laboratory | , , , | Electricity reader | | | Resources upgrader | Engineer | | |
|------------------------------|---|--------------------|-----|---------|--------------------|----------|--|--|
| Get/Set | Get | Get | Get | Get/Set | - | Get | | |
| Attribute description | | | | | | | | |
| SEQUENCE OF { | // 8 elements | | | | | | | |
| SEQUENCE / { QuantityId | | | | | | | | |
| QuantityId | | | | | | | | |
| - Default value for t | QuantityId Defines the type of quantity to process: - Default value for the first element: 3 (Import Active Energy Aggregate) - Default value for the other one: 255 (No quantity - No allocation) | | | | | | | |

Alarm status definition:

bit 0: EXTERNAL_CLOCK_INCOHERENCE

bit 1: NON_VOLATILE_MEMORY_NON_FATAL_ERROR

bit 2: COVER_OPENING

bit 3: CLOCK_LOSS

bit 4: EXTERNAL_ALARM

bit 5: CURRENT_REVERSAL_PHASE_1

bit 6: CURRENT_REVERSAL_PHASE_2

bit 7: CURRENT_REVERSAL_PHASE_3

bit 8: TEMPERATURE_ALARM

bit 9: VOLTAGE CUT PHASE 1 bit 10: VOLTAGE CUT PHASE 2 bit 11: VOLTAGE CUT PHASE 3 bit 12: BATTERY bit 13: EXCESS DEMAND bit 14: MAGNET SENSOR bit 15: Undefined Data type: UNSIGNED8 Authorized values: 0: Import Active Energy Phase 1 1: Import Active Energy Phase 2 2: Import Active Energy Phase 3 3: Import Active Energy Aggregate 4: Export Active Energy Phase 1 5: Export Active Energy Phase 2 6: Export Active Energy Phase 3 7: Export Active Energy Aggregate 8: Import Reactive Energy Phase 1 9: Import Reactive Energy Phase 2 10: Import Reactive Energy Phase 3 11: Import Reactive Energy Aggregate 12: Export Reactive Energy Phase 1 13: Export Reactive Energy Phase 2 14: Export Reactive Energy Phase 3 15: Export Reactive Energy Aggregate 16: Q1 Energy Phase 1 17: Q1 Energy Phase 2 18: Q1 Energy Phase 3 19: Q1 Energy Aggregate 20: Q2 Energy Phase 1 21: Q2 Energy Phase 2 22: Q2 Energy Phase 3 23: Q2 Energy Aggregate 24: Q3 Energy Phase 1 25: Q3 Energy Phase 2 26: Q3 Energy Phase 3 27: Q3 Energy Aggregate 28: Q4 Energy Phase 1 29: Q4 Energy Phase 2 30: Q4 Energy Phase 3 31: Q4 Energy Aggregate 32: Import Apparent Energy Phase 1 33: Import Apparent Energy Phase 2 34: Import Apparent Energy Phase 3 35: Import Apparent Energy Aggregate 36: Export Apparent Energy Phase 1 37: Export Apparent Energy Phase 2 38: Export Apparent Energy Phase 3 39: Export Apparent Energy Aggregate 40: Import External Energy 1 41: Import External Energy 2 42: Import External Energy 3 43: Import External Energy 4

44: Export External Energy 1 45: Export External Energy 2 46: Export External Energy 3

47: Export External Energy 4 48: Summation Energy 1 49: Summation Energy 2 50: Summation Energy 3 51: Summation Energy 4 52: Power Factor Aggregate 53: Current RMS value Phase 1 54: Current RMS value Phase 2 55: Current RMS value Phase 3 56: Voltage RMS value Phase 1 57: Voltage RMS value Phase 2 58: Voltage RMS value Phase 3 59: Frequency 60: Alarm Status 61: Ambient Temperature 255: No quantity - No allocation Default value: Import Active Energy Aggregate (3) Scaler Allowed discrete values are the following: - ENERGY TYPE QUANTITIES (QuantityId from Import Active Energy Phase1 (0) to Summation Energy 4 (51): scaler from: -1 to 6 for energy recording in Base_10 0 to 23 for energy recording in Base 2 - for IRMS QUANTITIES: scaler from -3(CT) to -2(DC) - for URMS QUANTITIES: scaler = -1 - for POWER FACTOR QUANTITY: scaler = -4 - for FREQUENCY QUANTITY: scaler = -2 - for ALARM STATUS QUANTITY: scaler = 0 - for AMBIENT TEMPERATURE QUANTITY: scaler = 0 Data type: INTEGER8 Authorized value: -4 to 23 Default value: 0 Unit Default value for the first element: Wh (30) Default value for the other one: No unit (255) Data type: UNSIGNED8 Authorized values: 9: °C 27: W 28: VA 29: VAR 30: Wh 31: VAh 32: VARh 33: A 35: V 44: Hz

Default value: Wh (30) ExcessEnergyChannel

255: No unit

Specifies if the concerned channel processes an excess energy or not.

This parameter must be set to FALSE for RMS values, power factor, frequency, ambient temperature quantities and alarm status quantity.

Data type: BOOLEAN

Authorized values: 0: FALSE

1: TRUE

Default value: 0: FALSE

WorkingMode

Defines the way the selected channel profile is processed. It may be averaging (like demand) or cumulative (like energy).

If channel quantity is not an energy, working mode must be averaging.

Data type: UNSIGNED8

Authorized values:

0: Averaging 1: Cumulative

Default value: Cumulative (1)

Fluid

Default value for the first element : 0 (Electricity) Default value for the others : 255 (No fluid)

Data type: UNSIGNED8

Authorized values:

0: Electricity

1: Heat

2: Gas

3: Water

255: No fluid

Default value: Electricity (0)

QuantityType

Value of the OBIS code field C:
- Default value for the first element: 1
- Default value for the others: 82

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 1

11.1.2 LoadProfile1EndingRecord

This register holds the ending date of the load profile (type 1).

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;55;6;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer
True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile1EndingRecordOBISCode |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

EndRecordDateAndTime

EndRecordDateAndTime

Date and time of the ending of the load profile of type 1. It is either the stop measurement date or current

date.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

11.1.3 LoadProfile1EndOfIntervalDate

This object holds the end of interval date for the load profile (type 1) management.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;55;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile1EndOfIntervalDateOBISCode |
| A2. value | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

EndOfIntervalTime

EndOfIntervalTime

Time of the end of interval date for the load profile of type 1.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

11.1.4 LoadProfile1EndOfRecordingData

This object holds the end of recording data for the load profile (type 1) management.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;55;7;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|-----------------------|-------------|--------------|
| True | True | True |
| Attributes / Met | thods | |
| Attribute (A) / Metho | od (M) | Data type |
| A1. logical_name | | OCTETSTRING |
| Δ2 value | | ΔRRΔY |

■ Attribute 2: value

The format is the following:

First, the 4 structures date+status are provided:

- Start of interval and linked status, or NULL data if not significative
- End date and linked status, or NULL data if not significative
- Time 1 and linked status, or NULL data if not significative
- Time 2 and linked status, or NULL data if not significative

Then, UP TO 8 values of CONFIGURED channels are provided (value = integer16 or integer32 or unsigned16).

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEQUENCE OF
                 // 4..12 elements ("Array Of" view as "Sequence" in get only)
 {
   CHOICE
   {
     SEQUENCE // 2 elements
       Start of interval or End interval or Time1 or Time2
       Status
     Null data
     Value of LP channel data
     Value of LP data
     Value of LP data
 }
Start of interval or End interval or Time1 or Time2
 START OF INTERVAL DATE:
Used to record new time when interval stopped unusually
 New time of long clock setting (including EOR or greater than the threshold)
 New time of long power failure – power up- (including EOR)
 New time of long external clock synchro
New time of DST
 END OF INTERVAL DATE:
 Used to record old time when interval stopped unusually
 Old time of long clock setting (including EOR or greater than the threshold)
 Old time of long power failure – power up- (including EOR)
 Old time of long external clock synchro
 Old time of DST
 TIME1:
 Used to record old time in case of short disruptions inside the EOR
 Old time of short clock setting (smaller than the threshold)
 Old time of power failure - power down
 Old time of DST
 TIME2:
```

Used to record new time in case of short disruptions inside the EOR

New time of short clock setting (smaller than the threshold)

New time of power failure – power down

New time of DST

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Status

Data type: BITSTRING

Authorized values:

Size = 6

ViewAsType = BitString BIT 0: Start of measurement

BIT 1: Power failure BIT 2: Clock setting

BIT 3: External clock synchro

BIT 4: DST

BIT 5: Watchdog reset Default value: 0;0;0;0;0;0;

Null data

If first element of array: Start of interval not significative. If second element of array: End of interval not significative.

If third element of array: Time1 not significative.

If fourth element of array: Time2 not significative.

Data type: NULL
Authorized value:
Default value:

Value of LP channel data

Element (4+N) in array corresponds to data of channel N.

Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0 Value of LP data

Element (4+N) in array corresponds to data of channel N.

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

Value of LP data

Element (4+N) in array corresponds to data of channel N.

This format corresponds to energies in base 2.

Data type: INTEGER32

Authorized value: -2147483648 to 2147483647

Default value: 0

11.1.5 LoadProfile1RecordingIntervalDuration

This parameter holds the interval recording duration for the load profile (type 1) management.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;0;8;4;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | LoadProfile1RecordingIntervalDurationOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

RecordingIntervalDuration

RecordingIntervalDuration

It is the period of one element insertion in the file.

This interval domain is from 1 to 60 minutes (value sub multiple of 60), or 1440 minutes for a daily recording interval (24*60minutes).

Data type: UNSIGNED16

Authorized values:

1: 1 min

2: 2 min

3: 3 min

4: 4 min

5: 5 min

6: 6 min

10: 10 min

12: 12 min

15: 15 min

20: 20 min 30: 30 min

60: 60 min

No scaler

1440: Daily recording

Default value: 15 min (15)

■ Attribute 3: scaler_unit

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| 4 | Attribute description | | | | | | |
| | SEOUENCE // 2 | elements | | | | | |
| | { | | | | | | |
| | Scaler | | | | | | |
| | Unit | | | | | | |
| | l | | | | | | |
| | J | | | | | | |
| | Scaler | | | | | | |
| | <u></u> | | | | | | |

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 6: min
Default value: min (6)

11.1.6 LoadProfile1StartingRecord

This register holds the starting date of the load profile (type 1).

Interface

| Logic | al name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|--------|-----------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96 | ;55;5;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile1StartingRecordOBISCode |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | _ | - |

Attribute description

StartRecordDateAndTime

<u>StartRecordDateAndTime</u>

Date and time of the starting date for the load profile of type 1.

This date is either the start measurement date or the date of the oldest entry in the load profile array.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

11.1.7 LoadProfile1StartOfIntervalDate

This object holds the start of interval date for the load profile (type 1) management.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;55;1;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | LoadProfile1StartOfIntervalDateOBISCode |
| A2. value | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

StartOfIntervalDateAndTime

<u>StartOfIntervalDateAndTime</u>

Date and time of the start of interval date for the load profile of type 1.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

11.1.8 LoadProfile1Time1

This object holds the time1 for the load profile (type 1) management.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;55;3;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile1Time1OBISCode |
| A2. value | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| _ | _ | _ | _ | _ | _ | _ |

Attribute description

Time1

Time1

Time of time1 for the load profile of type 1.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

11.1.9 LoadProfile1Time2

This object holds the time2 for the load profile (type 1) management.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;55;4;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|-----------------------|-------------|--------------|
| True | True | True |
| Attributes / Meth | nods | |
| Attribute (A) / Metho | d (M) | Data ty |
| A1. logical_name | | OCTET |
| A2. value | | OCTET |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer Attribute description Time2 Time2 Time of time2 for the load profile of type 1. Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 12)

11.1.10 LoadProfile2ChannelParameters

False

This object defines all the attributes needed for the load profile (type 2) management. See the resourcesIdParameter for the définition of the number of available channels.

End customer

False

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;136;1;2;255 | 1 | 0 | 17 | 0 | True | True | False |
| Logical device | s: | | | | | | |

Management Electricity True

| Attributes / Methods | | | |
|----------------------------|-------------|---------------------------------------|--|
| Attribute (A) / Method (M) | Data type | Content | |
| A1. logical_name | OCTETSTRING | LoadProfile2ChannelParametersOBISCode | |
| A2. value | ARRAY | See below | |

■ Attribute 2: value

The Load profile channel number authorized is defined in the field "Load profile channel" of ResourcesIdParameters.

| Electricity laboratory | Electricity utility | • | | | Resources upgrader | |
|--------------------------------------|---------------------|-----|-----|---------|--------------------|-----|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF { | // 8 elements | | | | | |
| SEQUENCE ,
{
QuantityId | // 7 elements | | | | | |
| Scaler
Unit | | | | | | |
| ExcessEnergy
WorkingMode
Fluid | yChannel | | | | | |
| QuantityType } } | e | | | | | |

QuantityId Defines the type of quantity to process: Default value: 255 (No energy - No allocation) Alarm status definition: bit 0: EXTERNAL CLOCK INCOHERENCE bit 1: NON VOLATILE MEMORY NON FATAL ERROR bit 2: COVER OPENING bit 3: CLOCK LOSS bit 4: EXTERNAL ALARM bit 5: CURRENT_REVERSAL_PHASE_1 bit 6: CURRENT REVERSAL PHASE 2 bit 7: CURRENT REVERSAL PHASE 3 bit 8: TEMPERATURE ALARM bit 9: VOLTAGE CUT PHASE 1 bit 10: VOLTAGE CUT PHASE 2 bit 11: VOLTAGE_CUT_PHASE_3 bit 12: BATTERY bit 13: EXCESS DEMAND bit 14: MAGNET SENSOR bit 15: Undefined Data type: UNSIGNED8 Authorized values: 0: Import Active Energy Phase 1 1: Import Active Energy Phase 2 2: Import Active Energy Phase 3 3: Import Active Energy Aggregate 4: Export Active Energy Phase 1 5: Export Active Energy Phase 2 6: Export Active Energy Phase 3 7: Export Active Energy Aggregate 8: Import Reactive Energy Phase 1 9: Import Reactive Energy Phase 2 10: Import Reactive Energy Phase 3 11: Import Reactive Energy Aggregate 12: Export Reactive Energy Phase 1

13: Export Reactive Energy Phase 2 14: Export Reactive Energy Phase 3 15: Export Reactive Energy Aggregate 16: Q1 Energy Phase 1 17: Q1 Energy Phase 2 18: Q1 Energy Phase 3

19: Q1 Energy Aggregate 20: Q2 Energy Phase 1

21: Q2 Energy Phase 2 22: Q2 Energy Phase 3

23: Q2 Energy Aggregate 24: Q3 Energy Phase 1

25: Q3 Energy Phase 2

26: Q3 Energy Phase 3 27: Q3 Energy Aggregate

28: Q4 Energy Phase 1

29: Q4 Energy Phase 2 30: Q4 Energy Phase 3

31: Q4 Energy Aggregate

32: Import Apparent Energy Phase 1

29: VAR 30: Wh

33: Import Apparent Energy Phase 2 34: Import Apparent Energy Phase 3 35: Import Apparent Energy Aggregate 36: Export Apparent Energy Phase 1 37: Export Apparent Energy Phase 2 38: Export Apparent Energy Phase 3 39: Export Apparent Energy Aggregate 40: Import External Energy 1 41: Import External Energy 2 42: Import External Energy 3 43: Import External Energy 4 44: Export External Energy 1 45: Export External Energy 2 46: Export External Energy 3 47: Export External Energy 4 48: Summation Energy 1 49: Summation Energy 2 50: Summation Energy 3 51: Summation Energy 4 52: Power Factor Aggregate 53: Current RMS value Phase 1 54: Current RMS value Phase 2 55: Current RMS value Phase 3 56: Voltage RMS value Phase 1 57: Voltage RMS value Phase 2 58: Voltage RMS value Phase 3 59: Frequency 60: Alarm Status 61: Ambient Temperature 255: No energy - No allocation Default value: No energy - No allocation (255) Scaler Allowed discrete values are the following: - ENERGY TYPE QUANTITIES (QuantityId from Import Active Energy Phase1 (0) to Summation Energy 4 (51): scaler from: -1 to 6 for energy recording in Base_10 0 to 23 for energy recording in Base 2 - for IRMS QUANTITIES: scaler from -3(CT) to -2(DC) - for URMS QUANTITIES: scaler = -1 - for POWER FACTOR QUANTITY: scaler = -4 - for FREQUENCY QUANTITY: scaler = -2 - for ALARM STATUS QUANTITY: scaler = 0 - for AMBIENT TEMPERATURE QUANTITY: scaler = 0 Data type: INTEGER8 Authorized value: -4 to 23 Default value: 0 Unit Data type: UNSIGNED8 Authorized values: 9: °C 27: W 28: VA

31: VAh

32: VARh

33: A

35: V

44: Hz

255: No unit

Default value: No unit (255)

ExcessEnergyChannel

Specifies if the concerned channel processes an excess energy or not.

This parameter must be set to FALSE for RMS values, power factor, frequency, ambient temperature quantities and alarm status quantity.

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

WorkingMode

Defines the way the selected channel profile is processed.

It may be averaging (like demand) or cumulative (like energy).

If channel quantity is not an energy, working mode must be averaging.

Data type: UNSIGNED8

Authorized values:

0: Averaging

1: Cumulative

Default value: Cumulative (1)

<u>Fluid</u>

Data type: UNSIGNED8

Authorized values:

0: Electricity

1: Heat

2: Gas

3: Water

255: No fluid

Default value: No fluid (255)

QuantityType

Value of the OBIS code field C:

- Default value : 82

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 82

11.1.11 LoadProfile2EndingRecord

This register holds the ending date of the load profile (type 2).

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;56;6;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile2EndingRecordOBISCode |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

EndRecordDateAndTime

EndRecordDateAndTime

Date and time of the ending of the load profile of type 2. It is either the stop measurement date or current date.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

11.1.12 LoadProfile2EndOfIntervalDate

This object holds the end of interval date for the load profile (type 2) management.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;56;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile2EndOfIntervalDateOBISCode |
| A2. value | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

EndOfIntervalTime

EndOfIntervalTime

Time of the end of interval date for the load profile of type 2.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

11.1.13 LoadProfile2EndOfRecordingData

This object holds the end of recording data for the load profile (type 2) management.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;56;7;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | LoadProfile2EndOfRecordingDataOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

The format is the following:

First, the 4 structures date+status are provided:

- Start of interval and linked status, or NULL data if not significative
- End date and linked status, or NULL data if not significative
- Time 1 and linked status, or NULL data if not significative
- Time 2 and linked status, or NULL data if not significative

Then, UP TO 8 values of CONFIGURED channels are provided (value = integer16 or integer32 or unsigned16).

```
Electricity utility
 Electricity laboratory
                                      Electricity reader End customer Manufacturer Resources upgrader Engineer
Attribute description
 SEQUENCE OF
                 // 4..12 elements ("Array Of" view as "Sequence" in get only)
 {
   CHOICE
   {
                  // 2 elements
     SEQUENCE
       Start of interval or End interval or Time1 or Time2
       Status
     Null data
     Value of LP channel data
     Value of LP data
     Value of LP data
 }
Start of interval or End interval or Time1 or Time2
 START OF INTERVAL DATE:
Used to record new time when interval stopped unusually
 New time of long clock setting (including EOR or greater than the threshold)
 New time of long power failure – power up- (including EOR)
 New time of long external clock synchro
New time of DST
END OF INTERVAL DATE:
 Used to record old time when interval stopped unusually
 Old time of long clock setting (including EOR or greater than the threshold)
 Old time of long power failure – power up- (including EOR)
 Old time of long external clock synchro
 Old time of DST
```

TIME1:

Used to record old time in case of short disruptions inside the EOR Old time of short clock setting (smaller than the threshold)

Old time of power failure – power down

Old time of DST

TIME2:

Used to record new time in case of short disruptions inside the EOR

New time of short clock setting (smaller than the threshold)

New time of power failure – power down

New time of DST

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Status

Data type: BITSTRING

Authorized values:

Size = 6

ViewAsType = BitString

BIT 0: Start of measurement

BIT 1: Power failure BIT 2: Clock setting

BIT 3: External clock synchro

BIT 4: DST

BIT 5: Watchdog reset

Default value: 0;0;0;0;0;0;0;

Null data

If first element of array: Start of interval not significative. If second element of array: End of interval not significative.

If third element of array: Time1 not significative. If fourth element of array: Time2 not significative.

Data type: NULL
Authorized value:
Default value:

Value of LP channel data

Element (4+N) in array corresponds to data of channel N.

Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0
Value of LP data

Element (4+N) in array corresponds to data of channel N.

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0 Value of LP data Element (4+N) in array corresponds to data of channel N.

This format corresponds to energies in base 2.

Data type: INTEGER32

Authorized value: -2147483648 to 2147483647

Default value: 0

11.1.14 LoadProfile2RecordingIntervalDuration

This parameter holds the interval recording duration for the load profile (type 2) management.

Interface

| Logical name | Class Id | Class Id Class version Absolute Local Id | | Local Id | Configuration | Restrictive | MID | |
|---------------|----------|--|--------|----------|---------------|-------------|------------|--|
| | | | number | | parameter | programming | compliance | |
| 1;1;0;8;5;255 | 3 | 0 | 1 | 0 | False | False | False | |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | LoadProfile2RecordingIntervalDurationOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity lab | oratory Electricity util | lity Electricity read | der End custor | mer Manufacture | r Resources upgrader | Engineer |
|-----------------|--------------------------|-----------------------|----------------|-----------------|----------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

RecordingIntervalDuration

RecordingIntervalDuration

It is the period of one element insertion in the file.

This interval domain is from 1 to 60 minutes (value sub multiple of 60), or 1440 minutes for a daily recording interval (24*60minutes).

Data type: UNSIGNED16

Authorized values:

1: 1 min

2: 2 min

3: 3 min

4: 4 min

5: 5 min

6: 6 min

10: 10 min

12: 12 min

15: 15 min

20: 20 min 30: 30 min

60: 60 min

50. 60 11111

1440: Daily recording

Default value: 15 min (15)

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description

SEQUENCE  // 2 elements
{
    Scaler
    Unit
}

Scaler
Unit
}

Scaler
No scaler
Data type: INTEGER8
Authorized value: 0
Default value: 0
Unit

Data type: ENUMERATED
Authorized value: 6: min
Default value: min (6)
```

11.1.15 LoadProfile2StartingRecord

True

This register holds the starting date of the load profile (type 2).

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance | |
|-------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|--|
| 0;0;96;56;5;255 | 4 | 0 | 1 | 0 | False | False | False | |
| Logical devices : | | | | | | | | |
| Management | Ele | ectricity | End customer | | | | | |

| muc | |
|-------------------|-----------|
| Attributes | / Methods |

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile2StartingRecordOBISCode |
| A5. capture_time | OCTETSTRING | See below |

True

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |

Attribute description

StartRecordDateAndTime

<u>StartRecordDateAndTime</u>

Date and time of the starting date for the load profile of type 2.

This date is either the start measurement date or the date of the oldest entry in the load profile array.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

11.1.16 LoadProfile2StartOfIntervalDate

This object holds the start of interval date for the load profile (type 2) management.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;56;1;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | LoadProfile2StartOfIntervalDateOBISCode |
| A2. value | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricit | y laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------|--------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | - | - | - | - | - | - | - |

Attribute description

StartOfIntervalDateAndTime

<u>StartOfIntervalDateAndTime</u>

Date and time of the start of interval date for the load profile of type 2.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

11.1.17 LoadProfile2Time1

This object holds the time1 for the load profile (type 2) management.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;96;56;3;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | LoadProfile2Time1OBISCode | |
| A2. value | OCTETSTRING | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | _ | - | - | - | - |

Attribute description

Time1

Time1

Time of time1 for the load profile of type 2.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

11.1.18 LoadProfile2Time2

This object holds the time2 for the load profile (type 2) management.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;56;4;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile2Time2OBISCode |
| A2. value | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| - | - | - | - | - | - | - | |
| Attribute description | | | | | | | |
| Time2 | | | | | | | |
| Time2 | | | | | | | |
| Time of time2 for the load profile of type 2. | | | | | | | |
| Data type: OCTETSTRING | | | | | | | |
| Authorized value: De | coded as Decim | al (Size = 12) | | | | | |

11.1.19 LoadProfiling1Parameters

This object defines time parameters for the management of the load profile (type 1).

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;136;0;1;255 | 1 | 0 | 2 | 0 | True | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------------------|--|
| A1. logical_name | OCTETSTRING | LoadProfiling1ParametersOBISCode | |
| A2. value | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

RecordingInterval

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | ∟ngineer | |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| | Get/Set | Get | Get | Get | Get/Set | - | Get | |
| _ | Attribute description | | | | | | | |
| _ | Attribute description | | | | | | | |
| | SEQUENCE // | 4 elements | | | | | | |
| | { | | | | | | | |
| | RecordingInterval | | | | | | | |
| | ClockModificat | ionThreshold | | | | | | |
| | SecondIRRatio | | | | | | | |
| | EnergyRecordin | gFormat | | | | | | |
| | } | | | | | | | |

It is the period of one element insertion in the file.

This interval domain is from 1 to 60 minutes (value sub multiple of 60), or 1440 minutes for a daily recording interval (24*60minutes).

Data type: UNSIGNED16

Authorized values:

1: 1 min

2: 2 min

3: 3 min

4: 4 min

5: 5 min

5. 5 111111

6: 6 min

10: 10 min

12: 12 min

15: 15 min

20: 20 min

30: 30 min

60: 60 min

1440: daily recording

Default value: 15 min (15)

ClockModificationThreshold

It is a percentage of the interval recording. When the clock is modified and the delta between the old and the new value is above this threshold, the current interval recording is closed.

The specific threshold value of 100% avoids from any period closing due to clock setting within the period.

Range: 0..5, or 100 (%)

Data type: UNSIGNED8

Authorized values:

0: 0 %

1: 1 % 2: 2 %

3: 3 %

4: 4 %

5: 5 %

100: 100 %

Default value: 1 % (1)

SecondIRRatio

It is a parameter used only in GenIEC1+.

Data type: UNSIGNED8
Authorized value: 1 to 60

Default value: 1

EnergyRecordingFormat

It indicates which format is used for all energy channels of load profile (type 1).

Data type: UNSIGNED8

Authorized values:

0: BASE 10

1: BASE 2

Default value: BASE 10 (0)

11.1.20 LoadProfiling2Parameters

This object defines time parameters for the management of the load profile (type 2).

Interface

| Logical name | Class Id | ass Id Class version Absolute Local Id | | Configuration | Restrictive | MID | |
|-----------------|----------|--|--------|---------------|-------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;136;1;1;255 | 1 | 0 | 1 | 0 | True | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Meth | nod (M) | Data type | Content | |
|----------------------|---------|-------------|----------------------------------|--|
| A1. logical_name | | OCTETSTRING | LoadProfiling2ParametersOBISCode | |
| A2. value | | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

```
SEQUENCE
             // 4 elements
 RecordingInterval
  ClockModificationThreshold
  SecondIRRatio
  EnergyRecordingFormat
```

RecordingInterval

It is the period of one element insertion in the file.

This interval domain is from 1 to 60 minutes (value sub multiple of 60), or 1440 minutes for a daily recording interval (24*60minutes).

For meters which integrate DataPush functionnality:

If Push is activated: Period is reduced from 5 to 60 minutes (value sub multiple of 60)

If Push is deactivated: Period is the normal interval described at the top of the comment

Data type: UNSIGNED16

Authorized values:

1: 1 min

2: 2 min

3: 3 min

4: 4 min

5: 5 min

6: 6 min

10: 10 min

12: 12 min

15: 15 min 20: 20 min

30: 30 min

60: 60 min

1440: daily recording

Default value: 15 min (15)

ClockModificationThreshold

It is a percentage of the interval recording. When the clock is modified and the delta between the old and the new value is above this threshold, the current interval recording is closed.

The specific threshold value of 100% avoids from any period closing due to clock setting within the period.

Range: 0 .. 5, or 100 (%) Data type: UNSIGNED8

Authorized values:

0:0 %

1:1%

2:2%

3:3 %

4: 4 %

5: 5 % 100: 100 %

Default value:

Default value: 1 % (1)

SecondIRRatio

It is a parameter used only in GenIEC1+.

Data type: UNSIGNED8

Authorized value: 1 to 60

Default value: 1

EnergyRecordingFormat

It indicates which format is used for all energy channels of load profile (type 1).

Data type: UNSIGNED8 Authorized values: 0: BASE 10

1: BASE 10

Default value: BASE 10 (0)

11.2 Cosem profiles

11.2.1 LoadProfile1Data

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;1;0;255 | 7 | 1 | 2 | 7073 | RAM | 4 | 0 | 1 | 1 | 1 |

Logical devices:

| • | | | |
|------------|-------------|--------------|--|
| Management | Electricity | End customer | |
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile1DataOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

The format is the following for each element of load profile:

First, the 4 structures date+status are provided:

- Start of interval and linked status, or NULL data if not significative
- End date and linked status, or NULL data if not significative
- Time 1 and linked status, or NULL data if not significative
- Time 2 and linked status, or NULL data if not significative

Then, UP TO 8 values of CONFIGURED channels are provided (value = integer16 or integer32 or unsigned16).

| Electricity labora | tory Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------|--------------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

BIT 2: Clock setting

```
Attribute description
                  // 1..65535 elements
 SEQUENCE OF
   SEQUENCE OF
                    // 5..12 elements ("Array Of" view as "Sequence" in get only)
   {
     CHOICE
       SEOUENCE
                    // 2 elements
         Start of interval or End interval or Time1 or Time2
         Status
       Null data
       Value of LP channel data
       Value of LP channel data
       Value of LP channel data
   }
 }
Start of interval or End interval or Time1 or Time2
 START OF INTERVAL DATE:
Used to record new time when interval stopped unusually
New time of long clock setting (including EOR or greater than the threshold)
 New time of long power failure – power up- (including EOR)
 New time of long external clock synchro
 New time of DST
END OF INTERVAL DATE:
 Used to record old time when interval stopped unusually
 Old time of long clock setting (including EOR or greater than the threshold)
 Old time of long power failure – power up- (including EOR)
 Old time of long external clock synchro
 Old time of DST
 TIME1:
 Used to record old time in case of short disruptions inside the EOR
 Old time of short clock setting (smaller than the threshold)
 Old time of power failure - power down
 Old time of DST
TIME2:
 Used to record new time in case of short disruptions inside the EOR
 New time of short clock setting (smaller than the threshold)
New time of power failure – power down
New time of DST
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Status
Data type: BITSTRING
 Authorized values:
 Size = 6
ViewAsType = BitString
 BIT 0: Start of measurement
BIT 1: Power failure
```

BIT 3: External clock synchro

BIT 4: DST

BIT 5: Watchdog reset
Default value: 0:0:0:0:0:0:0:

Null data

If first element of array: Start of interval not significative. If second element of array: End of interval not significative.

If third element of array: Time1 not significative.

If fourth element of array: Time2 not significative.

Data type: NULL
Authorized value:
Default value:

Value of LP channel data

Element (4+N) in array corresponds to data of channel N.

Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0

Value of LP channel data

Element (4+N) in array corresponds to data of channel N.

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

Value of LP channel data

Element (4+N) in array corresponds to data of channel N.

This format corresponds to energies in base 2.

Data type: INTEGER32

Authorized value: -2147483648 to 2147483647

Default value: 0

■ Attribute 3: capture_objects

- Sequence 1 = LoadProfileObisCode is LoadProfile1StartOfIntervalDateObisCode
- Sequence 2 = LoadProfileObisCode is LoadProfile1EndOfIntervalDateObisCode
- Sequence 3 = LoadProfileObisCode is LoadProfile1Time1ObisCode
- Sequence 4 = LoadProfileObisCode is LoadProfile1Time2ObisCode

Up to n=8, one per selected LP1 (configured) channel:

- Sequence 4+n = LoadProfileObisCode is BaseRegisterObisCode

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | | | |
|------------------------|------------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | | | | |
| | Halle the description | | | | | | | | | | | | |
| Attribute description | | | | | | | | | | | | | |
| SEQUENCE OF | // 512 elemen | ts | | | | | | | | | | | |
| { | | | | | | | | | | | | | |
| SEQUENCE | SEQUENCE // 4 elements | | | | | | | | | | | | |
| { | | | | | | | | | | | | | |
| Class_id | | | | | | | | | | | | | |
| LoadProfile | eObisCode | | | | | | | | | | | | |
| attribute_i | index | | | | | | | | | | | | |
| data_index | data_index | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

```
Class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
LoadProfileObisCode
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
attribute index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
data index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

11.2.2 LoadProfile1DataCondensed

Interface

| Logical name Cla | ss Id Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------------|---------------------|-----------------|----------|--------------|-----------------------------------|---------|---------|----------|----------|
| 0;0;99;1;2;255 | 7 1 | 2 | 7073 | ROM | 1 | 0 | 1 | 0 | 65535 |
| Logical devices : | | | | | | | | | |
| Management | Electricity | End custome | er | | | | | | |
| True | True | True | | | | | | | |
| Attributes / Met | hods | | | | | | | | |
| Attribute (A) / Metho | od (M) | Data typ | ре | Content | | | | | |
| A1. logical_name | | OCTET | STRING | LoadPro | LoadProfile1DataCondensedOBISCode | | | | |
| A2. buffer | | ARRAY | | See belo | ow | | | | |
| A3. capture_objects | } | ARRAY | | See belo | ow | | | | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 065535 ele | ements | | | | |
| { | | | | | | |
| SEQUENCE | // 1 elements | | | | | |
| { | | | | | | |
| LoadProfile | 1EndOfRecordingD | ata (Att. Id: | 2, Abs. Nur | mber: 2) | | |
| } | | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (LoadProfile1EndOfRecordingData): Obis_code = 0;0;96;55;7;255, Class_id = 1, Attribute_index = 2, Data index = 0

Access rights (clients)

```
Electricity laboratory
                      Electricity utility
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                             Get
                                                           Get
                                                                        Get
                                                                                                    Get
Attribute description
 SEQUENCE OF
                   // 1 elements
   SEQUENCE
                  // 4 elements
     Class_id
     Obis_code
     Attribute_index
     Data_index
 }
Class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
Obis code
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;
Attribute_index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
Data index
Data type: UNSIGNED16
 Authorized value: 0 to 65535
Default value: 0
```

11.2.3 LoadProfile1Information

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;128;1;25
5 | 7 | 1 | 2 | 0 | RAM | 2 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile1InformationOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

This object specifies the start date and the end date of data inside one load profile, the scaler and unit of each channel and the quantity each channel is based on. Logical name and scaler/unit of each CONFIGURED channel are first provided, and then Start and End date (last elements of array).

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
        Get
                          Get
                                           Get
                                                          Get
                                                                      Get
                                                                                                 Get
Attribute description
 SEQUENCE OF
                   // 1..65535 elements
   SEQUENCE OF
                     // 4..18 elements ("Array Of" view as "Sequence" in get only)
     CHOICE
       Logical name channel N
        SEQUENCE
                     // 2 elements
          Scaler channel N
          Unit channel N
       StartRecordDate or EndRecordDate
 }
Logical name channel N
 Channel N corresponds to elements (2N-1) and 2N of array, if configured.
Data type: OCTETSTRING
 Authorized value: Decoded as Decimal (Size = 6)
 Default value: 255;255;255;255;255;
 Scaler channel N
 Channel N corresponds to elements (2N-1) and 2N of array, if configured.
Data type: INTEGER8
Authorized value: -4 to 23
 Default value: 0
Unit channel N
 Channel N corresponds to elements (2N-1) and 2N of array, if configured.
 Data type: ENUMERATED
 Authorized values:
 27: W
 28: VA
29: var
 30: Wh
 31: VAh
 32: varh
 33: A
 35: V
 44: Hz
255: No unit
Default value: No unit (255)
 StartRecordDate or EndRecordDate
```

Start date or End date of data inside one load profile.

Start date is placed before End date in array.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 7;200;1;1;255;255;255;255;128;0;255;

■ Attribute 3: capture_objects

For each channel, we take its logical name and scaler-unit

up to 8

StartRecordDate EndRecordDate

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | | Resources upgrader | Engineer | | | | | |
|--------------------------|--------------------------|--------------------|--------------|-----|--------------------|----------|--|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | | |
| Attribute description | | | | | | | | | | | |
| ~ | | | | | | | | | | | |
| | { SEQUENCE // 4 elements | | | | | | | | | | |
| { | | | | | | | | | | | |
| class_id
LoadProfileO | bisCode | | | | | | | | | | |
| attribute_ind | | | | | | | | | | | |
| <pre>data_index }</pre> | | | | | | | | | | | |
| } | | | | | | | | | | | |
| class_id | | | | | | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | | | |
| Default value: 0 | | | | | | | | | | | |
| LoadProfileObisCoo | <u>le</u> | | | | | | | | | | |
| Data type: OCTETS | TRING | | | | | | | | | | |
| Authorized value: D | ecoded as Decim | al (Size = 6) | | | | | | | | | |
| Default value: 255;2 | 255;255;255;255;2 | 255; | | | | | | | | | |
| attribute_index | | | | | | | | | | | |
| Data type: INTEGEI | R8 | | | | | | | | | | |
| Authorized value: -1 | 28 to 127 | | | | | | | | | | |
| Default value: 0 | | | | | | | | | | | |
| data_index | <u>data_index</u> | | | | | | | | | | |
| Data type: UNSIGN | Data type: UNSIGNED16 | | | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | | | |
| Default value: 0 | | | | | | | | | | | |

11.2.4 LoadProfile2Data

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;2;0;255 | 7 | 1 | 2 | 7073 | RAM | 4 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile2DataOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

The format is the following for each element of load profile:

First, the 4 structures date+status are provided:

- Start of interval and linked status, or NULL data if not significative
- End date and linked status, or NULL data if not significative
- Time 1 and linked status, or NULL data if not significative
- Time 2 and linked status, or NULL data if not significative

Electricity utility

Then, UP TO 8 values of CONFIGURED channels are provided (value = integer16 or integer32 or unsigned16).

Access rights (clients)

Electricity laboratory

| Get | Get | Get | Get | Get | - | Get |
|-----------------------|----------------|-------|-----|-----|---|-----|
| | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 165535 elem | ments | | | | |
| ſ | | | | | | |

Electricity reader End customer Manufacturer Resources upgrader Engineer

```
SEQUENCE OF // 1..65535 elements

SEQUENCE OF // 5..12 elements ("Array Of" view as "Sequence" in get only)

CHOICE

SEQUENCE // 2 elements

SEQUENCE // 2 elements

Start of interval or End interval or Time1 or Time2

Status

Null data
Value of LP channel data
Value of LP channel data

Value of LP channel data

Value of LP channel data

Value of LP channel data

}

}
```

Start of interval or End interval or Time1 or Time2

START OF INTERVAL DATE:

Used to record new time when interval stopped unusually

New time of long clock setting (including EOR or greater than the threshold)

New time of long power failure – power up- (including EOR)

New time of long external clock synchro

New time of DST

END OF INTERVAL DATE : Used to record old time when interval stopped unusually

Old time of long clock setting (including EOR or greater than the threshold)

Old time of long power failure – power up- (including EOR)

Old time of long external clock synchro

Old time of DST

TIME1:

Used to record old time in case of short disruptions inside the EOR

Old time of short clock setting (smaller than the threshold)

Old time of power failure - power down

Old time of DST

TIME2:

Used to record new time in case of short disruptions inside the EOR

New time of short clock setting (smaller than the threshold)

New time of power failure – power down

New time of DST

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Status

Data type: BITSTRING Authorized values:

Size = 6

ViewAsType = BitString
BIT 0: Start of measurement

BIT 1: Power failure BIT 2: Clock setting

BIT 3: External clock synchro

BIT 4: DST

BIT 5: Watchdog reset
Default value: 0;0;0;0;0;0;

Null data

If first element of array: Start of interval not significative.

If second element of array: End of interval not significative.

If third element of array: Time1 not significative.

If fourth element of array: Time2 not significative.

Data type: NULL
Authorized value:
Default value:

Value of LP channel data

Element (4+N) in array corresponds to data of channel N.

Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0

Value of LP channel data

Element (4+N) in array corresponds to data of channel N.

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

Value of LP channel data

Element (4+N) in array corresponds to data of channel N.

This format corresponds to energies in base 2.

Data type: INTEGER32

Authorized value: -2147483648 to 2147483647

Default value: 0

■ Attribute 3: capture_objects

- Sequence 1 = LoadProfileObisCode is LoadProfile2StartOfIntervalDateObisCode
- Sequence 2 = LoadProfileObisCode is LoadProfile2EndOfIntervalDateObisCode
- Sequence 3 = LoadProfileObisCode is LoadProfile2Time1ObisCode
- Sequence 4 = LoadProfileObisCode is LoadProfile2Time2ObisCode

Up to n=8, one per selected LP2 (configured) channel :

- Sequence 4+n = LoadProfileObisCode is BaseRegisterObisCode

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get | | | | |
|--|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|--|--|--|--|
| | | Gei | Get | Get | - | Get | | | | |
| Attribute description SEQUENCE OF // 512 elements | | | | | | | | | | |
| SEQUENCE OF | | | | | | | | | | |
| | // 4 elements | | | | | | | | | |
| l
Class_id | {
Class_id | | | | | | | | | |
| LoadProfile(
attribute_in | | | | | | | | | | |
| data_index | iidex | | | | | | | | | |
| } | | | | | | | | | | |
| | | | | | | | | | | |
| <u>Class_id</u> | | | | | | | | | | |
| Data type: UNSIGN | NED16 | | | | | | | | | |
| Authorized value: (|) to 65535 | | | | | | | | | |
| Default value: 0 | | | | | | | | | | |
| LoadProfileObisCo | <u>ode</u> | | | | | | | | | |
| Data type: OCTET | STRING | | | | | | | | | |
| Authorized value: [| Decoded as Decima | al (Size = 6) | | | | | | | | |
| Default value: 255; | 255;255;255;255;2 | 55; | | | | | | | | |
| attribute_index | | | | | | | | | | |
| Data type: INTEGE | ER8 | | | | | | | | | |
| Authorized value: - | 128 to 127 | | | | | | | | | |
| Default value: 0 | | | | | | | | | | |
| data_index | <u>data_index</u> | | | | | | | | | |
| Data type: UNSIGN | NED16 | | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | | |
| Default value: 0 | | | | | | | | | | |
| | | | | | | | | | | |

11.2.5 LoadProfile2DataCondensed

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;2;2;255 | 7 | 1 | 2 | 7073 | ROM | 1 | 0 | 1 | 0 | 65535 |
| | | | | | | | | | | |

Logical devices:

| _ | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile2DataCondensedOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | | | |
|---|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | | | | | |
| | Attaille of each each atten | _ | | | | | | | | | | | | |
| f | Attribute description | | | | | | | | | | | | | |
| | SEQUENCE OF | // 165535 ele | ments | | | | | | | | | | | |
| | { | | | | | | | | | | | | | |
| | SEQUENCE | // 1 elements | | | | | | | | | | | | |
| | { | | | | | | | | | | | | | |
| | LoadProfile2EndOfRecordingData (Att. Id: 2, Abs. Number: 2) | | | | | | | | | | | | | |
| | } | | | | | | | | | | | | | |
| | } | | | | | | | | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (LoadProfile2EndOfRecordingData): Obis_code = 0;0;96;56;7;255, Class_id = 1, Attribute_index = 2, Data_index = 0

| | aboratory | Electricity utility | | | | Resources upgrader | |
|--------------|-------------------|---------------------|---------------|-----|-----|--------------------|-----|
| Ge | et | Get | Get | Get | Get | - | Get |
| Attribute de | escription | | | | | | |
| SEQUENCE | OF | // 1 elements | | | | | |
| {
SEQUEN | CE / | // 4 elements | | | | | |
| { | , | , | | | | | |
| Clas | _ | | | | | | |
| | _code
ibute_ir | ndex | | | | | |
| | _index | 10.011 | | | | | |
| } | | | | | | | |
| } | | | | | | | |
| Class_id | | | | | | | |
| Data type | : UNSIGN | NED16 | | | | | |
| Authorize | d value: 0 | to 65535 | | | | | |
| Default va | lue: 0 | | | | | | |
| Obis_cod | <u>e</u> | | | | | | |
| Data type | : OCTET | STRING | | | | | |
| Authorize | d value: [| Decoded as Decima | al (Size = 6) | | | | |
| Default va | lue: 0;0;0 |);0;0;0; | | | | | |
| Attribute_ | <u>index</u> | | | | | | |
| Data type | : INTEGE | R8 | | | | | |
| Authorize | d value: - | 128 to 127 | | | | | |
| Default va | lue: 0 | | | | | | |
| Data_inde | <u>ex</u> | | | | | | |

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

11.2.6 LoadProfile2Information

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;99;129;1;25
5 | 7 | 1 | 2 | 0 | RAM | 2 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | LoadProfile2InformationOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

This object specifies the start date and the end date of data inside one load profile, the scaler and unit of each channel and the quantity each channel is based on. Logical name and scaler/unit of each CONFIGURED channel are first provided, and then Start and End date (last elements of array).

Access rights (clients)

| Lieutiuity laburatury | Liectricity utility | Lieutiluity reader | Life Custoffier | Manuacture | resources upgrader | Liigiileei |
|-----------------------|---------------------|--------------------|-----------------|------------|--------------------|------------|
| Get | Get | Get | Get | Get | = - | Get |
| | | | | | | |
| Attribute description | | | | | | |

Logical name channel N

Channel N corresponds to elements (2N-1) and 2N of array, if configured.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

Scaler channel N

Channel N corresponds to elements (2N-1) and 2N of array, if configured.

Data type: INTEGER8

```
Authorized value: -4 to 23
Default value: 0
Unit channel N
Channel N corresponds to elements (2N-1) and 2N of array, if configured.
Data type: ENUMERATED
Authorized values:
27: W
28: VA
29: var
30: Wh
31: VAh
32: varh
33: A
35: V
44: Hz
255: No unit
Default value: No unit (255)
StartRecordDate or EndRecordDate
Start date or End date of data inside one load profile.
Start date is placed before End date in array.
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;255;255;255;255;255;128;0;255;
```

■ Attribute 3: capture_objects

For each channel, we take its logical name and scaler-unit up to 8

StartRecordDate EndRecordDate

Access rights (clients)

Data type: OCTETSTRING

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get | |
|------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|--|
| Attribute description | | | | | | | |
| SEQUENCE OF { | // 418 elemer | nts | | | | | |
| SEQUENCE /
{
class_id | // 4 elements | | | | | | |
| LoadProfileO
attribute_ir | | | | | | | |
| <pre>data_index } </pre> | | | | | | | |
| class_id | | | | | | | |
| Data type: UNSIGN | NED16 | | | | | | |
| Authorized value: 0 to 65535 | | | | | | | |
| Default value: 0 | | | | | | | |
| LoadProfileObisCo | <u>de</u> | | | | | | |

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0 data_index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

12 Metrology Qualimetry

12.1 Cosem objects

12.1.1 ActiveEnergyMetrologicalLEDPulseConstant

UNSIGNED8

SEQUENCE

Interface

A2. value

A3. scaler_unit

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-------------------|-----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;0;3;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical devic | | Electricity | End customer | | | | |
| True | | True | False | | | | |
| Attributes / I | Methods | S | | | | | |
| Attribute (A) / M | lethod (M |) | Data type | Content | | | |
| A1. logical_nam | ne | | OCTETSTRING | ActiveEn | ergyMetrologicalLEDPu | IlseConstantOBISCode | |

See below

See below

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Value | | | | | | |
| | | | | | | |
| <u>Value</u> | | | | | | |
| Data type: UNSIGN | ED8 | | | | | |
| 5 . | | | | | | |
| Authorized value: 0 | 10 255 | | | | | |
| Default value: 0 | | | | | | |

■ Attribute 3: scaler_unit

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|-------------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| 0 for DC
-1 for CT | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -1 | to 0 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 |): Wh | | | | | |

Default value: Wh (30)

12.1.2 AngleU1I1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;81;7;40;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------|
| A1. logical_name | OCTETSTRING | AngleU1I1OBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| ı | Get | Get | Get | Get | Get | - | Get |
| , | Attribute description | | | | | | |
| | AngleU1I1 | | | | | | |
| | AngleU1I1 | | | | | | |
| | Data type: INTEGER | R16 | | | | | |
| | Authorized value: -1 | 800 to 1800 | | | | | |
| | Default value: 1200 | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description SEQUENCE //: { Scaler Unit | 2 elements | | | | | |
| Scaler 1 décimale. Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 Default value: -1 | | | | | | |
| Unit Data type: ENUMER | RATED | | | | | |
| Authorized value: 8: Default value: ° (8) | ٥ | | | | | |

12.1.3 AngleU1U3

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;81;7;2;255 | 3 | 0 | 2 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------|--|
| A1. logical_name | OCTETSTRING | AngleU1U3OBISCode | |
| A2. value | INTEGER16 | See below | |
| A3. scaler unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| AngleU1U3 | | | | | | |
| AngleU1U3 | | | | | | |
| | | | | | | |
| Data type: INTEGER | 116 | | | | | |
| Authorized value: -18 | 300 to 1800 | | | | | |

Default value: 1200

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | | | | Resources upgrader | | | | |
|--|---------------------|-----|-----|-----|--------------------|-----|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| <pre>SEQUENCE // 2 { Scaler Unit }</pre> | 2 elements | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | |
| 1 décimale. | | | | | | | | | |
| Data type: INTEGER | ₹8 | | | | | | | | |
| Authorized value: -1 | | | | | | | | | |
| Default value: -1 | | | | | | | | | |
| <u>Unit</u> | | | | | | | | | |
| Data type: ENUMER | RATED | | | | | | | | |
| Authorized value: 8: | 0 | | | | | | | | |
| Default value: ° (8) | | | | | | | | | |

12.1.4 AngleU2I2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;81;7;51;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------|
| A1. logical_name | OCTETSTRING | AngleU2I2OBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| AngleU2I2 | | | | | | |
| AngleU2I2 | | | | | | |
| Data type: INTEGER | R16 | | | | | |
| Authorized value: -1 | 800 to 1800 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 1200

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|-----------------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| 1 décimale. | | | | | | |
| Data type: INTEGE | ₹8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 8: | • | | | | | |
| Default value: ° (8) | | | | | | |

12.1.5 AngleU2U1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;81;7;10;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------|--|
| A1. logical_name | OCTETSTRING | AngleU2U1OBISCode | |
| A2. value | INTEGER16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Get Get Get Get Get | - Get |
|---------------------|-------|

Attribute description

AngleU2U1

AngleU2U1

Data type: INTEGER16

Authorized value: -1800 to 1800

Default value: 1200

■ Attribute 3: scaler_unit

Access rights (clients)

| tooooo riginto (onorito | , | | | | | |
|-------------------------------------|---------------------|-----|-----|-----|--------------------|-----|
| Electricity laboratory | Electricity utility | | | | Resources upgrader | |
| Get | Get | Get | Get | Get | - | Get |
| ttribute description | | | | | | |
| SEQUENCE // { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| 1 décimale. | | | | | | |
| Data type: INTEGEI | R8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 8: | . • | | | | | |
| Default value: ° (8) | | | | | | |

12.1.6 AngleU3I3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;81;7;62;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | es: | | | | | | |
| Management | Ele | ectricity | End customer | | | | |
| True | | True | True | | | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------|
| A1. logical_name | OCTETSTRING | AngleU3I3OBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | • | | | |
|------------------------|---------------------|--------------------|-----|-----|--------------------|-----|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| AngleU3I3 | | | | | | | | | |
| AngleU3I3 | | | | | | | | | |
| Data type: INTEGER16 | | | | | | | | | |
| Authorized value: - | 1800 to 1800 | | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 1200

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| 1 décimale. | | | | | | |
| Data type: INTEGE | R8 | | | | | |
| Authorized value: -1 | ı | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 8: | . • | | | | | |
| Default value: ° (8) | | | | | | |

12.1.7 AngleU3U2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;81;7;21;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | s: | | | | | | |

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |
| | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------|
| A1. logical_name | OCTETSTRING | AngleU3U2OBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|---|---------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | |
| F | Attribute description | | | | | | | | | |
| | AngleU3U2 | | | | | | | | | |
| | AngleU3U2 | | | | | | | | | |
| | Data type: INTEGER16 | | | | | | | | | |
| | Authorized value: -1800 to 1800 | | | | | | | | | |
| | Default value: 1200 | | | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|-----------------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| 1 décimale. | | | | | | |
| Data type: INTEGE | ₹8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 8: | 0 | | | | | |
| Default value: ° (8) | | | | | | |

12.1.8 CTDenominatorParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;0;4;5;255 | 1 | 0 | 1 | 0 | False | False | False |
| Logical devic | es: | | | | | | |
| Management | t E | Electricity | End customer | | | | |
| True | | True | False | | | | |
| Attributes / I | Mathada | | | | | | |

| Attributes / | Methods |
|--------------|---------|
|--------------|---------|

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | CTDenominatorParametersOBISCode |
| A2. value | UNSIGNED8 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

DenCTRatio

DenCTRatio

Defines the current ratio denominator.

Data type: UNSIGNED8
Authorized value: 1 to 10

Default value: 1

12.1.9 CTNumeratorParameters

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;0;4;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | CTNumeratorParametersOBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

NumCTRatio

NumCTRatio

Defines the current ratio numerator.

Acceptance rules: NumCTRatio * current NumVTRatio <= CT*VT numerator limit (3 600 000 000).

Data type: UNSIGNED16 Authorized value: 1 to 45000

Default value: 1

12.1.10 CurrentConnectionParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0:0:148:6:0:255 | 1 | 0 | 1 | 0 | True | False | True |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | CurrentConnectionParametersOBISCode |
| A2. value | BOOLEAN | See below |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get/Set | - | Get |

Attribute description

CurrentConnectionParameters

<u>CurrentConnectionParameters</u> Direct connection : FALSE Transformer connection : TRUE

Data type: BOOLEAN Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

12.1.11 DipsNumber_n00

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;0;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n00OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n00

DipsNumber_n00

Number of dip voltage which have a duration between 40 to 100ms, and a depth between 10 to 20% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.12 DipsNumber_n01

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;1;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer

True False False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n01OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n01

DipsNumber n01

Number of dip voltage which have a duration between 100 to 500ms, and a depth between 10 to 20% Un.

Data type: UNSIGNED16
Authorized value: 0 to 9999

Default value: 0

12.1.13 DipsNumber_n02

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n02OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n02

DipsNumber_n02

Number of dip voltage which have a duration between 500 to 1000ms, and a depth between 10 to 20% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.14 DipsNumber_n03

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;3;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| • | | | |
|------------|-------------|--------------|--|
| Management | Electricity | End customer | |
| True | False | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n03OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n03

DipsNumber n03

Number of dip voltage which have a duration between 1 to 3s, and a depth between 10 to 20% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.15 DipsNumber_n04

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;4;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n04OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n04

DipsNumber_n04

Number of dip voltage which have a duration between 3 to 20s, and a depth between 10 to 20% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.16 DipsNumber_n05

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;5;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n05OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n05

DipsNumber n05

Number of dip voltage which have a duration between 20 to 60s, and a depth between 10 to 20% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.17 DipsNumber_n10

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;10;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n10OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | _ | Get |

Attribute description

DipsNumber_n10

DipsNumber n10

Number of dip voltage which have a duration between 40 to 100ms, and a depth between 20 to 30% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.18 DipsNumber_n11

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;11;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | | | | |
|----------------------|-------------|--------------|--|--|--|--|
| True | False | False | | | | |
| Attributes / Methods | | | | | | |

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n11OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n11

DipsNumber n11

Number of dip voltage which have a duration between 100 to 500ms, and a depth between 20 to 30% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.19 DipsNumber_n12

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;12;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n12OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n12

DipsNumber_n12

Number of dip voltage which have a duration between 500 to 1000ms, and a depth between 20 to 30% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.20 DipsNumber_n13

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;13;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n13OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n13

DipsNumber n13

Number of dip voltage which have a duration between 1 to 3s, and a depth between 20 to 30% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.21 DipsNumber_n14

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;14;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n14OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity labor | ratory Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------|----------------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n14

DipsNumber_n14

Number of dip voltage which have a duration between 3 to 20s, and a depth between 20 to 30% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.22 DipsNumber_n15

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;15;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n15OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n15

DipsNumber n15

Number of dip voltage which have a duration between 20 to 60s, and a depth between 20 to 30% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.23 DipsNumber_n20

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration | Restrictive | MID compliance |
|------------------|----------|---------------|--------------------|----------|---------------|-------------|----------------|
| | | | Hullibei | | parameter | programming | compliance |
| 1;1;12;32;20;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n20OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n20

DipsNumber_n20

Number of dip voltage which have a duration between 40 to 100ms, and a depth between 30 to 60% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.24 DipsNumber_n21

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;21;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n21OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n21

DipsNumber n21

Number of dip voltage which have a duration between 100 to 500ms, and a depth between 30 to 60% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.25 DipsNumber_n22

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;22;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices :

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n22OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n22

DipsNumber_n22

Number of dip voltage which have a duration between 500 to 1000ms, and a depth between 30 to 60% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.26 DipsNumber_n23

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;23;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n23OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n23

DipsNumber n23

Number of dip voltage which have a duration between 1 to 3s, and a depth between 30 to 60% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.27 DipsNumber_n24

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;24;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n24OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electr | ricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------|-------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n24

DipsNumber n24

Number of dip voltage which have a duration between 3 to 20s, and a depth between 30 to 60% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.28 DipsNumber_n25

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;25;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n25OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n25

DipsNumber n25

Number of dip voltage which have a duration between 20 to 60s, and a depth between 30 to 60% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.29 DipsNumber_n30

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;30;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n30OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n30

DipsNumber n30

Number of dip voltage which have a duration between 40 to 100ms, and a depth between 60 to 95% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999 Default value: 0

12.1.30 DipsNumber_n31

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;31;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n31OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n31

DipsNumber_n31

Number of dip voltage which have a duration between 100 to 500ms, and a depth between 60 to 95% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.31 DipsNumber_n32

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;32;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n32OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n32

DipsNumber n32

Number of dip voltage which have a duration between 500 to 1000ms, and a depth between 60 to 95% Un.

Data type: UNSIGNED16

Authorized value: 0 to 9999

Default value: 0

12.1.32 DipsNumber_n33

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;33;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n33OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n33

DipsNumber n33

Number of dip voltage which have a duration between 1 to 3s, and a depth between 60 to 95% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.33 DipsNumber_n34

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;34;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|---------------------------|-------------------------------------|
| A1. logical_name | OCTETSTRING
UNSIGNED16 | DipsNumber_n34OBISCode
See below |
| A2. value | UNSIGNEDIO | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n34

DipsNumber_n34

Number of dip voltage which have a duration between 3 to 20s, and a depth between 60 to 95% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.34 DipsNumber_n35

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;35;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n35OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n35

DipsNumber n35

Number of dip voltage which have a duration between 20 to 60s, and a depth between 60 to 95% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.35 DipsNumber_n40

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;40;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n40OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

DipsNumber_n40

DipsNumber n40

Number of dip voltage which have a duration between 40 to 100ms, and a depth superior to 95% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.36 DipsNumber_n41

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;41;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n41OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n41

DipsNumber n41

Number of dip voltage which have a duration between 100 to 500ms, and a depth superior to 95% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.37 DipsNumber n42

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;42;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n42OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n42

DipsNumber n42

Number of dip voltage which have a duration between 500 to 1000ms, and a depth superior to 95% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.38 DipsNumber n43

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;43;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n43OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n43

DipsNumber n43

Number of dip voltage which have a duration between 1 to 3s, and a depth superior to 95% Un.

Data type: UNSIGNED16
Authorized value: 0 to 9999

Default value: 0

12.1.39 DipsNumber_n44

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;12;32;44;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | DipsNumber_n44OBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

DipsNumber_n44

DipsNumber n44

Number of dip voltage which have a duration between 3 to 20s, and a depth superior to 95% Un.

Data type: UNSIGNED16 Authorized value: 0 to 9999

Default value: 0

12.1.40 DipsNumber_n45

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;32;45;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | DipsNumber_n45OBISCode | |
| A2. value | UNSIGNED16 | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DipsNumber_n45

DipsNumber_n45

Number of dip voltage which have a duration between 20 to 60s, and a depth superior to 95% Un.

Data type: UNSIGNED16
Authorized value: 0 to 9999

Default value: 0

12.1.41 DipsNumberParameters

The thresholds are defined with a resolution of 0.1V.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;144;4;0;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | DipsNumberParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

The thresholds are defined with a resolution of 0.1V.

Acceptance rules:

DipsThreshold1 > DipsThreshold2 > DipsThreshold3 > DipsThreshold4 > DipsThreshold5

Access rights (clients)

| Electricity laboratory
Get/Set | Electricity utility Get/Set | Electricity reader
Get | End customer
Get | Manufacturer
Get/Set | Resources upgrader | Engineer
Get |
|---|-----------------------------|---------------------------|---------------------|-------------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 5 { DipsThreshold1 DipsThreshold2 DipsThreshold3 DipsThreshold4 | elements | | | | | |
| DipsThreshold5 } | | | | | | |
| DipsThreshold1 | | | | | | |
| default value 90% of | 240 V = 216V (re | esolution of 0.1V) | | | | |
| Data type: UNSIGNE | D16 | | | | | |
| Authorized value: 0 to | 65535 | | | | | |
| Default value: 2160 | | | | | | |
| DipsThreshold2 default value 80% of | 240 V = 192V (re | esolution of 0.1V) | | | | |
| Data type: UNSIGNE | D16 | | | | | |
| Authorized value: 0 to | 65535 | | | | | |
| Default value: 1920 | | | | | | |
| DipsThreshold3 default value 70% of | 240 V = 168V (re | esolution of 0.1V) | | | | |
| Data type: UNSIGNE | D16 | | | | | |
| Authorized value: 0 to | 65535 | | | | | |
| Default value: 1680 | | | | | | |
| <u>DipsThreshold4</u>
default value 40% of 2 | 240 V = 96V (re | solution of 0.1V) | | | | |
| Data type: UNSIGNE | · | , | | | | |
| Authorized value: 0 to | 65535 | | | | | |
| Default value: 960 | | | | | | |
| <u>DipsThreshold5</u>
default value 5% of 2 | 240 V = 12V (res | solution of 0.1V) | | | | |
| Data type: UNSIGNE | D16 | | | | | |
| Authorized value: 0 to | 65535 | | | | | |
| Default value: 120 | | | | | | |

12.1.42 EnergyStatus

This internal data is represented by a register.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;96;5;0;255 | 3 | 0 | 5 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------|
| A1. logical_name | OCTETSTRING | EnergyStatusOBISCode |
| A2. value | BITSTRING | See below |
| A3. scaler_unit | NULL | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Status

Status

The bit meaning are:

Status: Bit 1 to 8

- 0 the phase is blocked (creep condition)
- 1 the phase has started counting

DirectionActive: Bit 9 to 16

- 0 the phase is importing (+)
- 1 the phase is exporting (-)

In case of blocked phases the result is not valid.

DirectionReactive: Bit 17 to 24

- bit 17,18 : Quadrant for phase 1 (0..3 represents quadrant 1..4)
- bit 19,20 : Quadrant for phase 2 (0..3 represents quadrant 1..4)
- bit 21,22 : Quadrant for phase 3 (0..3 represents quadrant 1..4)

DirectionExternal: Bit 25 to 32

The booleans meaning of direction are :

- 0 the input is importing (+)
- 1 the input is exporting (-)

The booleans meaning of electrical fluid are:

- 0 the input is electrical
- 1 the input is not electrical

Data type: BITSTRING

Authorized values:

Size = 32

ViewAsType = BitString

BIT 0: Phase 1 active

BIT 1: Phase 2 active

BIT 2: Phase 3 active

BIT 3: Not used

BIT 4: Phase 1 reactive

BIT 5: Phase 2 reactive

BIT 6: Phase 3 reactive

BIT 7: Not used

BIT 8: Direction phase 1

BIT 9: Direction phase 2

BIT 10: Direction phase 3

BIT 11: Not used

BIT 12: Not used

BIT 13: Not used

BIT 14: Not used

BIT 15: Not used

BIT 16: Quadrant for phase 1

BIT 17: Quadrant for phase 1

BIT 18: Quadrant for phase 2

BIT 19: Quadrant for phase 2

BIT 20: Quadrant for phase 3

BIT 21: Quadrant for phase 3

BIT 22: Not used

BIT 23: Not used

BIT 24: Direction input 1

BIT 25: Input 1 electrical fluid

BIT 26: Direction input 2

BIT 27: Input 2 electrical fluid

BIT 28: Direction input 3

BIT 29: Input 3 electrical fluid

BIT 30: Direction input 4

BIT 31: Input 4 electrical fluid

■ Attribute 3: scaler_unit

not implemented

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

12.1.43 ExportActivePowerAggregate

Electricity

This object defines the aggregate of export active power.

Interface

| Log | gical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----|------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1 | ;2;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices : Management

A3. scaler_unit

| IIuc | IIuc | IIuc | |
|-----------------------------|------|-------------|------------------------------------|
| Attributes / Methods | i | | |
| Attribute (A) / Method (M) | | Data type | Content |
| A1. logical_name | | OCTETSTRING | ExportActivePowerAggregateOBISCode |
| A2 value | | LINGIGNED32 | See below |

End customer

SEQUENCE

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

See below

Attribute description

ExportActivePowerAggregate

ExportActivePowerAggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | | Resources upgrader | Engineer |
|--|---------------------|--------------------|-----------------|---------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Following the meter | | e CT*VT ratio : | | | | |
| If DC meter, Scaler If CT meter, Scaler | | io < 10 000 Scale | ar - 3 for othe | are CT*\/T ra | utio | |
| | | 10 × 10.000, 30ai | 51 – 3 101 Othe | SIS OT VITE | itio | |
| Data type: INTEGER | | | | | | |
| Authorized value: -1 | to 3 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| | | | | | | |
| Authorized value: 27 | | | | | | |
| Default value: W (27) |) | | | | | |

12.1.44 ExportActivePowerPhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;22;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| • | | | |
|------------|-------------|--------------|--|
| Management | Electricity | End customer | |
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------|--|
| A1. logical_name | OCTETSTRING | ExportActivePowerPhase1OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ExportActivePowerPhase1

ExportActivePowerPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|--|---------------------|--------------------|-----------------|--------------|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Following the meter of a lf DC meter, Scaler - If CT meter, Scaler - | = 0 | | er = 3 for othe | ers CT*VT ra | itio | |
| Data type: INTEGER | 8 | | | | | |
| Authorized value: -1 | to 3 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMERATED | | | | | | |
| Authorized value: 27: | W | | | | | |
| Default value: W (27) | | | | | | |

12.1.45 ExportActivePowerPhase2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;42;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------|--|
| A1. logical_name | OCTETSTRING | ExportActivePowerPhase2OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| | | | | | | | | |
| Attribute description | | | | | | | | |

Attribute description

ExportActivePowerPhase2

ExportActivePowerPhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                                         End customer Manufacturer Resources upgrader Engineer
                                         Electricity reader
                            Get
                                              Get
                                                              Get
                                                                           Get
                                                                                                        Get
Attribute description
 SEQUENCE
               // 2 elements
   Scaler
   Unit
 Scaler
Following the meter connexion and the CT*VT ratio:
 - If DC meter, Scaler = 0
 - If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio
 Data type: INTEGER8
 Authorized value: -1 to 3
 Default value: 0
Unit
 Data type: ENUMERATED
 Authorized value: 27: W
 Default value: W (27)
```

12.1.46 ExportActivePowerPhase3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance | |
|-------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|--|
| 1;1;62;7;0;255 | 3 | 0 | 1 | 0 | False | False | False | |
| Logical devices : | | | | | | | | |

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | ExportActivePowerPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ExportActivePowerPhase3

ExportActivePowerPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| ccess rigins (chemis | ? <i>)</i> | | | | | |
|------------------------|---------------------|--------------------|-----------------|--------------|--------------------|-----|
| Electricity laboratory | Electricity utility | • | | | Resources upgrader | • |
| Get | Get | Get | Get | Get | - | Get |
| ttribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Following the meter | connexion and th | ne CT*\/T ratio · | | | | |
| - If DC meter, Scale | | ie Ci vilatio. | | | | |
| - If CT meter, Scale | | tio < 10.000, Scal | er = 3 for othe | ers CT*VT ra | tio | |
| Data type: INTEGEI | R8 | | | | | |
| • • | | | | | | |
| Authorized value: -1 | 10 3 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | PATED | | | | | |
| • . | | | | | | |
| Authorized value: 27 | 7: W | | | | | |
| Default value: W (27 | 7) | | | | | |

12.1.47 ExportApparentPowerAggregate

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;10;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ExportApparentPowerAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| ExportApparentPow | erAggregate | | | | | |

ExportApparentPowerAggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
        Get
                                               Get
                                                                           Get
                            Get
                                                              Get
                                                                                                         Get
Attribute description
SEQUENCE
              // 2 elements
   Scaler
   Unit
Scaler
Following the meter connexion and the CT*VT ratio:
 - If DC meter, Scaler = 0
 - If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio
 Data type: INTEGER8
 Authorized value: -1 to 3
 Default value: 0
<u>Unit</u>
 Data type: ENUMERATED
Authorized value: 28: VA
Default value: VA (28)
```

12.1.48 ExportApparentPowerPhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;30;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | es : | | | | | | |
| Management | FI | actricity | End customer | | | | |

True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-----------------------------------|--|
| A1. logical_name | OCTETSTRING | ExportApparentPowerPhase1OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity labor | ratory Ele | ectricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|-----------------------|---------------------------|-------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get | | Get | Get | Get | Get | - | Get | |
| Attribute description | | | | | | | | |
| ExportAppar | ExportApparentPowerPhase1 | | | | | | | |
| ExportAppare | ExportApparentPowerPhase1 | | | | | | | |
| Data type: Ul | NSIGNED3 | 2 | | | | | | |

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get | | |
|-----------------------------|---|---------------------------|---------------------|---------------------|----------------------|-----------------|--|--|
| Attribute description | | | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | | | |
| Scaler | | | | | | | | |
| Unit } | | | | | | | | |
| <u>Scaler</u> | | | | | | | | |
| - If DC meter, Scaler | Following the meter connexion and the CT*VT ratio : - If DC meter, Scaler = 0 - If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio | | | | | | | |
| Data type: INTEGER | R8 | | | | | | | |
| Authorized value: -1 | to 3 | | | | | | | |
| Default value: 0 | | | | | | | | |
| <u>Unit</u> | | | | | | | | |
| Data type: ENUMER | RATED | | | | | | | |
| Authorized value: 28 | 3: VA | | | | | | | |
| Default value: VA (28 | 3) | | | | | | | |

12.1.49 ExportApparentPowerPhase2

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|--------------------|-----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;50;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | es: | | | | | | |
| Management | El | ectricity | End customer | | | | |
| True | | True | True | | | | |
| Attributes / N | lethods | | | | | | |
| Attribute (A) / Me | ethod (M) | | Data type | | Content | | |
| A1. logical_name | | | OCTETS | ring | ExportApparentPowe | erPhase2OBISCode | |
| A2. value | | | UNSIGNE | D32 | See below | | |
| A3. scaler_unit | | | SEQUEN | CE | See below | | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | | Get | | |
| | | | | | | | | |
| Attribute description | | | | | | | | |
| ExportApparentPow | erPhase2 | | | | | | | |
| E (A (B | | | | | | | | |
| ExportApparentPowe | <u>erPhase2</u> | | | | | | | |
| Data to a LINIOLONE | -D00 | | | | | | | |
| Data type: UNSIGNE | ED32 | | | | | | | |
| Authorized value: 0 to 999999999 | | | | | | | | |
| Addition20d value: 0 t | .0 00000000 | | | | | | | |
| Default value: 0 | | | | | | | | |

■ Attribute 3: scaler_unit

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get | | |
|----------------------------|---|---------------------------|---------------------|---------------------|--------------------|-----------------|--|--|
| Attribute description | 301 | 000 | 001 | 001 | | 001 | | |
| • | elements | | | | | | | |
| { | | | | | | | | |
| Scaler
Unit | | | | | | | | |
| } | | | | | | | | |
| <u>Scaler</u> | | | | | | | | |
| - If DC meter, Scaler | Following the meter connexion and the CT*VT ratio : - If DC meter, Scaler = 0 - If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio | | | | | | | |
| Data type: INTEGER | 18 | | | | | | | |
| Authorized value: -1 | to 3 | | | | | | | |
| Default value: 0 | | | | | | | | |
| <u>Unit</u> | | | | | | | | |
| Data type: ENUMER | ATED | | | | | | | |
| Authorized value: 28 | : VA | | | | | | | |
| Default value: VA (28 | 3) | | | | | | | |

12.1.50 ExportApparentPowerPhase3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;70;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | ExportApparentPowerPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

ExportApparentPowerPhase3

$\underline{\mathsf{ExportApparentPowerPhase3}}$

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description
```

```
SEQUENCE // 2 elements {
   Scaler
   Unit
}
```

Scaler

Following the meter connexion and the CT*VT ratio:

- If DC meter, Scaler = 0
- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 28: VA Default value: VA (28)

12.1.51 ExportReactivePowerAggregate

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;4;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ExportReactivePowerAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ExportReactivePowerAggregate

<u>ExportReactivePowerAggregate</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

```
SEQUENCE // 2 elements
{
    Scaler
    Unit
}

Scaler
Following the meter connexion and the CT*VT ratio:
- If DC meter, Scaler = 0
- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

Unit

Data type: ENUMERATED

Authorized value: 29: VAR

Default value: VAR (29)
```

12.1.52 ExportReactivePowerPhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;24;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | es : | | | | | | |

Logical devices.

| Management | Electricity | End customer |
|-------------------|-------------|--------------|
| True | True | True |
| Attributes / Metl | | |

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-----------------------------------|--|
| A1. logical_name | OCTETSTRING | ExportReactivePowerPhase1OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electi | icity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|-----------------------|-------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| | Get | Get | Get | Get | Get | - | Get | | |
| A ttrib | A Marillo . A so all a social time. | | | | | | | | |
| Attribute description | | | | | | | | | |
| Expor | Export React ive Power Phase 1 | | | | | | | | |

_ ._ _ ..

ExportReactivePowerPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

| 3 (. | , | | | | | | | |
|---------------------|------|--------------------|-----|--------------------|--------------|--------------|--------------------|----------|
| Electricity laborat | ory | Electricity utilit | y I | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get | | Get | | Get | Get | Get | - | Get |
| | | | | | | | | |
| Attribute descrip | tion | | | | | | | |
| SEQUENCE | // 2 | elements | | | | | | |
| { | | | | | | | | |

```
Scaler
  Unit
Scaler
Following the meter connexion and the CT*VT ratio:
- If DC meter, Scaler = 0
- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio
Data type: INTEGER8
Authorized value: -1 to 3
Default value: 0
<u>Unit</u>
Data type: ENUMERATED
Authorized value: 29: VAR
Default value: VAR (29)
```

12.1.53 ExportReactivePowerPhase2

True

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;44;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

True

| .,.,.,.,-, | | • |
|------------------|-------------|--------------|
| | | |
| Logical devices: | | |
| Logical acvices. | | |
| Management | Flectricity | End customer |

True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-----------------------------------|---|
| A1. logical_name | OCTETSTRING | ExportReactivePowerPhase2OBISCode | П |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get | Get | Get | Get | Get | - | Get | |
| A 44 mile 4 a . al a a a mile 41 a . a | | | | | | | |
| Attribute description | | | | | | | |
| ExportReactivePor | werPhase2 | | | | | | |
| ExportReactivePowerPhase2 | | | | | | | |
| Data type: UNSIGN | ED32 | | | | | | |

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description SEQUENCE // { Scaler | 2 elements | | | | | |

```
Scaler
Following the meter connexion and the CT*VT ratio:
- If DC meter, Scaler = 0
- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

Unit

Data type: ENUMERATED

Authorized value: 29: VAR

Default value: VAR (29)
```

12.1.54 ExportReactivePowerPhase3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;64;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | ExportReactivePowerPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricit | y laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|---------------------------|--------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| | Get | Get | Get | Get | Get | - | Get | |
| A | | | | | | | | |
| Attribute | description | | | | | | | |
| ExportReactivePowerPhase3 | | | | | | | | |
| _ | | | | | | | | |

ExportReactivePowerPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| Scaler | | | | | | |
| Unit | | | | | | |

Scaler

Following the meter connexion and the CT*VT ratio:

- If DC meter, Scaler = 0
- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 29: VAR Default value: VAR (29)

12.1.55 ImportActivePowerAggregate

This object defines the aggregate of import active power.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;1;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | ImportActivePowerAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| ImportActivePower | Aggregate | | | | | |
| ImportActivePowerA | agregate | | | | | |

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

| Electricity I | aboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|-----------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Ge | t | Get | Get | Get | Get | - | Get |
| ۸ ۱۱ ما داده ا | | | | | | | |
| Attribute de | scription | | | | | | |
| SEQUENCE | // 2 | elements | | | | | |
| { | | | | | | | |
| Scaler | | | | | | | |
| Unit | | | | | | | |
| } | | | | | | | |
| | | | | | | | |
| <u>Scaler</u> | | | | | | | |

- If DC meter, Scaler = 0

- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

12.1.56 ImportActivePowerPhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;21;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | ImportActivePowerPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------------|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | Attribute description | | | | | | |
| ImportActivePowerPhase1 | | | | | | | |
| | <u>ImportActivePowerP</u> | <u>'hase1</u> | | | | | |

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laborator | ry | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | | Get | Get | Get | Get | - | Get |
| Attribute descripti | on | | | | | | |
| SEQUENCE , | // 2 | elements | | | | | |

Scaler

Scaler Unit

- If DC meter, Scaler = 0

- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

12.1.57 ImportActivePowerPhase2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;41;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attr | ribute (A) / Method (M) | Data type | Content |
|------|-------------------------|-------------|---------------------------------|
| A1. | . logical_name | OCTETSTRING | ImportActivePowerPhase2OBISCode |
| A2. | . value | UNSIGNED32 | See below |
| A3. | scaler unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| A (' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' | | | | | | | | |
| Attribute description | | | | | | | | |
| ImportActivePowe | rPhase2 | | | | | | | |
| Lucius and Aladii va Davvano | Dh 0 | | | | | | | |
| <u>ImportActivePowerF</u> | <u>Pnasez</u> | | | | | | | |
| Data type: UNSIGN | ED32 | | | | | | | |

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | y Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|------------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get | Get | Get | Get | Get | - | Get | |
| | | | | | | | |
| Attribute description | | | | | | | |
| SEQUENCE / | / 2 elements | | | | | | |

ſ

Scaler Unit

<u>Scaler</u>

- If DC meter, Scaler = 0

- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

12.1.58 ImportActivePowerPhase3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;61;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | ImportActivePowerPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|-------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | | | | | | | | |
| ImportActivePowerPhase3 | | | | | | | | |
| ImportActivePowerPhase3 | | | | | | | | |

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get | Get | Get | Get | Get | - | Get | |
| Attribute description | | | | | | | |
| SEOUENCE // | 2 elements | | | | | | |

Scaler

Scaler Unit

- If DC meter, Scaler = 0

- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

12.1.59 ImportApparentPowerAggregate

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;9;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ImportApparentPowerAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------------|--------------------------------------|---------------------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | Λ 44 miles star al a a a misati a sa | | | | | | |
| 4 | Attribute description | | | | | | |
| ImportApparentPowerAggregate | | | | | | | |
| | lana and Anna anand David | - u A - u - u - u - u - u - u - | | | | | |
| | <u>ImportApparentPow</u> | <u>erAggregate</u> | | | | | |
| | Data tuna: LINCIONED22 | | | | | | |
| | Data type: UNSIGNED32 | | | | | | |
| | Authorized value: 0 | to 99999999 | | | | | |
| | Authorized value. 0 | เบ ฮฮฮฮฮฮฮฮฮ | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity labora | atory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------|-------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| Attribute descri | ption | | | | | | |
| SEQUENCE | // 2 | elements | | | | | |
| { | | | | | | | |
| Scaler | | | | | | | |

<u>Scaler</u>

}

Unit

- If DC meter, Scaler = 0

- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 28: VA Default value: VA (28)

12.1.60 ImportApparentPowerPhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;29;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | ImportApparentPowerPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attributa description | | | | | | |
| Attribute description | | | | | | |
| ImportApparentPowerPhase1 | | | | | | |
| ImportApparentPow | erPhase1 | | | | | |
| Data type: UNSIGN | ED32 | | | | | |

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laborator | y Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | nn - | | | | | |
| • | | | | | | |
| SEQUENCE / | // 2 elements | | | | | |

```
Scaler
Unit
```

Scaler

- If DC meter, Scaler = 0

- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 28: VA Default value: VA (28)

12.1.61 ImportApparentPowerPhase2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;49;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | ImportApparentPowerPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| Α | attribute description | | | | | | |
| | ImportApparentPowerPhase2 | | | | | | |
| | ImportApparentPowe | erPhase2 | | | | | |
| | Data type: UNSIGNI | ED32 | | | | | |

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attaile of a slave and attain | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| { | | | | | | |
| Scaler | | | | | | |
| Unit | | | | | | |

<u>Scaler</u>

}

- If DC meter, Scaler = 0

- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 28: VA Default value: VA (28)

12.1.62 ImportApparentPowerPhase3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;69;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | ImportApparentPowerPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Attribute description | | | | | | |
| ImportApparentPor | werPhase3 | | | | | |
| ImportApparentPow | <u>rerPhase3</u> | | | | | |
| Data type: UNSIGN | ED32 | | | | | |

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute descriptio | n | | | | | |
| SEQUENCE / | / 2 elements | | | | | |

Scaler

Scaler Unit

- If DC meter, Scaler = 0

- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 28: VA Default value: VA (28)

12.1.63 ImportReactivePowerAggregate

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;3;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ImportReactivePowerAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| , | Attribute description | | | | | | |
| | ImportReactivePor | werAggregate | | | | | |
| | Import Pagativa Paye | or A garogata | | | | | |
| | <u>ImportReactivePowe</u> | <u>erAggregate</u> | | | | | |
| | Data type: UNSIGN | FD32 | | | | | |
| | Bata type. Citoren | LDOL | | | | | |
| | Authorized value: 0 | to 99999999 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

Scaler

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| ۸ 44سنام با ما ما مانام ۱ | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| { | | | | | | |
| Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |

- If DC meter, Scaler = 0

- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 29: VAR Default value: VAR (29)

12.1.64 ImportReactivePowerPhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;23;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | ImportReactivePowerPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| | Get | Get | Get | Get | Get | - | Get | | |
| Α | ttribute description | | | | | | | | |
| | ImportReactivePowerPhase1 | | | | | | | | |
| 1 | ImportReactivePowerPhase1 | | | | | | | | |
| ı | Data type: UNSIGNE | ED32 | | | | | | | |

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laborator | y Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | on | | | | | |
| SEQUENCE / | // 2 elements | | | | | |
| { | | | | | | |
| Scaler | | | | | | |

Scaler

}

Unit

- If DC meter, Scaler = 0

- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 29: VAR Default value: VAR (29)

12.1.65 ImportReactivePowerPhase2

Interface

| Logical | name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------|--------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;43;7 | ;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | ImportReactivePowerPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|---|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | |
| | Attributa description | | | | | | | | | |
| 4 | Attribute description | | | | | | | | | |
| | ImportReactivePowerPhase2 | | | | | | | | | |
| | ImportReactivePowerPhase2 | | | | | | | | | |
| | Data type: UNSIGNI | ED32 | | | | | | | | |

Default value: 0

Authorized value: 0 to 999999999

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | n | | | | | |
| SEQUENCE // | / 2 elements | | | | | |

Scaler

Scaler Unit

- If DC meter, Scaler = 0

- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8
Authorized value: -1 to 3

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 29: VAR Default value: VAR (29)

12.1.66 ImportReactivePowerPhase3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;63;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | ImportReactivePowerPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| ImportReactivePowerPhase3 | | | | | | | | | |
| ImportReactivePowerPhase3 | | | | | | | | | |
| Data type: UNSIGN | ED32 | | | | | | | | |

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| ь | lectricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------|-----------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| Attı | ribute description | | | | | | |
| SI
{ | EQUENCE // : | 2 elements | | | | | |
| | Scaler
Unit | | | | | | |

<u>Scaler</u>

}

- If DC meter, Scaler = 0
- If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio

Data type: INTEGER8 Authorized value: -1 to 3

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 29: VAR Default value: VAR (29)

12.1.67 InputPulseParameters

This parameter allows the setting of the pulse input configuration.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;148;5;1;255 | 1 | 0 | 1 | 0 | True | False | False |

Logical devices:

End customer Management Electricity False False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------|--|
| A1. logical_name | OCTETSTRING | InputPulseParametersOBISCode | |
| A2. value | ARRAY | See below | |

■ Attribute 2: value

4 elements, one for each pulse input.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

```
SEQUENCE OF
            // 4 elements
 SEQUENCE
              // 3 elements
   ActivePulseLevel
   InputQuantityId
   InputDirection
```

ActivePulseLevel

Positive or negative logic.

Data type: UNSIGNED8

Authorized values:

0: Negative

1: Positive

Default value: Positive (1)

InputQuantityId

identifier of the quantity dedicated to this input. See XMI (limited to internal quantities : values from 0 to 39)

Default: no quantity allocated (255)

Data type: UNSIGNED8 Authorized values: 0: Import Active Energy Phase 1 1: Import Active Energy Phase 2 2: Import Active Energy Phase 3 3: Import Active Energy Aggregate 4: Export Active Energy Phase 1 5: Export Active Energy Phase 2 6: Export Active Energy Phase 3 7: Export Active Energy Aggregate 8: Import Reactive Energy Phase 1 9: Import Reactive Energy Phase 2 10: Import Reactive Energy Phase 3 11: Import Reactive Energy Aggregate 12: Export Reactive Energy Phase 1 13: Export Reactive Energy Phase 2 14: Export Reactive Energy Phase 3 15: Export Reactive Energy Aggregate 16: Q1 Energy Phase 1 17: Q1 Energy Phase 2 18: Q1 Energy Phase 3 19: Q1 Energy Aggregate 20: Q2 Energy Phase 1 21: Q2 Energy Phase 2 22: Q2 Energy Phase 3 23: Q2 Energy Aggregate 24: Q3 Energy Phase 1 25: Q3 Energy Phase 2 26: Q3 Energy Phase 3 27: Q3 Energy Aggregate 28: Q4 Energy Phase 1 29: Q4 Energy Phase 2 30: Q4 Energy Phase 3 31: Q4 Energy Aggregate 32: Import Apparent Energy Phase 1 33: Import Apparent Energy Phase 2 34: Import Apparent Energy Phase 3 35: Import Apparent Energy Aggregate 36: Export Apparent Energy Phase 1 37: Export Apparent Energy Phase 2 38: Export Apparent Energy Phase 3 39: Export Apparent Energy Aggregate 255: No energy - No allocation Default value: No energy - No allocation (255) InputDirection InputDirection: quantity direction. Data type: UNSIGNED8 Authorized values: 0: Import 1: export 2: control Input direction

12.1.68 InputPulseWeightParameters

Default value: Import (0)

This variable defines the weight of each input pulse (in 0.1Wh, Vah or varh per pulse, primary values).

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;148;5;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | InputPulseWeightParametersOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

4 elements, one for each pulse input.

This variable defines the weight of each input pulse (in 0.1Wh, Vah or varh per pulse, primary values).

Access rights (clients)

| Electricity laboratory Get/Set | Electricity utility
Get/Set | Electricity reader
Get | End customer
Get | Manufacturer
Get/Set | Resources upgrader | Engineer
Get |
|--------------------------------|--------------------------------|---------------------------|---------------------|-------------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE OF { | // 4 elements | | | | | |
| SEQUENCE / | // 2 elements | | | | | |
| WeigthNumera | | | | | | |
| WeigthDenomi | inator | | | | | |
| } | | | | | | |
| WeigthNumerator | | | | | | |
| Data type: UNSIGN | NED16 | | | | | |
| Authorized value: 1 | to 65535 | | | | | |
| Default value: 1 | | | | | | |
| WeigthDenominato | <u>or</u> | | | | | |
| Data type: UNSIGN | NED16 | | | | | |
| Authorized value: 1 | to 65535 | | | | | |
| Default value: 1 | | | | | | |

12.1.69 InstantaneousPowerFactorAggregate

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;13;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical devic | es · | | | | | | |

| Management | Electricity | End customer |
|-------------------------|-------------|--------------|
| True | True | True |
| A 44! L 4 L L / B / L L | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | InstantaneousPowerFactorAggregateOBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| | | |

■ Attribute 2: value

Access rights (clients)

| | | , | | | | | |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| | Get | Get | Get | Get | Get | - | Get |
| | Attribute description | | | | | | |
| 4 | Attribute description | | | | | | |
| | PowerFactor | | | | | | |
| | PowerFactor | | | | | | |
| | <u>FUWEIFACIOI</u> | | | | | | |
| | Data type: INTEGER | R16 | | | | | |
| | | | | | | | |
| | Authorized value: -1 | 0000 to 10000 | | | | | |
| | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 10000

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - ` ` | Get |
| Attribute description | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| {
 | | | | | | |
| Scaler
Unit | | | | | | |
|) | | | | | | |
| J | | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGEI | D Q | | | | | |
| Data type. INTEGE | 10 | | | | | |
| Authorized value: -4 | | | | | | |
| Default value: -4 | | | | | | |
| | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| | | | | | | |
| Authorized value: 25 | ob: No unit | | | | | |
| Default value: No ur | nit (255) | | | | | |

12.1.70 InstantaneousPowerFactorPhase1

True

This carries power factor on phase 1 with reference to neutral for a 4 wires meter and main phase with reference to neutral for a 2 wires meter.

True

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliar | |
|-------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|--------------|--|
| 1;1;33;7;0;255 | 3 | 0 | 1 | 0 | False | False | False | |
| Logical devices : | | | | | | | | |
| Management | El | ectricity | End customer | | | | | |

True Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--|--|
| A1. logical_name | OCTETSTRING | InstantaneousPowerFactorPhase1OBISCode | |
| A2. value | INTEGER16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| PowerFactor | | | | | | |
| <u>PowerFactor</u> | | | | | | |
| Data type: INTEGER | ₹16 | | | | | |
| Authorized value: -1 | 0000 to 10000 | | | | | |
| Default value: 10000 |) | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|--------------------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE //: { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -4 | | | | | | |
| Default value: -4 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No ur | nit (255) | | | | | |

12.1.71 InstantaneousPowerFactorPhase2

This carries power factor on phase 2 with reference to neutral for a 4 wires meter. It is not used for a 2 wires meter.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;53;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | ec . | | | | | | |

Logical devices :

| • | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | InstantaneousPowerFactorPhase2OBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

PowerFactor

PowerFactor

Data type: INTEGER16

Authorized value: -10000 to 10000

Default value: 10000

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | | Resources upgrader | |
|------------------------|---------------------|--------------------|--------------|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| { Scaler | 2 elements | | | | | |
| Unit } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | 88 | | | | | |
| Authorized value: -4 | | | | | | |
| Default value: -4 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No un | it (255) | | | | | |

12.1.72 InstantaneousPowerFactorPhase3

This carries power factor on phase 3 with reference to neutral for a 4 wires meter. It is not used for a 2 wires meter.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;73;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | es: | | | | | | |
| Management | : EI | lectricity | End customer | | | | |
| True | | True | True | | | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | InstantaneousPowerFactorPhase3OBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|----------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| PowerFactor | | | | | | |

PowerFactor

Data type: INTEGER16

Authorized value: -10000 to 10000

Default value: 10000

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -4 | | | | | | |
| Default value: -4 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No ur | nit (255) | | | | | |

12.1.73 LedOutputParameters

This parameter allows the setting of the led output configuration programming. Two leds are available. Their configuration is set here.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-------------------------------|----------|---------------|-----------------|-----------------|----------------------------|-------------------------|----------------|
| 0;0;148;3;1;255 | 1 | 0 | 1 | 0 | False | False | True |
| Logical device | s: | | | | | | |
| Management | Ele | ectricity | End customer | | | | |
| True | ı | alse | False | | | | |
| Attributes / M | ethods | | | | | | |
| Attribute (A) / Me | thod (M) | | Data ty | уре | Content | | |
| A1. logical_name
A2. value |) | | OCTE
SEQU | TSTRING
ENCE | LedOutputPara
See below | metersOBISCode | |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| Attribute description | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| { | | | | | | |
| Led1QuantityId | | | | | | |
| Led2QuantityId | | | | | | |
| } | | | | | | |

Led1QuantityId

Quantity dedicated to the led (active or reactive aggregate energy).

Data type: UNSIGNED8

Authorized values:
0: Active energy
1: Reactive energy

Default value: Reactive energy (1)

Led2QuantityId

Quantity dedicated to the led (active or reactive aggregate energy).

Data type: UNSIGNED8

Authorized values: 0: Active energy

1: Reactive energy

Default value: Active energy (0)

12.1.74 OffsetCurrentPhase1

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;96;50;1;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | OffsetCurrentPhase1OBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | - | - | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| OffsetCurrentPhas | se1 | | | | | |
| OffsetCurrentPhase | <u>1</u> | | | | | |
| Data type: INTEGER | R16 | | | | | |

Authorized value: -32768 to 32767

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | - | - | Get | Get | - | Get |
| Attribute description | | | | | | |
| { | 2 elements | | | | | |
| Scaler | | | | | | |

```
Scaler
No scaler
Data type: INTEGER8
Authorized value: 0
Default value: 0
Unit
Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)
```

12.1.75 OffsetCurrentPhase2

Interface

| number parameter | programming | compliance |
|-------------------------------|-------------|------------|
| 1;1;96;50;2;255 3 0 1 0 False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | OffsetCurrentPhase2OBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | - | - | Get | Get | - | Get |
| Attribute description | | | | | | |
| OffsetCurrentPhas | se2 | | | | | |
| OffsetCurrentPhase | <u>2</u> | | | | | |
| Data type: INTEGER | ₹16 | | | | | |
| Authorized value: -3 | 2768 to 32767 | | | | | |
| Default value: 0 | | | | | | |

■ Attribute 3: scaler_unit

No scaler

Data type: INTEGER8
Authorized value: 0
Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

12.1.76 OffsetCurrentPhase3

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|----------------|
| 1;1;96;50;3;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | OffsetCurrentPhase3OBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | - | - | Get | Get | - | Get |
| Attribute description | | | | | | |
| • | | | | | | |
| OffsetCurrentPhase | e3 | | | | | |
| | | | | | | |

OffsetCurrentPhase3

Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get | - | - | Get | Get | - | Get | |
| | | | | | | | |

Attribute description

```
SEQUENCE // 2 elements {
    Scaler
    Unit
```

<u>Scaler</u>

No scaler

Data type: INTEGER8
Authorized value: 0

Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 255: No unit
Default value: No unit (255)

12.1.77 OffsetVoltagePhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;96;50;4;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | OffsetVoltagePhase1OBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get - | | - | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| Attribute description | | | | | | | | | |
| OffsetVoltagePhas | se1 | | | | | | | | |
| OffsetVoltagePhase | OffsetVoltagePhase1 | | | | | | | | |

Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | - | - | Get | Get | - | Get |
| Attribute description | | | | | | |
| { Scaler | 2 elements | | | | | |
| Unit
} | | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGE | R8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |

Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255)

12.1.78 OffsetVoltagePhase2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;96;50;5;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | OffsetVoltagePhase2OBISCode |
| A2. value | INTEGER16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get - | | - | Get | Get | - | Get | |
| Attribute description | | | | | | | |
| OffsetVoltagePhase2 | | | | | | | |
| OffsetVoltagePhase2 | 2 | | | | | | |

Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | - | - | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

```
SEQUENCE // 2 elements
 Scaler
 Unit
```

Scaler

No scaler

Data type: INTEGER8 Authorized value: 0 Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 255: No unit Default value: No unit (255)

12.1.79 OffsetVoltagePhase3

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;96;50;6;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-----------------------------|--|
| A1. logical_name | OCTETSTRING | OffsetVoltagePhase3OBISCode | |
| A2. value | INTEGER16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|-----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get | - | - | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| Attribute description | | | | | | | | | |
| OffsetVoltagePhas | se3 | | | | | | | | |
| Offeet\/eltegeDhaee | 2 | | | | | | | | |
| OffsetVoltagePhase3 | <u> </u> | | | | | | | | |
| Data type: INTEGER | 216 | | | | | | | | |
| Data type. INTEGERIO | | | | | | | | | |
| Authorized value: -32768 to 32767 | | | | | | | | | |
| | | | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | | | | | | |
|------------------------|---------------------|--------------------|-----|-----|--------------------|-----|--|--|--|--|--|
| Get | - | - | Get | Get | - | Get | | | | | |
| Attribute description | | | | | | | | | | | |
| SEQUENCE // 2 | elements | | | | | | | | | | |
| { | | | | | | | | | | | |
| Scaler
Unit | | | | | | | | | | | |
| } | | | | | | | | | | | |
| ,
Caalan | | | | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | | | |
| No scaler | | | | | | | | | | | |
| Data type: INTEGER | R8 | | | | | | | | | | |
| Authorized value: 0 | | | | | | | | | | | |
| Default value: 0 | | | | | | | | | | | |
| <u>Unit</u> | | | | | | | | | | | |
| Data type: ENUMER | ATED | | | | | | | | | | |
| Authorized value: 25 | 5: No unit | | | | | | | | | | |
| Default value: No un | it (255) | | | | | | | | | | |

12.1.80 OutputPulseParameters

This parameter allows the configuration of the pulse output function. 6 elements, one for each pulse output

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;148;4;1;255 | 1 | 0 | 1 | 0 | True | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Metho | d (M) | Data type | Content |
|-----------------------|-------|-------------|-------------------------------|
| A1. logical_name | | OCTETSTRING | OutputPulseParametersOBISCode |
| A2. value | | ARRAY | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

```
Attribute description
```

<u>PulseOutputDurationTon</u>

Active state duration expressed in (x10ms).

Data type: UNSIGNED8

Authorized value: 3 to 255

Default value: 3

<u>PulseOutputDurationToff</u>

Minimum inactive state duration expressed in (x10ms).

Data type: UNSIGNED8
Authorized value: 3 to 255

PO_to_CO_POS_3 = 0x31, //

Default value: 3

<u>ActiveOutputLevel</u>

It defines the positive or negative logic of the pulse and if the pulse must be emitted on a control output. Can take following discrete values :

```
Can take following discrete values:

PO_NEGATIVE = 0,

PO_POSITIVE = 1,

PO_to_CO_NEG_1 = 0x10, // negative logic and emission on CO1

PO_to_CO_NEG_2 = 0x20, // negative logic and emission on CO2

PO_to_CO_NEG_3 = 0x30, //......

PO_to_CO_NEG_4 = 0x40,

PO_to_CO_NEG_5 = 0x50,

PO_to_CO_NEG_5 = 0x50,

PO_to_CO_NEG_6 = 0x60,

PO_to_CO_NEG_7 = 0x70,

PO_to_CO_NEG_8 = 0x80,

PO_to_CO_POS_1 = 0x11, // positive logic and emission on CO1

PO_to_CO_POS_2 = 0x21, // positive logic and emission on CO2
```

```
PO to CO POS 4 = 0x41,
PO to CO POS 5 = 0x51,
PO to CO POS 6 = 0x61.
PO to CO POS 7 = 0x71,
PO to CO POS 8 = 0x81
Data type: UNSIGNED8
Authorized values:
1: PO_POSITIVE
16: PO to CO NEG 1
17: PO to CO POS 1
32: PO_to_CO_NEG_2
33: PO_to_CO_POS_2
48: PO to CO NEG 3
49: PO_to_CO_POS_3
64: PO_to_CO_NEG_4
65: PO_to_CO_POS_4
80: PO_to_CO_NEG_5
81: PO_to_CO_POS_5
96: PO_to_CO_NEG_6
97: PO to CO POS 6
112: PO to CO NEG 7
113: PO_to_CO_POS_7
128: PO_to_CO_NEG_8
129: PO_to_CO_POS_8
Default value: PO POSITIVE (1)
<u>OutputQuantityId</u>
Quantity dedicated to the concerned output.
It can be any of the different meter processed internal or external energy quantity.
Data type: UNSIGNED8
Authorized values:
0: Import Active Energy Phase 1
1: Import Active Energy Phase 2
2: Import Active Energy Phase 3
3: Import Active Energy Aggregate
4: Export Active Energy Phase 1
5: Export Active Energy Phase 2
6: Export Active Energy Phase 3
7: Export Active Energy Aggregate
8: Import Reactive Energy Phase 1
9: Import Reactive Energy Phase 2
10: Import Reactive Energy Phase 3
11: Import Reactive Energy Aggregate
12: Export Reactive Energy Phase 1
13: Export Reactive Energy Phase 2
14: Export Reactive Energy Phase 3
15: Export Reactive Energy Aggregate
16: Q1 Energy Phase 1
17: Q1 Energy Phase 2
18: Q1 Energy Phase 3
19: Q1 Energy Aggregate
20: Q2 Energy Phase 1
21: Q2 Energy Phase 2
22: Q2 Energy Phase 3
```

23: Q2 Energy Aggregate

```
24: Q3 Energy Phase 1
25: Q3 Energy Phase 2
26: Q3 Energy Phase 3
27: Q3 Energy Aggregate
28: Q4 Energy Phase 1
29: Q4 Energy Phase 2
30: Q4 Energy Phase 3
31: Q4 Energy Aggregate
32: Import Apparent Energy Phase 1
33: Import Apparent Energy Phase 2
34: Import Apparent Energy Phase 3
35: Import Apparent Energy Aggregate
36: Export Apparent Energy Phase 1
37: Export Apparent Energy Phase 2
38: Export Apparent Energy Phase 3
39: Export Apparent Energy Aggregate
40: Import External Energy 1
41: Import External Energy 2
42: Import External Energy 3
43: Import External Energy 4
44: Export External Energy 1
45: Export External Energy 2
46: Export External Energy 3
47: Export External Energy 4
48: Summation Energy 1
49: Summation Energy 2
50: Summation Energy 3
51: Summation Energy 4
255: No energy - No allocation
Default value: No energy - No allocation (255)
```

12.1.81 OutputPulseWeightParameters

This variable defines the weight of each output pulse (in 0.1Wh, VAh or varh per pulse, primary values). n elements, one for each pulse output

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID compliance | |
|-------------------------------|----------------------|-------------------|--------------------|-----------------------------------|-------------------------|-------------------------|----------------|--|
| 0;0;148;4;2;255 | 1 | 0 | 1 | 0 | False | False | False | |
| Logical device | s: | | | | | | | |
| Management | Ele | ectricity | End customer | | | | | |
| True | F | alse | False | | | | | |
| Attributes / M | Attributes / Methods | | | | | | | |
| Attribute (A) / Me | thod (M) | | Data type | | Content | | | |
| A1. logical_name
A2. value | | OCTETSTR
ARRAY | RING | OutputPulseWeightPar
See below | rametersOBISCode | | | |

■ Attribute 2: value

| Get/Set Get Get Get/Set - Attribute description SEQUENCE OF // 6 elements | Electricity laboratory E | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|--------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| · | Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| SEQUENCE OF // 6 elements | Attribute description | | | | | | |
| f | SEQUENCE OF // | // 6 elements | | | | | |
| SEQUENCE // 2 elements | SEQUENCE // 2 | / 2 elements | | | | | |

```
WeightNumerator
    WeightDenominator
WeightNumerator
Data type: UNSIGNED16
Authorized value: 1 to 65535
Default value: 1
WeightDenominator
Data type: UNSIGNED16
Authorized value: 1 to 65535
Default value: 1
```

12.1.82 PrimaryMetrologyCustomerCalibrationParameters

Acceptance rules :

Customer calibration parameters programming is authorised only for CT meters.

False

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;148;0;3;255 | 1 | 0 | 4 | 0 | True | True | True |

True

| Logical devices : | | |
|-------------------|-------------|--------------|
| Management | Electricity | End customer |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | PrimaryMetrologyCustomerCalibrationParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | | End customer | | Resources upgrader | |
|------------------------------|---------------------|-----|--------------|---------|--------------------|-----|
| Get/Set | Get | Get | - | Get/Set | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // | 9 elements | | | | | |
| { | | | | | | |
| PhaseGainPh1 | | | | | | |
| PhaseGainPh2
PhaseGainPh3 | | | | | | |
| VoltageGainPhi | 1 | | | | | |
| VoltageGainPh2 | | | | | | |
| VoltageGainPh3 | | | | | | |
| CurrentGainPhi | L | | | | | |
| CurrentGainPh2 | 2 | | | | | |
| CurrentGainPh | 3 | | | | | |
| } | | | | | | |
| PhaseGainPh1 | | | | | | |
| Data type: UNSIGN | NED16 | | | | | |
| Authorized value: 0 |) to 65535 | | | | | |
| Default value: 6091 | 12 | | | | | |
| PhaseGainPh2 | | | | | | |

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 60912

PhaseGainPh3

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 60912

VoltageGainPh1

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 54809

VoltageGainPh2

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 54809

VoltageGainPh3

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 54809

CurrentGainPh1

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 51266

CurrentGainPh2

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 51266

CurrentGainPh3

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 51266

12.1.83 PrimaryMetrologyReferenceCalibrationParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;148;0;1;255 | 1 | 0 | 4 | 0 | True | False | True |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | PrimaryMetrologyReferenceCalibrationParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

| Get Attribute description | Electricity utility | Electricity reader
- | End customer | | Resources upgrader | Engineer |
|--|---------------------|-------------------------|--------------|---------|--------------------|----------|
| SEQUENCE // 9 e | | | | Get/Set | - | Get |
| SEQUENCE // 9 e | | | | | | |
| PhaseGainPh1 PhaseGainPh2 PhaseGainPh3 VoltageGainPh1 VoltageGainPh2 VoltageGainPh3 CurrentGainPh1 CurrentGainPh2 CurrentGainPh3 | lements | | | | | |
| } | | | | | | |
| PhaseGainPh1 | | | | | | |
| Data type: UNSIGNED | 16 | | | | | |
| Authorized value: 0 to 6 | 35535 | | | | | |
| Default value: 60912 | | | | | | |
| PhaseGainPh2 | | | | | | |
| Data type: UNSIGNED | 16 | | | | | |
| Authorized value: 0 to 6 | 35535 | | | | | |
| Default value: 60912 | | | | | | |
| PhaseGainPh3 | | | | | | |
| Data type: UNSIGNED | 16 | | | | | |
| Authorized value: 0 to 6 | 35535 | | | | | |
| Default value: 60912 | | | | | | |
| VoltageGainPh1 | | | | | | |
| Data type: UNSIGNED | 16 | | | | | |
| Authorized value: 0 to 6 | 35535 | | | | | |
| Default value: 54809 | | | | | | |
| VoltageGainPh2 | | | | | | |
| Data type: UNSIGNED | 16 | | | | | |
| Authorized value: 0 to 6 | 35535 | | | | | |
| Default value: 54809 | | | | | | |
| VoltageGainPh3 | | | | | | |
| Data type: UNSIGNED | 16 | | | | | |
| Authorized value: 0 to 6 | | | | | | |

Default value: 54809 CurrentGainPh1

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 51266 CurrentGainPh2

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 51266 CurrentGainPh3

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 51266

12.1.84 PrimaryMetrologyThresholdParameters

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;148;0;2;255 | 1 | 0 | 15 | 0 | True | False | True |
| Logical device | s· | | | | | | |

Management Electricity End customer False True False

Attributes / Methods

| Attı | ribute (A) / Method (M) | Data type | Content |
|------|-------------------------|-------------|---|
| A1. | logical_name | OCTETSTRING | PrimaryMetrologyThresholdParametersOBISCode |
| A2. | . value | SEQUENCE | See below |

■ Attribute 2: value

Threshold calculated for SK7K which implement autoranging full connection topology(3 and 4 wires) Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer | Manufacturer
Get/Set | Resources upgrader - | Engineer
Get |
|------------------------------------|-------------------------|---------------------------|--------------|-------------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 8 | 8 elements | | | | | |
| {
ActiveLedPulse | Throabold | | | | | |
| | | 1 | | | | |
| ActiveEnergySta | _ | | | | | |
| ActiveEnergyBlo | _ | L | | | | |
| ActiveEnergyQua
ReactiveLedPuls | | | | | | |
| ReactiveEnergy | | .1.4 | | | | |
| ReactiveEnergy | _ | | | | | |
| ReactiveEnergy(| • | | | | | |
| ReactiveEnergy | Quaricum IIII esiloi | .u | | | | |
| ſ | | | | | | |
| ActiveLedPulseThre | eshold | | | | | |
| | | | | | | |
| | | | | | | |
| Data type: INTEGER | R32 | | | | | |
| Authorized value: -2 | 147483648 to 214 | 17483647 | | | | |

Default value: 47664980

<u>ActiveEnergyStartingThreshold</u>

Data type: INTEGER32

Authorized value: 1 to 4000000

Default value: 21185

<u>ActiveEnergyBlockingThreshold</u>

Data type: INTEGER32

Authorized value: 1 to 4000000

Default value: 21185

<u>ActiveEnergyQuantumThreshold</u>

The default values are intended for DC meter.

To set these parameters for a CT meter, ActiveEnergyQuantumThreshold must be set to 4766498.

Data type: INTEGER32

Authorized value: -2147483648 to 2147483647

Default value: 476650

ReactiveLedPulseThreshold

Data type: INTEGER32

Authorized value: -2147483648 to 2147483647

Default value: 11916245

ReactiveEnergyStartingThreshold

Data type: INTEGER32

Authorized value: 1 to 4000000

Default value: 5297

ReactiveEnergyBlockingThreshold

Data type: INTEGER32

Authorized value: 1 to 4000000

Default value: 5297

ReactiveEnergyQuantumThreshold

The default values are intended for DC meter.

To set these parameters for a CT meter, ReactiveEnergyQuantumThreshold must be set to 1191625.

Data type: INTEGER32

Authorized value: -2147483648 to 2147483647

Default value: 119162

12.1.85 QualimetryDefaultParameters

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;148;1;1;255 | 1 | 0 | 3 | 0 | True | False | False |

End customer Management Electricity False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | QualimetryDefaultParametersOBISCode |
| A2. value | ENUMERATED | See below |

■ Attribute 2: value

Access rights (clients)

Default value: 4_Wires (4)

| J (| , | | | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| Attributa description | | | | | | |
| Attribute description | | | | | | |
| ConnectionTopolog | ЭХ | | | | | |
| ConnectionTopology | L | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized values: | | | | | | |
| 3: 3 Wires | | | | | | |
| 4: 4 Wires | | | | | | |

12.1.86 QualimetryFrequencyParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;148;1;4;255 | 1 | 0 | 1 | 0 | True | True | True |
| Logical device | s: | | | | | | |

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | QualimetryFrequencyParametersOBISCode |
| A2. value | ENUMERATED | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get/Set | - | Get |
| A () 1 | | | | | | |
| Attribute description | | | | | | |
| NominalFrequency | | | | | | |
| NominalFrequency | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized values: | | | | | | |

50: 50 Hz 60: 60 Hz

Default value: 50 Hz (50)

12.1.87 QualimetryNominalCurrentAndVoltageParameters

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;148;1;3;255 | 1 | 0 | 1 | 0 | True | True | False |

Management Electricity End customer True False False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--|--|
| A1. logical_name | OCTETSTRING | QualimetryNominalCurrentAndVoltageParametersOBISCode | |
| A2. value | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

SEQUENCE

```
// 2 elements
NominalVoltage
NominalCurrent
```

NominalVoltage

NominalVoltage: Value of the nominal voltage.

Exprimé en 1/10 Volts. Data type: UNSIGNED16

Authorized value: 577 to 4150

Default value: 2400 NominalCurrent

NominalCurrent: Value of the nominal current expressed in 1/10A Max value: 1200 (120.0A) for DC, 100 (10.0A) for CT meter

Note: Because NominalCurrent max value depends on meter connection (CT or DC), no check is done by

the meter for this value Data type: UNSIGNED16 Authorized value: 10 to 1200

Default value: 100

12.1.88 QualimetryVoltageThresholdParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;148;1;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | QualimetryVoltageThresholdParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

The thresholds are defined with a resolution of 0.1V.

Acceptance rules:

VoltSwellHighThreshold > VoltSwellLowThreshold > VoltSagHighThreshold > VoltSagLowThreshold > VoltCutHighThreshold > VoltCutLowThreshold

| Electricity laboratory Get/Set | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get/Set | Resources upgrader | Engineer
Get | | | | |
|---|-------------------------|---------------------------|---------------------|-------------------------|--------------------|-----------------|--|--|--|--|
| | Get | OCI | OEI | Gel/Set | - | Get | | | | |
| Attribute description SEQUENCE // 6 elements { VoltCutHighThreshold VoltCutLowThreshold VoltSagHighThreshold VoltSagLowThreshold VoltSwellHighThreshold VoltSwellLowThreshold VoltSwellLowThreshold } VoltCutHighThreshold | | | | | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | | |
| Default value: 150 | | | | | | | | | | |
| VoltCutLowThresho | <u>ld</u> | | | | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | | |
| Default value: 120 | | | | | | | | | | |
| VoltSagHighThreshodefault value 1680 (| | 100 | | | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | | |
| Default value: 1680 | | | | | | | | | | |
| VoltSagLowThreshodefault value 1632 (| | 100 | | | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | | |
| Default value: 1632 | | | | | | | | | | |
| VoltSwellHighThres
default value 3168 (| | 2400 | | | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | | |
| Default value: 3168 | | | | | | | | | | |
| VoltSwellLowThresh
default value 3120 (| | 2400 | | | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | | |
| Default value: 3120 | | | | | | | | | | |

12.1.89 ReactiveEnergyMetrologicalLEDPulseConstant

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;0;3;1;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | ReactiveEnergyMetrologicalLEDPulseConstantOBISCode |
| A2. value | UNSIGNED8 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
|-----------------------|---------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | | |
| | | | | | | | | | | | |
| Attribute description | | | | | | | | | | | |
| | ReactiveEnergyMetrologicalLedConstant | | | | | | | | | | |
| | ReactiveEnergyMetrologicalLedConstant | | | | | | | | | | |
| | Data type: UNSIGNED8 | | | | | | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 0 to 255

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|----------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | 2 elements | | | | | |
| { Scaler | | | | | | |
| Unit
} | | | | | | |
| <u>Scaler</u> | | | | | | |
| 0 for DC
-1 for CT | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | to 0 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 32 | 2: VARh | | | | | |
| Default value: VARh | (32) | | | | | |

12.1.90 ReactivePowerAggregateQ1

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;5;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactivePowerAggregateQ1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | | |
|----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | | | |
| | | | | | | | | | | | | |
| Attribute description | | | | | | | | | | | | |
| ReactivePowerAggr | regateQ1 | | | | | | | | | | | |
| ReactivePowerAggre | egateQ1 | | | | | | | | | | | |
| Data type: UNSIGNED32 | | | | | | | | | | | | |
| Authorized value: 0 to 999999999 | | | | | | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory | Electricity utility | • | | | Resources upgrader | • |
|------------------------|---------------------|-------------------|-----------------|--------------|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Following the meter | | e CT*VT ratio : | | | | |
| - If DC meter, Scaler | | in < 10 000 Cook | 2 for other | OT*\/T | 4: 0 | |
| - If CT meter, Scaler | | 10 < 10.000, Scal | er = 3 for othe | ers Crimvira | lio | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | to 3 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 29 |): VAR | | | | | |
| Default value: VAR (| (29) | | | | | |

12.1.91 ReactivePowerAggregateQ2

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;6;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactivePowerAggregateQ2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ReactivePowerAggregateQ2

ReactivePowerAggregateQ2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get | | | | | | | |
|---|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|--|--|--|--|--|--|--|
| Attribute description | | | | | | | | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | | | | | |
| Following the meter - If DC meter, Scaler - If CT meter, Scaler | . = 0 | | er = 3 for othe | ers CT*VT ra | itio | | | | | | | | |
| Data type: INTEGER | R8 | | | | | | | | | | | | |
| Authorized value: -1 | to 3 | | | | | | | | | | | | |
| Default value: 0 | | | | | | | | | | | | | |
| <u>Unit</u> | | | | | | | | | | | | | |

12.1.92 ReactivePowerAggregateQ3

Data type: ENUMERATED Authorized value: 29: VAR Default value: VAR (29)

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;7;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactivePowerAggregateQ3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | = | Get |
| | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |

ReactivePowerAggregateQ3

ReactivePowerAggregateQ3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get | | | | | | |
|--------------------------------------|--|---------------------------|---------------------|---------------------|----------------------|-----------------|--|--|--|--|--|--|
| Attribute description | | | | | | | | | | | | |
| SEQUENCE //: { Scaler Unit } | 2 elements | | | | | | | | | | | |
| - If DC meter, Scale | Scaler Following the meter connexion and the CT*VT ratio: - If DC meter, Scaler = 0 - If CT meter, Scaler = -1 if CT*VT ratio < 10.000, Scaler = 3 for others CT*VT ratio | | | | | | | | | | | |
| Data type: INTEGER | ₹8 | | | | | | | | | | | |
| Authorized value: -1 | to 3 | | | | | | | | | | | |
| Default value: 0 | | | | | | | | | | | | |
| <u>Unit</u> | | | | | | | | | | | | |

12.1.93 ReactivePowerAggregateQ4

Data type: ENUMERATED Authorized value: 29: VAR Default value: VAR (29)

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;8;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactivePowerAggregateQ4OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ReactivePowerAggregateQ4

ReactivePowerAggregateQ4

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Data type: ENUMERATED Authorized value: 29: VAR Default value: VAR (29)

Access rights (clients)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Following the meter | | e CT*VT ratio : | | | | |
| If DC meter, Scale If CT meter, Scale | | io < 10 000 Sool | or = 2 for othe | ro CT*\/T ro | tio | |
| | | 10 < 10.000, Scar | ei – 3 ioi otile | is CT VITA | ItiO | |
| Data type: INTEGER | ₹ 8 | | | | | |
| Authorized value: -1 | to 3 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |

12.1.94 RelativeTHDCurrentValueAggregate

The aggregate relative current value is provided in percent. Same computing than THD Relative Voltage Aggregate.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;11;7;125;255 | 3 | 0 | 1 | 0 | False | False | False |

Management Electricity End customer True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | RelativeTHDCurrentValueAggregateOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

RelativeTHDCurrentValueAggregate

RelativeTHDCurrentValueAggregate

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Data type: ENUMERATED Authorized value: 56: % Default value: % (56)

Access rights (clients) Electricity laboratory

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get | | | |
|-----------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|--|--|--|
| Attribute description | | | | | | | | | |
| SEQUENCE // { Scaler Unit } | 2 elements | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | |
| Data type: INTEGE | R8 | | | | | | | | |
| Authorized value: -1 | 1 | | | | | | | | |
| Default value: -1 | | | | | | | | | |
| <u>Unit</u> | | | | | | | | | |

12.1.95 RelativeTHDCurrentValuePhase1

The relative voltage THD on phase 1 is provided in percent. Computed according the meter configuration. See object §3.1.23 RMS THD Calculation Algorithm.

End customer Manufacturer Resources upgrader Engineer

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;31;7;124;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | RelativeTHDCurrentValuePhase1OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

RelativeTHDVoltageValuePhase1

RelativeTHDVoltageValuePhase1

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

Electricity laboratory

| Get | Get | Get | Get | Get | - | Get |
|-----------------------|------------|-----|-----|-----|---|-----|
| Attribute description | n | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| Scaler
Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEG | ER8 | | | | | |
| Authorized value: | -1 | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUM | ERATED | | | | | |
| Authorized value: | 56: % | | | | | |
| Default value: % (| 56) | | | | | |

Electricity reader

12.1.96 RelativeTHDCurrentValuePhase2

Electricity utility

The relative voltage THD on phase 2 is provided in percent.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;51;7;124;255 | 3 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | RelativeTHDCurrentValuePhase2OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| , | Attribute description | | | | | | |
| | RelativeTHDVoltag | geValuePhase2 | | | | | |
| | RelativeTHDVoltage | ValuePhase2 | | | | | |
| | Data type: UNSIGNE | ED16 | | | | | |
| | Authorized value: 0 | to 65535 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| | Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---|---|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Α | ttribute description | | | | | | |
| | SEQUENCE // 2
{
Scaler
Unit
} | 2 elements | | | | | |
| | <u>Scaler</u> | | | | | | |
| | Data type: INTEGEF | ₹8 | | | | | |
| | Authorized value: -1 | | | | | | |
| | Default value: -1 | | | | | | |
| | <u>Unit</u> | | | | | | |
| | | | | | | | |
| | Data type: ENUMER | RATED | | | | | |
| | Authorized value: 56 | S: % | | | | | |
| | Default value: % (56 |) | | | | | |

12.1.97 RelativeTHDCurrentValuePhase3

The relative voltage THD on phase 3 is provided in percent.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;71;7;124;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | RelativeTHDCurrentValuePhase3OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| RelativeTHDVolta | geValuePhase3 | | | | | |
| RelativeTHDVoltage | eValuePhase3 | | | | | |
| Data type: UNSIGN | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|----------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | 2 elements | Jei | 36 1 | 361 | - | OGI |
| Scaler | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 56 | 6: % | | | | | |
| Default value: % (56 |) | | | | | |

12.1.98 RelativeTHDThresholdParameters

These parameters allow to configure the thresholds used to record TDH current and voltage defects history.

Acceptance rules:

VoltageHighThreshold >= VoltageLowThreshold + 3 CurrentHighThreshold >= CurrentLowThreshold + 3

With default values, meter will not detect THD alarm.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0:0:148:6:1:255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|-----------------------|-------------|--------------|
| True | False | False |
| Attributes / Met | hods | |
| Attribute (A) / Metho | od (M) | Data type |
| A1. logical_name | | OCTETSTRING |
| A2. value | | SEQUENCE |

■ Attribute 2: value

The thresholds are defined in percent (%).

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|---------------------------|------------------------------------|--------------------|-----|---------|--------------------|-----|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| Attribute description | | | | | | |
| ~ | 4 elements | | | | | |
| { VoltageRelativ | eTHDHighThresho | ld | | | | |
| VoltageRelativ | reTHDLowThreshol | d | | | | |
| | eTHDHighThresho
eTHDLowThreshol | | | | | |
| } | eliiblowiiilesiioi | a | | | | |
| <u>VoltageRelativeTHE</u> | OHighThreshold | | | | | |
| defined in percent (| %). | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 6 | to 100 | | | | | |
| Default value: 100 | | | | | | |
| <u>VoltageRelativeTHE</u> | <u> DLowThreshold</u> | | | | | |
| defined in percent (| %). | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 3 | to 97 | | | | | |
| Default value: 3 | | | | | | |
| CurrentRelativeTHE | <u> DHighThreshold</u> | | | | | |
| defined in percent (| %). | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 6 | to 100 | | | | | |
| Default value: 100 | | | | | | |
| <u>CurrentRelativeTHE</u> | <u>DLowThreshold</u> | | | | | |
| defined in percent (| %). | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 3 | to 97 | | | | | |
| Default value: 3 | | | | | | |

12.1.99 RelativeTHDVoltageValueAggregate

```
The aggregate relative voltage value is provided in percent.
```

The aggregate value is computed as follow:

```
XTHDagg = (Xhrms1 + Xhrms2 + Xhrms3) * 100 / (3 * Xnom) with X = V or I where:
```

Vnom is the nominal voltage as configured in the 'QualimetryDefaultParameters' object. Inom is a new parameter added to the QualimetryDefaultParameter object.

It represents the current value for which a THD control is required (thus is the 'real' current is low, but with a high distortion magnitude, the aggregate relative THD will not indicate a high value).

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;12;7;125;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | RelativeTHDVoltageValueAggregateOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|---|----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| | Get | Get | Get | Get | Get | - | Get | |
| ļ | Attribute description | | | | | | | |
| | RelativeTHDVoltag | geValueAggregat | e | | | | | |
| | RelativeTHDVoltageValueAggregate | | | | | | | |
| | Data type: UNSIGNED16 | | | | | | | |
| | Authorized value: 0 to 65535 | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

```
Electricity laboratory
                        Electricity utility
                                          Electricity reader
                                                           End customer Manufacturer Resources upgrader Engineer
         Get
                                                                             Get
                                                                                                           Get
                             Get
                                               Get
                                                               Get
Attribute description
 SEQUENCE
               // 2 elements
   Scaler
   Unit
 Scaler
 Data type: INTEGER8
 Authorized value: -1
 Default value: -1
<u>Unit</u>
 Data type: ENUMERATED
Authorized value: 56: %
Default value: % (56)
```

12.1.100 RelativeTHDVoltageValuePhase1

The relative voltage THD on phase 1 is provided in percent.

Computed according the meter configuration.

See object §3.1.23 RMS THD Calculation Algorithm.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;32;7;124;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| /lanagement | Electricity | End customer |
|-------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | RelativeTHDVoltageValuePhase1OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|-------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| į | Attribute description | | | | | | |
| | RelativeTHDVoltag | geValuePhase1 | | | | | |
| | RelativeTHDVoltageValuePhase1 | | | | | | |
| | Data type: UNSIGNE | ED16 | | | | | |
| | Authorized value: 0 | to 65535 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

```
Electricity laboratory
                        Electricity utility
                                          Electricity reader
                                                           End customer Manufacturer Resources upgrader Engineer
         Get
                                                                            Get
                             Get
                                               Get
                                                               Get
                                                                                                          Get
Attribute description
 SEQUENCE
               // 2 elements
   Scaler
   Unit
Scaler
Data type: INTEGER8
 Authorized value: -1
 Default value: -1
<u>Unit</u>
 Data type: ENUMERATED
Authorized value: 56: %
Default value: % (56)
```

12.1.101 RelativeTHDVoltageValuePhase2

The relative voltage THD on phase 2 is provided in percent.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;52;7;124;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | RelativeTHDVoltageValuePhase2OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| RelativeTHDVoltag | geValuePhase2 | | | | | |
| RelativeTHDVoltage | ValuePhase2 | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } Scaler | 2 elements | | | | | |
| Data type: INTEGEF | ₹8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 56 | i: % | | | | | |
| Default value: % (56 |) | | | | | |

12.1.102 RelativeTHDVoltageValuePhase3

The relative voltage THD on phase 3 is provided in percent.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;72;7;124;255 | 3 | 0 | 1 | 0 | False | False | False |

Management Electricity End customer True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | RelativeTHDVoltageValuePhase3OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |

RelativeTHDVoltageValuePhase3

RelativeTHDVoltageValuePhase3

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|-------------------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 56 | 3 : % | | | | | |
| Default value: % (56 | 5) | | | | | |

12.1.103 RmsCurrentValuePhase1

This carries current on phase 1 with reference to neutral for a three phase meter and single phase meter.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;31;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | | | |
|----------------------|-------------|--------------|--|--|--|
| True | True | True | | | |
| Attributes / Mothodo | | | | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | RmsCurrentValuePhase1OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attaile to also a misstic as | | | | | | |
| Attribute description | | | | | | |
| RmsCurrentValuePh | nase1 | | | | | |
| RmsCurrentValuePh | ase1 | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Authorized value: 0 t | to 65535 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|-----------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| | Gei | Gei | Gei | Gel | <u>-</u> | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| (
scaler | | | | | | |
| unit | | | | | | |
| } | | | | | | |
| <u>scaler</u> | | | | | | |
| 2 decimals for DC m | eters, | | | | | |
| 3 decimals for CT | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -3 | to -2 | | | | | |
| Default value: -2 | | | | | | |
| <u>unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 33 | 3: A | | | | | |
| Default value: A (33) |) | | | | | |

12.1.104 RmsCurrentValuePhase2

This carries current on phase 2 with reference to neutral for a three phase meter. There is not any significance for a single phase meter.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;51;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | RmsCurrentValuePhase2OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A (' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' | | | | | | |
| Attribute description | | | | | | |
| RmsCurrentValuePh | ase2 | | | | | |
| D O | 0 | | | | | |
| RmsCurrentValuePh | ase2 | | | | | |
| Data type: LINICIONE | -D16 | | | | | |
| Data type: UNSIGNE | בטוט | | | | | |
| Authorized value: 0 t | to 65535 | | | | | |
| | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| · | 2 elements | | | | | |
| <u>scaler</u> | | | | | | |
| 2 decimals for DC m
3 decimals for CT | eters, | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -3 | to -2 | | | | | |
| Default value: -2 | | | | | | |
| <u>unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 33 | 3: A | | | | | |
| Default value: A (33) | | | | | | |

12.1.105 RmsCurrentValuePhase3

This carries current on phase 3 with reference to neutral for a three phase meter. There is not any significance for a single phase meter.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;71;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| = | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | RmsCurrentValuePhase3OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity la | boratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|----------------|-------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | | Get | Get | Get | Get | - | Get |
| Attribute des | scription | | | | | | |
| RmsCurren | ıtValuePh | ase3 | | | | | |
| RmsCurre | <u>ntValuePha</u> | ase3 | | | | | |
| Data type: | UNSIGNE | D16 | | | | | |
| Authorized | value: 0 to | o 65535 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| · | 2 elements | | | | | |
| <u>scaler</u> | | | | | | |
| 2 decimals for DC m
3 decimals for CT | eters, | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -3 | to -2 | | | | | |
| Default value: -2 | | | | | | |
| <u>unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 33 | 3: A | | | | | |
| Default value: A (33) | | | | | | |

12.1.106 RmsFundamentalCurrentValuePhase1

The RMS current of the fundamental on phase 1.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;31;7;1;255 | 3 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer |
|-----------------------|-------------|-------------------|
| True | True | True |
| Attributes / Met | hods | |
| Attribute (A) / Metho | od (M) | Data type |
| A1. logical_name | , , | OCTETSTRING |
| A2. value | | UNSIGNED16 |
| A3. scaler unit | | SEQUENCE |

Access rights (clients)

| | • , | | | | | | |
|------|------------------------|-------------------------|--------------------|--------------|--------------|--------------------|----------|
| E | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| | Get | Get | Get | Get | Get | - | Get |
| ۷ 11 | | | | | | | |
| Αtt | ribute description | | | | | | |
| Rr | msFundamentalCur | rentValuePhase | 21 | | | | |
| ь | maEundamantalCu | urrant\/aluaDhaaa | 1 | | | | |
| K | <u>msFundamentalCu</u> | <u>irrentvaluePhase</u> | <u>l</u> | | | | |
| D | ata type: UNSIGNE | -D16 | | | | | |
| | ata type. Olyololy | _D10 | | | | | |
| Α | uthorized value: 0 t | to 65535 | | | | | |
| | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description SEQUENCE // 2 { Scaler Unit } | ? elements | | | | | |
| Scaler 2 decimals for DC m 3 decimals for CT | eters, | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -3 | to -2 | | | | | |
| Default value: -2 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 33 | 3: A | | | | | |
| Default value: A (33) | | | | | | |

12.1.107 RmsFundamentalCurrentValuePhase2

The RMS current of the fundamental on phase 2.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;51;7;1;255 | 3 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer | |
|-----------------------|-------------|--------------|--|
| True | True | True | |
| Attributes / Met | hods | | |
| Attribute (A) / Metho | od (M) | Data type | Content |
| A1. logical_name | | OCTETSTRING | RmsFundamentalCurrentValuePhase2OBISCode |
| A2. value | | UNSIGNED16 | See below |
| A3. scaler_unit | | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------------|---------------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A thuilet. al a a a minati a .a | | | | | | |
| Attribute description | | | | | | |
| RmsFundamentalCur | rentValuePhase | e2 | | | | |
| RmsFundamentalCu | rront\/aluoDhacc | .2 | | | | |
| KIIISFUIIUaIIIEIIIaiCi | <u>irrenitvaluer nase</u> | <u>:Z</u> | | | | |
| Data type: UNSIGNE | -D16 | | | | | |
| Bata typo. Grioro. | | | | | | |
| Authorized value: 0 | to 65535 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description SEQUENCE // 2 { Scaler Unit } | ? elements | | | | | |
| Scaler 2 decimals for DC m 3 decimals for CT | eters, | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -3 | to -2 | | | | | |
| Default value: -2 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 33 | 3: A | | | | | |
| Default value: A (33) | | | | | | |

12.1.108 RmsFundamentalCurrentValuePhase3

The RMS current of the fundamental on phase 3.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;71;7;1;255 | 3 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer |
|----------------------|-------------|-------------------|
| True | True | True |
| Attributes / Met | thods | |
| Attribute (A) / Meth | od (M) | Data type |
| A1. logical_name | ` ´ | OCTETSTRING |
| A2. value | | UNSIGNED16 |
| A3. scaler unit | | SEQUENCE |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| • | | | | | | | | | |
| RmsFundamentalCurrentValuePhase3 | | | | | | | | | |
| RmsFundamentalCu | ırrentValuePhase | <u>3</u> | | | | | | | |
| Data type: UNSIGNE | ED16 | | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description SEQUENCE // 2 { Scaler Unit } | ? elements | | | | | |
| Scaler 2 decimals for DC m 3 decimals for CT | eters, | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -3 | to -2 | | | | | |
| Default value: -2 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 33 | 3: A | | | | | |
| Default value: A (33) | | | | | | |

12.1.109 RmsFundamentalVoltageValuePhase1

The RMS voltage of the fundamental on phase 1.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;32;7;1;255 | 3 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer | |
|-----------------------|-------------|-------------------|--|
| True | True | True | |
| Attributes / Meth | nods | | |
| Attribute (A) / Metho | d (M) | Data type | Content |
| A1. logical_name | | OCTETSTRING | RmsFundamentalVoltageValuePhase1OBISCode |
| A2. value | | UNSIGNED16 | See below |
| A3. scaler_unit | | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | | | | | | | | |
| Attribute description | | | | | | | | |
| RmsFundamentalVoltageValuePhase1 | | | | | | | | |
| RmsFundamentalVo | oltageValuePhase | <u>:1</u> | | | | | | |
| Data type: UNSIGNI | ED16 | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---------------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 35 | 5: V | | | | | |
| Default value: V (35 |) | | | | | |

12.1.110 RmsFundamentalVoltageValuePhase2

The RMS voltage of the fundamental on phase 2.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;52;7;1;255 | 5 3 | 0 | 1 | 0 | False | False | False |

| _ | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | RmsFundamentalVoltageValuePhase2OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | | | | | | | | |
| RmsFundamentalVoltageValuePhase2 | | | | | | | | |
| RmsFundamentalVo | oltageValuePhase | 2 | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | | |
| Authorized value: 0 | to 65535 | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory | Electricity utility | | | | Resources upgrader | |
|------------------------|---------------------|-----|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 35 | 5: V | | | | | |
| Default value: V (35 |) | | | | | |

12.1.111 RmsFundamentalVoltageValuePhase3

The RMS voltage of the fundamental on phase 3.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;72;7;1;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | RmsFundamentalVoltageValuePhase3OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| E | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| Att | ribute description | | | | | | |

 ${\tt RmsFundamentalVoltageValuePhase3}$

RmsFundamentalVoltageValuePhase3

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|----------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| | Oet | Get | OCI | Oet | - | Oet |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 35 | 5: V | | | | | |
| Default value: V (35 |) | | | | | |

12.1.112 RmsHarmonicsCurrentValuePhase1

The RMS current value of all the sub harmonics (harmonics 2 to 13) on the phase 1.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;31;7;126;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

End customer Management Electricity True True True

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | RmsHarmonicsCurrentValuePhase1OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
|---|--------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | | |
| , | Attribute description | | | | | | | | | | |
| | RmsHarmonicsCurrentValuePhase1 | | | | | | | | | | |
| | RmsHarmonicsCurrentValuePhase1 | | | | | | | | | | |
| | Data type: UNSIGNED16 | | | | | | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 0 to 65535

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get | | | | | |
|--|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|--|--|--|--|--|
| Attribute description | | | | | | | | | | | |
| · · | 2 elements | | | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | | | |
| 2 decimals for DC m
3 decimals for CT | neters, | | | | | | | | | | |
| Data type: INTEGER | ₹8 | | | | | | | | | | |
| Authorized value: -3 | to -2 | | | | | | | | | | |
| Default value: -2 | | | | | | | | | | | |
| <u>Unit</u> | | | | | | | | | | | |
| | | | | | | | | | | | |
| Data type: ENUMER | RATED | | | | | | | | | | |
| Authorized value: 33 | 3: A | | | | | | | | | | |
| Default value: A (33) |) | | | | | | | | | | |

12.1.113 RmsHarmonicsCurrentValuePhase2

The RMS current value of all the sub harmonics (harmonics 2 to 13) on the phase 2.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;51;7;126;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | RmsHarmonicsCurrentValuePhase2OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|--------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| | Get | Get | Get | Get | Get | - | Get | | |
| | | | | | | | | | |
| F | Attribute description | | | | | | | | |
| | RmsHarmonicsCurrentValuePhase2 | | | | | | | | |
| | RmsHarmonicsCurre | entValuePhase2 | | | | | | | |
| | Data type: UNSIGNED16 | | | | | | | | |
| | Authorized value: 0 | to 65535 | | | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get | | | | | |
|--|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|--|--|--|--|--|
| Attribute description | | | | | | | | | | | |
| · · | 2 elements | | | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | | | |
| 2 decimals for DC m
3 decimals for CT | neters, | | | | | | | | | | |
| Data type: INTEGER | ₹8 | | | | | | | | | | |
| Authorized value: -3 | to -2 | | | | | | | | | | |
| Default value: -2 | | | | | | | | | | | |
| <u>Unit</u> | | | | | | | | | | | |
| | | | | | | | | | | | |
| Data type: ENUMER | RATED | | | | | | | | | | |
| Authorized value: 33 | 3: A | | | | | | | | | | |
| Default value: A (33) |) | | | | | | | | | | |

12.1.114 RmsHarmonicsCurrentValuePhase3

The RMS current value of all the sub harmonics (harmonics 2 to 13) on the phase 3.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;71;7;126;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | RmsHarmonicsCurrentValuePhase3OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| , | Attribute description | | | | | | |
| | RmsHarmonicsCurre | entValuePhase3 | | | | | |
| | RmsHarmonicsCurr | entValuePhase3 | | | | | |
| Data type: UNSIGNED16 | | | | | | | |
| | Authorized value: 0 | to 65535 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|--|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| · · | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| 2 decimals for DC m
3 decimals for CT | neters, | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -3 | to -2 | | | | | |
| Default value: -2 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 33 | 3: A | | | | | |
| Default value: A (33) |) | | | | | |

12.1.115 RmsHarmonicsVoltageValuePhase1

The RMS voltage value of all the sub harmonics (harmonics 2 to 13) on the phase 1.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;32;7;126;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | RmsHarmonicsVoltageValuePhase1OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| RmsHarmonicsVolt | ageValuePhase1 | | | | | |
| RmsHarmonicsVolt | ageValuePhase1 | | | | | |
| Data type: UNSIGNED16 | | | | | | |
| Authorized value: 0 | to 65535 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| | | | | | | |
| Data type: INTEGEF | R8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 35 | 5: V | | | | | |
| Default value: V (35) | | | | | | |

12.1.116 RmsHarmonicsVoltageValuePhase2

The RMS voltage value of all the sub harmonics (harmonics 2 to 13) on the phase 2.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;52;7;126;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | RmsHarmonicsVoltageValuePhase2OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | - | | |
|------------------------|--------------------------------|--------------------|-----|-----|--------------------|-----|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | | | | | | | | |
| RmsHarmonicsVolt | RmsHarmonicsVoltageValuePhase2 | | | | | | | |
| RmsHarmonicsVolt | RmsHarmonicsVoltageValuePhase2 | | | | | | | |
| Data type: UNSIGN | IED16 | | | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 0 to 65535

Access rights (clients)

| Electricity laboratory | Electricity utility | | | | Resources upgrader | |
|---------------------------------------|---------------------|-----|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 35 | 5: V | | | | | |
| Default value: V (35) |) | | | | | |

12.1.117 RmsHarmonicsVoltageValuePhase3

The RMS voltage value of all the sub harmonics (harmonics 2 to 13) on the phase 3.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;72;7;126;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueTrue

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | RmsHarmonicsVoltageValuePhase3OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |

RmsHarmonicsVoltageValuePhase3

RmsHarmonicsVoltageValuePhase3

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | | | | Resources upgrader | |
|---------------------------------------|---------------------|-----|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 35 | 5: V | | | | | |
| Default value: V (35) |) | | | | | |

12.1.118 RmsPrimaryCurrentValuePhase1

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;2;31;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| | | | | | | | |

Logical devices:

Management Electricity End customer True True True

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | RmsPrimaryCurrentValuePhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| i | | | | | | | |
| 4 | Attribute description | | | | | | |
| | Iprms | | | | | | |
| | | | | | | | |
| | <u>lprms</u> | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | Data type: UNSIGN | ED32 | | | | | |
| | Authorized value O | to 400406700E | | | | | |
| | Authorized value: 0 | 10 4294967295 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE //: { scaler unit } | 2 elements | | | | | |
| <u>scaler</u> | | | | | | |
| 0.001A resolution for 0.01 A for a DC one | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -3 | to -2 | | | | | |
| Default value: -3 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 33 | 3: A | | | | | |
| Default value: A (33 |) | | | | | |

12.1.119 RmsPrimaryCurrentValuePhase2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;2;51;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| - | | | |
|------------|-------------|--------------|--|
| Management | Electricity | End customer | |
| True | True | True | |

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------------------|--|
| A1. logical_name | OCTETSTRING | RmsPrimaryCurrentValuePhase2OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| Uprms | | | | | | |
| <u>Uprms</u> | | | | | | |
| <u> </u> | | | | | | |
| | | | | | | |
| Data type: UNSIGNI | ED32 | | | | | |
| Authorized value: 0 | to 4294967295 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE //: { scaler unit } | 2 elements | | | | | |
| <u>scaler</u> | | | | | | |
| 0.001A resolution for 0.01 A for a DC one | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -3 | to -2 | | | | | |
| Default value: -3 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 33 | 3: A | | | | | |
| Default value: A (33 |) | | | | | |

12.1.120 RmsPrimaryCurrentValuePhase3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;2;71;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

ManagementElectricityEnd customerTrueTrueTrue

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------------------|--------|
| A1. logical_name | OCTETSTRING | RmsPrimaryCurrentValuePhase3OBISCode | \Box |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | = - | Get |
| i | | | | | | | |
| , | Attribute description | | | | | | |
| | Iprms | | | | | | |
| | | | | | | | |
| | <u>lprms</u> | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | Data type: UNSIGN | ±D32 | | | | | |
| | Authorized value: 0 | to 4204067205 | | | | | |
| | Authorized value. | 10 4234307233 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { scaler unit } | ? elements | | | | | |
| <u>scaler</u> | | | | | | |
| 0.001A resolution fo 0.01 A for a DC one. | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -3 | to -2 | | | | | |
| Default value: -3 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 33 | s: A | | | | | |
| Default value: A (33) | | | | | | |

12.1.121 RmsPrimaryVoltageValuePhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;2;32;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

ManagementElectricityEnd customerTrueTrueTrue

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------------------|--------|
| A1. logical_name | OCTETSTRING | RmsPrimaryVoltageValuePhase1OBISCode | \Box |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| Uprms | | | | | | |
| Unrmo | | | | | | |
| <u>Uprms</u> | | | | | | |
| | | | | | | |
| Data type: UNSIGNE | ED32 | | | | | |
| Data type. UNSIGNI | _D32 | | | | | |
| Authorized value: 0 t | to 4294967295 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { scaler unit } | elements | | | | | |
| <u>scaler</u> | | | | | | |
| if VT ratio < 330 000 if VT ratio >= 330 00 | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -1 | to 0 | | | | | |
| Default value: -1 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 35 | : V | | | | | |
| Default value: V (35) | | | | | | |

12.1.122 RmsPrimaryVoltageValuePhase2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;2;52;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

ManagementElectricityEnd customerTrueTrueTrue

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------------------|--------|
| A1. logical_name | OCTETSTRING | RmsPrimaryVoltageValuePhase2OBISCode | \Box |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|----------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| Uprms | | | | | | |
| <u>Uprms</u> | | | | | | |
| | | | | | | |
| Data type: UNSIGN | ED32 | | | | | |
| Authorized value: 0 | to 4294967295 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|-----|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { scaler unit } | elements | | | | | |
| <u>scaler</u> | | | | | | |
| if VT ratio < 330 000
if VT ratio >= 330 000 | | | | | | |
| Data type: INTEGER | 8 | | | | | |
| Authorized value: -1 | to 0 | | | | | |
| Default value: -1 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 35 | : V | | | | | |
| Default value: V (35) | | | | | | |

12.1.123 RmsPrimaryVoltageValuePhase3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;2;72;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

ManagementElectricityEnd customerTrueTrueTrue

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------------------|--|
| A1. logical_name | OCTETSTRING | RmsPrimaryVoltageValuePhase3OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | | | | | | | | |
| Uprms | | | | | | | | |
| <u>Uprms</u> | | | | | | | | |
| Data type: UNSIGNED32 | | | | | | | | |
| Authorized value: 0 | to 4294967295 | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE //: { scaler unit } | 2 elements | | | | | |
| <u>scaler</u> | | | | | | |
| if VT ratio < 330 000 if VT ratio >= 330 00 | • | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | to 0 | | | | | |
| Default value: -1 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 35 | 5: V | | | | | |
| Default value: V (35 |) | | | | | |

12.1.124 RMSTHDCalculationAlgoParameters

This parameter is used to define the method to compute all the relative THD values (for Voltage and Current and for all 3 phases).

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;148;8;0;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | RMSTHDCalculationAlgoParametersOBISCode |
| A2. value | ENUMERATED | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

Algo

<u>Algo</u>

According ANSI: (relative to RMS value):

RTHDansi = (Xhrmsi / Xrmsi) * 100

According IEC61000-4-7: (relative to fundamental value):

RTHDiec =(Xhrmsi / Xfrmsi) * 100

where:

Xrmsi: the RMS value (X can be U or I) including the full range of harmonics on the line i (1 to 3) Xfrmsi: The RMS value (X can be U or I) of the fundamental (harmonic 1) on the line i (1 to 3)

Xhrmsi: The RMS value (X can be U or I) of all the sub harmonics (harmonics 2 to 13) on the line i(1 to 3)

Data type: ENUMERATED

Authorized values: 0: THD_ANSI 1: THD_IEC

Default value: THD_ANSI (0)

12.1.125 RmsVoltageValuePhase1

This carries voltage on phase 1 with reference to neutral for a three phase meter and single phase meter.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;32;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | RmsVoltageValuePhase1OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

RmsVoltageValuePhase1

RmsVoltageValuePhase1

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Flectricity reader | End customer | Manufacturer | Resources upgrader | Fngineer |
|---------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 35 | 5: V | | | | | |
| Default value: V (35) |) | | | | | |

12.1.126 RmsVoltageValuePhase2

This carries voltage on phase 2 with reference to neutral for a three phase meter. There is not any significance for a single phase meter.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------------------|-----------|---------------|-----------------|-----------------|------------------------------|-------------------------|----------------|
| 1;1;52;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | es: | | | | | | |
| Management | El | lectricity | End customer | | | | |
| True | | True | True | | | | |
| Attributes / N | /lethods | | | | | | |
| Attribute (A) / Me | ethod (M) | | Data ty | ре | Content | | |
| A1. logical_nam
A2. value | е | | | STRING
NED16 | RmsVoltageValue
See below | Phase2OBISCode | |

See below

SEQUENCE

■ Attribute 2: value

A3. scaler_unit

Access rights (clients)

| Electric | ity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| Attribute | description | | | | | | |
| RmsVo. | ltageValuePh | ase2 | | | | | |
| D \/ | " \ \ \ D | • | | | | | |
| Rmsv | oltageValuePha | ase2 | | | | | |
| Data t | mai LINICIONE | .D16 | | | | | |
| Data ty | pe. UNSIGNE | טוט: | | | | | |
| Author | ized value: 0 to | o 65535 | | | | | |
| 7 10.1.101 | | | | | | | |
| Defaul | t value: 0 | | | | | | |
| Author | pe: UNSIGNE
ized value: 0 to
t value: 0 | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|-----------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| Scaler
Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| D | | | | | | |
| Data type: INTEGER | | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 35 | 5: V | | | | | |
| Default value: V (35 |) | | | | | |

12.1.127 RmsVoltageValuePhase3

This carries voltage on phase 2 with reference to neutral for a three phase meter. There is not any significance for a single phase meter.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|--------------------|-----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;72;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | es: | | | | | | |
| Management | El | ectricity | End customer | | | | |
| True | | True | True | | | | |
| Attributes / N | lethods | | | | | | |
| Attribute (A) / Me | ethod (M) | | Data ty | ре | Content | | |
| A1. logical_name | е | | OCTE | STRING | RmsVoltageValue | Phase3OBISCode | |
| A2. value | | | UNSIG | NED16 | See below | | |
| A3. scaler unit | | | SEQUE | ENCE | See below | | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| RmsVoltageValueP | hase3 | | | | | |
| RmsVoltageValuePhase3 | | | | | | |
| Data type: UNSIGNED16 | | | | | | |
| Authorized value: 0 to 65535 | | | | | | |
| Default value: 0 | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

```
Electricity laboratory
                        Electricity utility
                                          Electricity reader
                                                           End customer Manufacturer Resources upgrader Engineer
         Get
                             Get
                                               Get
                                                               Get
                                                                             Get
Attribute description
 SEOUENCE
               // 2 elements
   Scaler
   Unit
Scaler
Data type: INTEGER8
 Authorized value: -1
 Default value: -1
<u>Unit</u>
Data type: ENUMERATED
 Authorized value: 35: V
Default value: V (35)
```

12.1.128 SecondaryMetrologyInstallationParameters

This object holds the CT*VT ratio as numerator and denominator.

Acceptance rules:

NumCtRatio * NumVtRatio <= CT*VT numerator limit (3 600 000 000)

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;148;2;2;255 | 1 | 0 | 1 | 0 | False | True | False |
| Logical device | s: | | | | | | |
| Management | Ele | ectricity | End customer | | | | |
| True | | False | False | | | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | SecondaryMetrologyInstallationParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Acceptance rules :

NumCtRatio * NumVtRatio <= CT*VT numerator limit (3 600 000 000)

Access rights (clients)

| | Electricity laborate | ory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | ⊏ngineer |
|---|----------------------|------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get/Set | | Get/Set | Get | Get | Get/Set | - | Get |
| | | | | | | | | |
| / | Attribute descript | tion | | | | | | |
| | SEQUENCE | // 4 | elements | | | | | |
| | { | | | | | | | |
| | NumCtRatio | | | | | | | |
| | DenCtRatio | | | | | | | |
| | NumVtRatio | | | | | | | |
| | DenVtRatio | | | | | | | |
| | } | | | | | | | |
| | <u>NumCtRatio</u> | | | | | | | |

current ratio numerator

Data type: UNSIGNED16

Authorized value: 1 to 45000

Default value: 1

<u>DenCtRatio</u>

current ratio denominator
Data type: UNSIGNED8
Authorized value: 1 to 10

Default value: 1
NumVtRatio

voltage ratio numerator

Data type: UNSIGNED32

Authorized value: 1 to 800000

Default value: 1
DenVtRatio

voltage ratio denominator Data type: UNSIGNED16 Authorized value: 1 to 400

Default value: 1

12.1.129 SecondaryMetrologyParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;148;2;1;255 | 1 | 0 | 2 | 0 | True | True | True |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | SecondaryMetrologyParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| Attribute description | | | | | | |
| SEQUENCE //: | 2 elements | | | | | |
| AggEnergiesCal | culationMethod | | | | | |
| AppPowerCalcula | ationMethod | | | | | |
| } | | | | | | |
| <u>AggEnergiesCalcula</u> | ationMethod | | | | | |
| Complementary info | ormations : | | | | | |

- Algo 1 : Net result as long as it is positive

- Algo 2 : Positive aggregate : data is just the sum of positive phases (only the bigger one between import

and export is counted)

- Algo 3: Aggregate are calculated simultaneously in different directions (default value)
- Algo 4: Anti-fraud calculation: import aggregate is the absolute sum of import and export energy.

Data type: UNSIGNED8

Authorized values:

0: Algo 1 1: Algo 2

2: Algo 3

3: Algo 4

Default value: Algo 3 (2)

AppPowerCalculationMethod

Data type: UNSIGNED8

Authorized values:

0: Vectoriel value

1: Arithmetic value

Default value: Vectoriel value (0)

12.1.130 SecondaryMetrologySummationParameters

This object allows the programming of the summation configuration: it allows to sum up to 5 internal energy quantities in a same summation register.

SEQUENCE OF 4 elements : one for each Summation register SEQUENCE OF 5 elements: one for each quantity to sum

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;148;2;3;255 | 1 | 0 | 2 | 0 | True | False | False |

Logical devices:

Management Electricity End customer True True False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | SecondaryMetrologySummationParametersOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

Access rights (clients) Electricity laboratory

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |
| Attribute description | 1 | | | | | |
| SEQUENCE OF { | // 4 elements | | | | | |
| SEQUENCE OF { | // 5 elements | | | | | |
| SEQUENCE | // 2 elements | | | | | |

QuantityId

IndicQuantityToSubstract

QuantityId

QuantityId specifies internal or external energy summated by this register.

SL761 (International) - 6.21 Data type: UNSIGNED8 Authorized values: 0: Import Active Energy Phase 1 1: Import Active Energy Phase 2 2: Import Active Energy Phase 3 3: Import Active Energy Aggregate 4: Export Active Energy Phase 1 5: Export Active Energy Phase 2 6: Export Active Energy Phase 3 7: Export Active Energy Aggregate 8: Import Reactive Energy Phase 1 9: Import Reactive Energy Phase 2 10: Import Reactive Energy Phase 3 11: Import Reactive Energy Aggregate 12: Export Reactive Energy Phase 1 13: Export Reactive Energy Phase 2 14: Export Reactive Energy Phase 3 15: Export Reactive Energy Aggregate 16: Q1 Energy Phase 1 17: Q1 Energy Phase 2 18: Q1 Energy Phase 3 19: Q1 Energy Aggregate 20: Q2 Energy Phase 1 21: Q2 Energy Phase 2 22: Q2 Energy Phase 3 23: Q2 Energy Aggregate 24: Q3 Energy Phase 1 25: Q3 Energy Phase 2 26: Q3 Energy Phase 3 27: Q3 Energy Aggregate 28: Q4 Energy Phase 1 29: Q4 Energy Phase 2 30: Q4 Energy Phase 3 31: Q4 Energy Aggregate 32: Import Apparent Energy Phase 1 33: Import Apparent Energy Phase 2 34: Import Apparent Energy Phase 3 35: Import Apparent Energy Aggregate 36: Export Apparent Energy Phase 1 37: Export Apparent Energy Phase 2 38: Export Apparent Energy Phase 3 39: Export Apparent Energy Aggregate 40: Import External Energy 1 41: Import External Energy 2 42: Import External Energy 3 43: Import External Energy 4 44: Export External Energy 1 45: Export External Energy 2 46: Export External Energy 3

Default value: No energy - No allocation (255)

IndicQuantityToSubstract

47: Export External Energy 4 255: No energy - No allocation

It defines if the quantity has to be substracted from the other quantities or to be summated:

FALSE: the quantity is summated to the other quantities TRUE: the quantity is substracted from the other quantities Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

12.1.131 THDActivationParameters

This parameter allows to activate and desactivate the THD computing (THD computing is only avalaible with the resource 'qualimetry').

This parameter allows to reduce the processor load if THD is not used

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;148;9;0;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

Management Electricity End customer

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------|--|
| A1. logical_name | OCTETSTRING | THDActivationParametersOBISCode | |
| A2. value | BOOLEAN | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

ThdEnabled

ThdEnabled

Defines if THD functionality is enabled (TRUE) or disabled (FALSE).

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

12.1.132 VTDenominatorParameters

voltage ratio denominator

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;0;4;6;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | VTDenominatorParametersOBISCode |
| A2. value | UNSIGNED16 | See below |

■ Attribute 2: value

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
Get Get Get Get - Get

Attribute description

DenVtRatio

DenVtRatio

Defines the voltage ratio denominator.

Data type: UNSIGNED16 Authorized value: 1 to 400

Default value: 1

12.1.133 VTNumeratorParameters

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;0;4;3;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | VTNumeratorParametersOBISCode |
| A2. value | UNSIGNED32 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | = | Get |

Attribute description

NumVtRatio

NumVtRatio

Defines the voltage ratio numerator.

Acceptance rules:

NumVtRatio * current NumCtRatio <= CT/VT numerator limit (3 600 000 000)

Data type: UNSIGNED32
Authorized value: 1 to 800000

Default value: 1

12.1.134 WaveFormCurrentPhase1

This object provides the current samples from phase 1 The samples are taken after calibration correction.

SL7K and ACE6K

The sample frequency is 1953Hz (means each sample is separated by 512µs)

So the wave form provides a signal on 1024*512µs = 524ms

ACE8K

The sample frequency is 3906.25Hz (means each sample is separated by 256µs) So the wave form provides a signal on 1024*256µs = 262ms

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;149;1;0;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | WaveFormCurrentPhase1OBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

Access rights (clients) Electricity laboratory

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description SEQUENCE OF { Value } | // 1024 element | .s | | | | |
| <u>Value</u> One calibrated sam - 110.77606 lsb (D0 - 1107.7606 lsb (C1 | C version) 1A (50H | lz) | | | | |

That means:

- 1 bit = 9mA with DC version
- 1 bit = 0.9mA with CT version

Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0

12.1.135 WaveFormCurrentPhase2

This object provides the current samples from phase 2 The samples are taken after calibration correction.

SL7K and ACE6K

The sample frequency is 1953Hz (means each sample is separated by 512µs) So the wave form provides a signal on 1024*512µs = 524ms

ACE8K

The sample frequency is 3906.25Hz (means each sample is separated by 256µs) So the wave form provides a signal on 1024*256µs = 262ms

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;149;2;0;255 | 1 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------------|--|
| A1. logical_name | OCTETSTRING | WaveFormCurrentPhase2OBISCode | |
| A2. value | ARRAY | See below | |

■ Attribute 2: value

Access rights (clients)

| Access rights (clients | 5) | | | | | |
|--|---|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get | Get | Get | Get | Get | - | Get |
| Attribute description SEQUENCE OF { Value } | // 1024 element | s | | | | |
| Value One calibrated sam - 110.77606 lsb (DC - 1107.7606 lsb (CT That means: - 1 bit = 9mA with D - 1 bit = 0.9mA with | version) 1A (50H
version)
C version | z) | | | | |
| Data type: INTEGE | R16 | | | | | |
| Authorized value: -3 | 32768 to 32767 | | | | | |

12.1.136 WaveFormCurrentPhase3

This object provides the current samples from phase 3

The samples are taken after calibration correction.

SL7K and ACE6K

Default value: 0

The sample frequency is 1953Hz (means each sample is separated by 512µs)

So the wave form provides a signal on 1024*512µs = 524ms

ACE8K

The sample frequency is 3906.25Hz (means each sample is separated by $256\mu s$) So the wave form provides a signal on $1024*256\mu s = 262ms$

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;149;3;0;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | | |
|------------|-------------|--------------|--|--|
| True | True | False | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | WaveFormCurrentPhase3OBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

```
SEQUENCE OF // 1024 elements
{
    Value
}

Value
One calibrated sample is:
- 110.77606 lsb (DC version) 1A (50Hz)
- 1107.7606 lsb (CT version)
That means:
- 1 bit = 9mA with DC version
- 1 bit = 0.9mA with CT version

Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0
```

12.1.137 WaveFormSamplingPeriod

The sampling period of the wave form acquisition is available for reading only.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;0;0;8;2;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------------|--|
| A1. logical_name | OCTETSTRING | WaveFormSamplingPeriodOBISCode | |
| A2. value | UNSIGNED16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Liectricity laboratory | Liectricity utility | Liectricity reader | Life Custoffier | Mariulacturei | resources upgrader | Lilgilieei |
|-----------------------------|---------------------|--------------------|-----------------|---------------|--------------------|------------|
| Get | Get | Get | Get | Get | - | Get |
| A thaile and a serior time. | | | | | | |
| Attribute description | | | | | | |
| Value | | | | | | |
| Value | | | | | | |
| <u>Value</u> | | | | | | |
| It is always constant | (512). | | | | | |
| Data type: UNSIGNE | ED16 | | | | | |
| Data type. UNSIGNE | פועב | | | | | |
| Authorized value: 51 | 2 | | | | | |
| | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 512

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|--------------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute descriptio SEQUENCE // { Scaler | n
/ 2 elements | | | | | |

```
Unit
}
Scaler
Data type: INTEGER8
Authorized value: -6
Default value: -6
```

Unit

Data type: ENUMERATED Authorized value: 7: sec Default value: sec (7)

12.1.138 WaveFormStatus

This object provides the wave form acquisition status.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;148;7;1;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | WaveFormStatusOBISCode |
| A2. value | UNSIGNED8 | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|--------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get/Set | - | Get |
| , | Attribute description WaveFormStatus | | | | | | |
| | WaveFormStatus Data type: UNSIGNE | :De | | | | | |
| | Authorized values: 0: IDLE | .00 | | | | | |

1: REQUIRED

2: IN PROGRESS

3: OVER

Default value: IDLE (0)

12.1.139 WaveFormVoltagePhase1

This object provides the voltage samples from phase 1 The samples are taken after calibration correction.

SL7K and ACE6K

The sample frequency is 1953Hz (means each sample is separated by 512 μ s) So the wave form provides a signal on 1024*512 μ s = 524ms

ACE8K

The sample frequency is 3906.25Hz (means each sample is separated by 256μ s) So the wave form provides a signal on $1024*256\mu$ s = 262ms

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;149;4;0;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | WaveFormVoltagePhase1OBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

Access rights (clients)

| | • / | | | | | |
|------------------------|---------------------|--------------------|----------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF | // 1024 element | cs | | | | |
| { | | | | | | |
| Value
l | | | | | | |
| \$ | | | | | | |
| <u>Value</u> | | | | | | |
| One calibrated sam | ple is: 31.332201 | Isb (DC and CT | version) 1V (5 | 50Hz). | | |
| Means one bit = 0.0 |)319V | · | , , | • | | |
| Data type: INTEGE | R16 | | | | | |
| , · | | | | | | |
| Authorized value: -3 | 32768 to 32767 | | | | | |
| Default value: 0 | | | | | | |

12.1.140 WaveFormVoltagePhase2

This object provides the voltage samples from phase 2 The samples are taken after calibration correction.

SL7K and ACE6K

The sample frequency is 1953Hz (means each sample is separated by 512µs)

So the wave form provides a signal on 1024*512µs = 524ms

ACE8K

The sample frequency is 3906.25Hz (means each sample is separated by $256\mu s$) So the wave form provides a signal on $1024*256\mu s = 262ms$

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;149;5;0;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | WaveFormVoltagePhase2OBISCode |
| A2. value | ARRAY | See below |

Access rights (clients)

| Access rights (clients | ,) | | | | | | |
|------------------------|----------------------|--------------------|----------------|--------------|--------------------|----------|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
| Get | Get | Get | Get | Get | - | Get | |
| Attribute description | | | | | | | |
| • | // 1024 element | ts | | | | | |
| { | , 1021 010011 | | | | | | |
| Value | | | | | | | |
| } | | | | | | | |
| <u>Value</u> | | | | | | | |
| One calibrated samp | ple is: 31.332201 | Isb (DC and CT | version) 1V (5 | 50Hz). | | | |
| Means one bit = 0.0 | • | (= 0 0 | (| | | | |
| Data type: INTEGER | Data type: INTEGER16 | | | | | | |
| Authorized value: -3 | 2768 to 32767 | | | | | | |
| Default value: 0 | | | | | | | |

12.1.141 WaveFormVoltagePhase3

This object provides the voltage samples from phase 3 The samples are taken after calibration correction.

SL7K and ACE6K

The sample frequency is 1953Hz (means each sample is separated by 512 μ s) So the wave form provides a signal on 1024*512 μ s = 524ms

ACE8K:

The sample frequency is 3906.25Hz (means each sample is separated by 256μ s) So the wave form provides a signal on $1024*256\mu$ s = 262ms

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;149;6;0;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------------|--|
| A1. logical_name | OCTETSTRING | WaveFormVoltagePhase3OBISCode | |
| A2. value | ARRAY | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | 1 | | | | | |
| · · | | _ | | | | |
| SEQUENCE OF | // 1024 element | S | | | | |
| { | | | | | | |
| Value | | | | | | |
| } | | | | | | |
| <u>Value</u> | | | | | | |

One calibrated sample is: 31.332201 lsb (DC and CT version) 1V (50Hz).

Means one bit = 0.0319V Data type: INTEGER16

Authorized value: -32768 to 32767

Default value: 0

12.1.142 ZeroSequencel

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;91;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------|
| A1. logical_name | OCTETSTRING | ZeroSequenceIOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| ZeroSequenceI | | | | | | |
| | | | | | | |

ZeroSequencel

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

<u>scaler</u>

-2 for DC

-3 for CT

Data type: INTEGER8
Authorized value: -3 to -2

Default value: -2

<u>unit</u>

Data type: ENUMERATED Authorized value: 33: A Default value: A (33)

12.1.143 ZeroSequenceU

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;92;7;0;255 | 3 | 0 | 3 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------|
| A1. logical_name | OCTETSTRING | ZeroSequenceUOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| ZeroSequenceU | | | | | | |
| <u>ZeroSequenceU</u> | | | | | | |
| Data type: UNSIGNE | -D16 | | | | | |

Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---------------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { scaler unit } | elements | | | | | |
| <u>scaler</u> | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: -1 | | | | | | |
| Default value: -1 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 35 | i: V | | | | | |
| Default value: V (35) | | | | | | |

12.2 Cosem profiles

12.2.1 AllDipsNumber

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;0;182;0;0;255 | 7 | 1 | 1 | 0 | ROM | 30 | 0 | 1 | 1 | 1 |

Logical devices:

Management Electricity End customer
True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-----------------------|--|
| A1. logical_name | OCTETSTRING | AllDipsNumberOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

```
Electricity laboratory
                    Electricity utility
                                  Electricity reader
                                                End customer Manufacturer Resources upgrader Engineer
       Get
                        Get
                                       Get
                                                    Get
                                                               Get
                                                                                        Get
Attribute description
 SEOUENCE OF
                 // 1 elements
   SEQUENCE
                // 30 elements
     DipsNumber_n00 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n01 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n02 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n03 (Att. Id: 2, Abs. Number: 1)
     DipsNumber n04 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n05 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n10 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n11 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n12 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n13 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n14 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n15 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n20 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n21 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n22 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n23 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n24 (Att. Id: 2, Abs. Number: 1)
     DipsNumber n25 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n30 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n31 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n32 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n33 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n34 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n35 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n40 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n41 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n42 (Att. Id: 2, Abs. Number:
     DipsNumber_n43 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n44 (Att. Id: 2, Abs. Number: 1)
     DipsNumber_n45 (Att. Id: 2, Abs. Number: 1)
```

■ Attribute 3: capture_objects

Get

Get

```
Here below, the details of each index in the array:
Index 1 (DipsNumber n00): Obis code = 1;1;12;32;0;255, Class id = 1, Attribute index = 2, Data index = 0
Index 2 (DipsNumber n01): Obis code = 1;1;12;32;1;255, Class id = 1, Attribute index = 2, Data index = 0
Index 3 (DipsNumber n02): Obis code = 1;1;12;32;2;255, Class id = 1, Attribute index = 2, Data index = 0
Index 4 (DipsNumber n03): Obis code = 1;1;12;32;3;255, Class id = 1, Attribute index = 2, Data index = 0
Index 5 (DipsNumber n04): Obis code = 1;1;12;32;4;255, Class id = 1, Attribute index = 2, Data index = 0
Index 6 (DipsNumber n05): Obis code = 1;1;12;32;5;255, Class id = 1, Attribute index = 2, Data index = 0
Index 7 (DipsNumber n10): Obis code = 1;1;12;32;10;255, Class id = 1, Attribute index = 2, Data index =
Index 8 (DipsNumber n11): Obis code = 1;1;12;32;11;255, Class id = 1, Attribute index = 2, Data index = 0
Index 9 (DipsNumber n12): Obis code = 1;1;12;32;12;255, Class id = 1, Attribute index = 2, Data index =
Index 10 (DipsNumber n13): Obis code = 1;1;12;32;13;255, Class id = 1, Attribute index = 2, Data index =
Index 11 (DipsNumber_n14): Obis_code = 1;1;12;32;14;255, Class_id = 1, Attribute_index = 2, Data_index =
Index 12 (DipsNumber n15): Obis code = 1;1;12;32;15;255, Class id = 1, Attribute index = 2, Data index =
Index 13 (DipsNumber_n20): Obis_code = 1;1;12;32;20;255, Class_id = 1, Attribute_index = 2, Data_index =
Index 14 (DipsNumber n21): Obis code = 1;1;12;32;21;255, Class id = 1, Attribute index = 2, Data index =
Index 15 (DipsNumber n22): Obis code = 1;1;12;32;22;255, Class id = 1, Attribute index = 2, Data index =
Index 16 (DipsNumber n23): Obis code = 1;1;12;32;23;255, Class id = 1, Attribute index = 2, Data index =
Index 17 (DipsNumber_n24): Obis_code = 1;1;12;32;24;255, Class_id = 1, Attribute_index = 2, Data_index =
Index 18 (DipsNumber_n25): Obis_code = 1;1;12;32;25;255, Class_id = 1, Attribute_index = 2, Data_index =
Index 19 (DipsNumber n30): Obis code = 1;1;12;32;30;255, Class id = 1, Attribute index = 2, Data index =
Index 20 (DipsNumber n31): Obis code = 1;1;12;32;31;255, Class id = 1, Attribute index = 2, Data index =
Index 21 (DipsNumber n32): Obis code = 1;1;12;32;32;255, Class id = 1, Attribute index = 2, Data index =
Index 22 (DipsNumber_n33): Obis_code = 1;1;12;32;33;255, Class_id = 1, Attribute_index = 2, Data_index =
Index 23 (DipsNumber_n34): Obis_code = 1;1;12;32;34;255, Class_id = 1, Attribute_index = 2, Data_index =
Index 24 (DipsNumber n35): Obis code = 1;1;12;32;35;255, Class id = 1, Attribute index = 2, Data index =
Index 25 (DipsNumber n40): Obis code = 1;1;12;32;40;255, Class id = 1, Attribute index = 2, Data index =
Index 26 (DipsNumber_n41): Obis_code = 1;1;12;32;41;255, Class_id = 1, Attribute_index = 2, Data_index =
Index 27 (DipsNumber_n42): Obis_code = 1;1;12;32;42;255, Class_id = 1, Attribute_index = 2, Data_index =
Index 28 (DipsNumber_n43): Obis_code = 1;1;12;32;43;255, Class_id = 1, Attribute_index = 2, Data_index =
Index 29 (DipsNumber_n44): Obis_code = 1;1;12;32;44;255, Class_id = 1, Attribute_index = 2, Data_index =
Index 30 (DipsNumber_n45): Obis_code = 1;1;12;32;45;255, Class_id = 1, Attribute_index = 2, Data_index =
Access rights (clients)
                      Electricity utility
 Electricity laboratory
                                       Electricity reader
                                                       End customer Manufacturer Resources upgrader Engineer
```

Get

Get

Get

Get

Attribute description SEQUENCE OF // 30 elements SEQUENCE // 4 elements Class_id Obis_code Attribute_index Data_index Class id Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 Obis_code Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 0;0;0;0;0;0;0; Attribute index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 Data index Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0

12.2.2 AllInstantaneousPowerFactors

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;128;5;25
5 | 7 | 1 | 1 | 0 | ROM | 4 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| | Content |
|-----------------------------|--|
| A1. logical_name OCTETSTRIN | G AllInstantaneousPowerFactorsOBISCode |
| A2. buffer ARRAY | See below |
| A3. capture_objects ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (InstantaneousPowerFactorPhase1): Obis_code = 1;1;33;7;0;255, Class_id = 3, Attribute_index = 0, Data index = 0

Index 2 (InstantaneousPowerFactorPhase2): Obis_code = 1;1;53;7;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 3 (InstantaneousPowerFactorPhase3): Obis_code = 1;1;73;7;0;255, Class_id = 3, Attribute_index = 0, Data index = 0

Index 4 (InstantaneousPowerFactorAggregate): Obis_code = 1;1;13;7;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0

| Electricity laborat | | Electricity reader | | | Resources upgrader | |
|------------------------|----------------------|--------------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute descrip | tion | | | | | |
| SEQUENCE OF | // 4 elements | | | | | |
| {
SEQUENCE | // 4 elements | | | | | |
| { | // I CICIICITED | | | | | |
| Class_id | | | | | | |
| Obis_code
Attribute | | | | | | |
| Data_inde | | | | | | |
| } | | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNS | SIGNED16 | | | | | |
| Authorized value | ie: 0 to 65535 | | | | | |
| Default value: 0 |) | | | | | |
| Obis_code | | | | | | |
| Data type: OCT | TETSTRING | | | | | |
| Authorized valu | ue: Decoded as Decim | nal (Size = 6) | | | | |
| Default value: 0 |);0;0;0;0;0; | | | | | |
| Attribute_index | | | | | | |
| Data type: INT | EGER8 | | | | | |
| Authorized valu | ue: -128 to 127 | | | | | |
| Default value: 0 |) | | | | | |
| Data_index | | | | | | |
| Data type: UNS | SIGNED16 | | | | | |
| Authorized valu | ue: 0 to 65535 | | | | | |

Default value: 0

12.2.3 AllInstantaneous Powers

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;128;3;25
5 | 7 | 1 | 1 | 0 | ROM | 28 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------|
| A1. logical_name | OCTETSTRING | AllInstantaneousPowersOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

```
Electricity laboratory
                    Electricity utility
                                  Electricity reader
                                                End customer Manufacturer Resources upgrader Engineer
       Get
                        Get
                                       Get
Attribute description
 SEQUENCE OF
                 // 1 elements
 {
   SEQUENCE
                // 28 elements
     ImportActivePowerPhase1 (Att. Id: 0, Abs. Number: 1)
     ImportActivePowerPhase2 (Att. Id: 0, Abs. Number: 1)
     ImportActivePowerPhase3 (Att. Id: 0, Abs. Number: 1)
     ImportActivePowerAggregate (Att. Id: 0, Abs. Number: 1)
     ExportActivePowerPhase1 (Att. Id: 0, Abs. Number: 1)
     ExportActivePowerPhase2 (Att. Id: 0, Abs. Number: 1)
     ExportActivePowerPhase3 (Att. Id: 0, Abs. Number: 1)
     ExportActivePowerAggregate (Att. Id: 0, Abs. Number: 1)
     ImportReactivePowerPhase1 (Att. Id: 0, Abs. Number: 1)
     ImportReactivePowerPhase2 (Att. Id: 0, Abs. Number: 1)
     ImportReactivePowerPhase3 (Att. Id: 0, Abs. Number: 1)
     ImportReactivePowerAggregate (Att. Id: 0, Abs. Number: 1)
     ExportReactivePowerPhase1 (Att. Id: 0, Abs. Number: 1)
     ExportReactivePowerPhase2 (Att. Id: 0, Abs. Number: 1)
     ExportReactivePowerPhase3 (Att. Id: 0, Abs. Number: 1)
     ExportReactivePowerAggregate (Att. Id: 0, Abs. Number: 1)
     ReactivePowerAggregateQ1 (Att. Id: 0, Abs. Number: 1)
     ReactivePowerAggregateQ2 (Att. Id: 0, Abs. Number: 1)
     ReactivePowerAggregateQ3 (Att. Id: 0, Abs. Number: 1)
     ReactivePowerAggregateQ4 (Att. Id: 0, Abs. Number: 1)
     ImportApparentPowerPhase1 (Att. Id: 0, Abs. Number: 1)
     ImportApparentPowerPhase2 (Att. Id: 0, Abs. Number: 1)
     ImportApparentPowerPhase3 (Att. Id: 0, Abs. Number: 1)
     ImportApparentPowerAggregate (Att. Id: 0, Abs. Number: 1)
     ExportApparentPowerPhase1 (Att. Id: 0, Abs. Number: 1)
     ExportApparentPowerPhase2 (Att. Id: 0, Abs. Number: 1)
     ExportApparentPowerPhase3 (Att. Id: 0, Abs. Number: 1)
     ExportApparentPowerAggregate (Att. Id: 0, Abs. Number: 1)
   }
```

■ Attribute 3: capture_objects

```
Here below, the details of each index in the array:
Index 1 (ImportActivePowerPhase1): Obis code = 1;1;21;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 2 (ImportActivePowerPhase2): Obis code = 1;1;41;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 3 (ImportActivePowerPhase3): Obis code = 1;1;61;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 4 (ImportActivePowerAggregate): Obis code = 1;1;1;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 5 (ExportActivePowerPhase1): Obis code = 1:1:22:7:0:255, Class id = 3, Attribute index = 0,
Data index = 0
Index 6 (ExportActivePowerPhase2): Obis code = 1;1;42;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 7 (ExportActivePowerPhase3): Obis code = 1;1;62;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 8 (ExportActivePowerAggregate): Obis code = 1;1;2;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 9 (ImportReactivePowerPhase1): Obis code = 1;1;23;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 10 (ImportReactivePowerPhase2): Obis code = 1;1;43;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 11 (ImportReactivePowerPhase3): Obis code = 1;1;63;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 12 (ImportReactivePowerAggregate): Obis code = 1;1;3;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 13 (ExportReactivePowerPhase1): Obis code = 1;1;24;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 14 (ExportReactivePowerPhase2): Obis code = 1;1;44;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 15 (ExportReactivePowerPhase3): Obis code = 1;1;64;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 16 (ExportReactivePowerAggregate): Obis code = 1;1;4;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 17 (ReactivePowerAggregateQ1): Obis code = 1;1;5;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 18 (ReactivePowerAggregateQ2): Obis code = 1;1;6;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 19 (ReactivePowerAggregateQ3): Obis_code = 1;1;7;7;0;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 20 (ReactivePowerAggregateQ4): Obis code = 1;1;8;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 21 (ImportApparentPowerPhase1): Obis code = 1;1;29;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 22 (ImportApparentPowerPhase2): Obis code = 1;1;49;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 23 (ImportApparentPowerPhase3): Obis code = 1;1;69;7;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 24 (ImportApparentPowerAggregate): Obis_code = 1;1;9;7;0;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 25 (ExportApparentPowerPhase1): Obis_code = 1;1;30;7;0;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 26 (ExportApparentPowerPhase2): Obis_code = 1;1;50;7;0;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 27 (ExportApparentPowerPhase3): Obis_code = 1;1;70;7;0;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 28 (ExportApparentPowerAggregate): Obis_code = 1;1;10;7;0;255, Class_id = 3, Attribute_index = 0,
Data_index = 0
Access rights (clients)
```

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|---------------------------|---------------------|--------------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF { | // 28 elements | | | | | |
| SEQUENCE | // 4 elements | | | | | |
| {
Class_id | | | | | | |
| Obis_code | | | | | | |
| Attribute_i
Data_index | ndex | | | | | |
| } | | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNSIGI | NED16 | | | | | |
| Authorized value: (| 0 to 65535 | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTET | STRING | | | | | |
| Authorized value: I | Decoded as Decima | al (Size = 6) | | | | |
| Default value: 0;0;0 | 0;0;0;0; | | | | | |
| Attribute_index | | | | | | |
| Data type: INTEGE | ER8 | | | | | |
| Authorized value: - | 128 to 127 | | | | | |
| Default value: 0 | | | | | | |
| <u>Data_index</u> | | | | | | |
| Data type: UNSIGI | NED16 | | | | | |
| Authorized value: (|) to 65535 | | | | | |
| Default value: 0 | | | | | | |

12.2.4 AllOffsets

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;128;6;25
5 | 7 | 1 | 1 | 0 | ROM | 6 | 0 | 1 | 1 | 1 |

Logical devices :

| • | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------|--|
| A1. logical_name | OCTETSTRING | AllOffsetsOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

End customer Manufacturer Resources upgrader Engineer

End customer Manufacturer Resources upgrader Engineer **Electricity laboratory** Electricity utility Electricity reader Get Get Get Get Attribute description SEQUENCE OF // 1 elements SEQUENCE // 6 elements OffsetCurrentPhase1 (Att. Id: 0, Abs. Number: 1) OffsetCurrentPhase2 (Att. Id: 0, Abs. Number: 1) OffsetCurrentPhase3 (Att. Id: 0, Abs. Number: 1) OffsetVoltagePhase1 (Att. Id: 0, Abs. Number: 1) OffsetVoltagePhase2 (Att. Id: 0, Abs. Number: OffsetVoltagePhase3 (Att. Id: 0, Abs. Number: 1) }

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Electricity utility

Index 1 (OffsetCurrentPhase1): Obis_code = 1;1;96;50;1;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 2 (OffsetCurrentPhase2): Obis_code = 1;1;96;50;2;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 3 (OffsetCurrentPhase3): Obis_code = 1;1;96;50;3;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 4 (OffsetVoltagePhase1): Obis_code = 1;1;96;50;4;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 5 (OffsetVoltagePhase2): Obis_code = 1;1;96;50;5;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 6 (OffsetVoltagePhase3): Obis_code = 1;1;96;50;6;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Electricity reader

Access rights (clients)

Electricity laboratory

| Get | Get | Get | Get | Get | - | Get |
|-----------------------|-------------------|---------------|-----|-----|---|-----|
| Attribute descriptio | n | | | | | |
| | // 6 elements | | | | | |
| SEQUENCE | // 4 elements | | | | | |
| { | | | | | | |
| Class_id
Obis_code | | | | | | |
| Attribute_: | index | | | | | |
| Data_index | | | | | | |
| } | | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNSIG | SNED16 | | | | | |
| Authorized value: | 0 to 65535 | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTE | TSTRING | | | | | |
| Authorized value: | Decoded as Decima | al (Size = 6) | | | | |
| Default value: 0;0 | ;0;0;0;0; | | | | | |
| Attribute_index | | | | | | |

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

12.2.5 AllPhaseAngles

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;128;1;25
5 | 7 | 1 | 1 | 0 | ROM | 6 | 0 | 1 | 1 | 1 |

Logical devices:

Management Electricity End customer
True True True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | AllPhaseAnglesOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | n | | | | | |
| SEOUENCE OF | // 1 elements | | | | | |
| { | ,, = ================================== | | | | | |
| SEQUENCE | // 6 elements | | | | | |
| \ PHOOPINGE | // O CICINCITED | | | | | |
| l
31-111111 / | (a++ T-1 0 a) | Manual 1 \ | | | | |
| AngleUlli (| (Att. Id: 0, Abs. | Number: 1) | | | | |
| AngleU2I2 (| (Att. Id: 0, Abs. | Number: 1) | | | | |
| AngleU3I3 (| Att. Id: 0, Abs. | Number: 1) | | | | |
| AngleU2U1 (| Att. Id: 0, Abs. | Number: 2) | | | | |
| AngleU1U3 (| Att. Id: 0, Abs. | Number: 2) | | | | |
| AngleU3U2 (| Att. Id: 0, Abs. | Number: 2) | | | | |
| } | , | , | | | | |
| , | | | | | | |
| J | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (AngleU1I1): Obis_code = 1;1;81;7;40;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Index 2 (AngleU2I2): Obis_code = 1;1;81;7;51;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Index 3 (AngleU3I3): Obis_code = 1;1;81;7;62;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Index 4 (AngleU2U1): Obis_code = 1;1;81;7;10;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Index 5 (AngleU1U3): Obis_code = 1;1;81;7;2;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Index 6 (AngleU3U2): Obis_code = 1;1;81;7;21;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

```
SEQUENCE OF // 6 elements
  SEQUENCE
                // 4 elements
    Class_id
    Obis_code
    Attribute_index
    Data_index
}
Class_id
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
Obis_code
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 0;0;0;0;0;0;0;
Attribute_index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
Data_index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

12.2.6 AllRmsValues

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;128;4;25
5 | 7 | 1 | 1 | 0 | ROM | 6 | 0 | 1 | 1 | 1 |

Logical devices:

| • | | | |
|------------|-------------|--------------|--|
| Management | Electricity | End customer | |
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------|
| A1. logical_name | OCTETSTRING | AllRmsValuesOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

■ Attribute 3: capture_objects

```
Here below, the details of each index in the array:
```

```
Index 1 (RmsCurrentValuePhase1): Obis_code = 1;1;31;7;0;255, Class_id = 3, Attribute_index = 0, Data index = 0
```

```
Index 2 (RmsCurrentValuePhase2): Obis_code = 1;1;51;7;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0
```

```
Index 3 (RmsCurrentValuePhase3): Obis_code = 1;1;71;7;0;255, Class_id = 3, Attribute_index = 0, Data index = 0
```

```
Index 4 (RmsVoltageValuePhase1): Obis_code = 1;1;32;7;0;255, Class_id = 3, Attribute_index = 0, Data index = 0
```

```
Index 5 (RmsVoltageValuePhase2): Obis_code = 1;1;52;7;0;255, Class_id = 3, Attribute_index = 0, Data index = 0
```

Index 6 (RmsVoltageValuePhase3): Obis_code = 1;1;72;7;0;255, Class_id = 3, Attribute_index = 0, Data index = 0

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                        End customer Manufacturer Resources upgrader Engineer
        Get
                            Get
                                             Get
                                                            Get
                                                                         Get
                                                                                                      Get
Attribute description
 SEQUENCE OF
                    // 6 elements
   SEQUENCE
                   // 4 elements
     Class_id
     Obis_code
     Attribute_index
     Data_index
 }
 Class id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
 Obis code
 Data type: OCTETSTRING
 Authorized value: Decoded as Decimal (Size = 6)
 Default value: 0;0;0;0;0;0;0;
 Attribute_index
 Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
```

Data index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

12.2.7 ZeroSequence

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;128;2;25
5 | 7 | 1 | 3 | 0 | ROM | 2 | 0 | 1 | 1 | 1 |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------|
| A1. logical_name | OCTETSTRING | ZeroSequenceOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE OF | // 1 elements | | | | | |
| { | | | | | | |
| SEQUENCE / | / 2 elements | | | | | |
| { | | | | | | |
| ZeroSequence | I (Att. Id: 0, | Abs. Number: | 2) | | | |
| ZeroSequence | U (Att. Id: 0, | Abs. Number: | 2) | | | |
| } | | | | | | |
| } | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (ZeroSequencel): Obis_code = 1;1;91;7;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Index 2 (ZeroSequenceU): Obis_code = 1;1;92;7;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                         End customer Manufacturer Resources upgrader Engineer
                            Get
                                              Get
                                                             Get
                                                                          Get
                                                                                                       Get
Attribute description
 SEQUENCE OF
                    // 2 elements
   SEQUENCE
                   // 4 elements
     Class_id
     Obis_code
     Attribute_index
     Data_index
 Class_id
 Data type: UNSIGNED16
```

Authorized value: 0 to 65535

Default value: 0
Obis_code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

13 Miscellaneous

13.1 Cosem objects

13.1.1 BatteryVoltage

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;96;6;3;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | BatteryVoltageOBISCode |
| A2. value | UNSIGNED8 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| L | Get | Get | Get | Get | Get | - | Get | | |
| | Attribute description | | | | | | | | |
| | BatteryVoltage BatteryVoltage | | | | | | | | |
| | Remark: This value will have to be converted in Volts by the software:> Battery Voltage in Volts = BatteryVoltage * 6,3 / 255. | | | | | | | | |

Data type: UNSIGNED8

Authorized value: 0 to 255
Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| { Scaler | 2 elements | | | | | |
| Unit
} | | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGE | R8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |

Authorized value: 255: No unit Default value: No unit (255)

13.1.2 ControlOutputState

This data allows, for testing purpose, to set the control output to a specific value.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;3;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer

True False False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | ControlOutputStateOBISCode |
| A2. value | UNSIGNED8 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

ControlOutputState

ControlOutputState

Each bit is relative to a specific physical control output :

- bit 0..3 not used
- bit 4 CO4 for full IO board (not used in light IO)
- bit 5 CO3 for full IO board (not used in light IO)
- bit 6 CO2
- bit 7 CO1

To speed up the output test, the pattern is applied on the output immediately by the meter (no validate needed).

sample:

CO1 = 128

CO1 & CO2 = 192

CO1 & CO2 & CO3 = 224

CO1 & CO2 & CO3 & CO4 = 240

Data type: UNSIGNED8

Authorized value: 0 to 240

Default value: 0

13.1.3 CoverOpeningState

This data provides the state of the meter cover.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;96;60;1;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | CoverOpeningStateOBISCode | |
| A2. value | UNSIGNED8 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| CoverOpeningState | | | | | | |
| <u>CoverOpeningState</u> | | | | | | |
| Data type: UNSIGNE | ED8 | | | | | |
| Authorized values:
0: CLOSED
1: OPEN | | | | | | |

■ Attribute 3: scaler_unit

Default value: CLOSED (0)

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---------------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No un | nit (255) | | | | | |

13.1.4 DisplayPushButtonState

This data provides the state of the display push button.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;60;7;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------------|--------|
| A1. logical_name | OCTETSTRING | DisplayPushButtonStateOBISCode | \Box |
| A2. value | UNSIGNED8 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| DisplayPushButtor | ıState | | | | | |
| <u>DisplayPushButtonS</u> | State . | | | | | |
| Data type: UNSIGNI | ED8 | | | | | |
| Authorized values: | | | | | | |
| 0: PUSHED | | | | | | |
| 1: RELEASED | | | | | | |

Default value: PUSHED (0)

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---------------------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // . { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGEI | R8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No ur | nit (255) | | | | | |

13.1.5 I2CErrorNumber

This data gives the number of errors detected on the I2C link.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;60;6;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueFalseFalse

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------|--|
| A1. logical_name | OCTETSTRING | I2CErrorNumberOBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

I2CerrorNumber

I2CerrorNumber

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | | | | Resources upgrader | |
|------------------------|---------------------|-----|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No un | it (255) | | | | | |

13.1.6 InputPhysicalStatus

This data contains the state of all physical inputs.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;96;3;1;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer False False True

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-----------------------------|--|
| A1. logical_name | OCTETSTRING | InputPhysicalStatusOBISCode | |
| A2. value | UNSIGNED8 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| 7 toocoo riginto (olicinto) | | | | | | |
|---|---------------------|--------------------|--------------|-----|--------------------|-----|
| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
| Get | Get | Get | Get | Get | - | Get |
| Attribute description InputState | | | | | | |
| <u>InputState</u> | | | | | | |
| For each bit : | | | | | | |
| - 0 : low level | | | | | | |
| - 1 : high level | | | | | | |
| For the light IO board | d : | | | | | |
| - Bit 04 : not used | | | | | | |
| - Bit 5 : Control input | | | | | | |
| - Bit 6 : Pulse input 1 | | | | | | |
| - Bit 7 : Pulse input 2 | | | | | | |
| For the full IO board | : | | | | | |
| - Bit 01 : not used | | | | | | |
| - Bit 2 : Control input | | | | | | |
| - Bit 3 : Control input | | | | | | |
| - Bit 4 : Pulse input 1 | | | | | | |
| Bit 5 : Pulse input 2Bit 6 : Pulse input 3 | | | | | | |
| - Bit 7 : Pulse input 4 | | | | | | |
| Inputs not used are r | | evel (correspondi | ng bit = 1). | | | |
| Data type: UNSIGNE | ED8 | | | | | |
| Authorized value: 0 t | o 255 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                         End customer Manufacturer Resources upgrader Engineer
Attribute description
SEQUENCE // 2 elements
   Scaler
   Unit
Scaler
No scaler
Data type: INTEGER8
Authorized value: 0
Default value: 0
<u>Unit</u>
Data type: ENUMERATED
```

Authorized value: 255: No unit Default value: No unit (255)

13.1.7 LaboratorySwitchLogicalState

This data provides the logical state of the laboratory switch.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;61;1;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| - | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | LaboratorySwitchLogicalStateOBISCode |
| A2. value | UNSIGNED8 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|----------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| ŀ | Get | Oet | Oet | Oet | Get | - | Oct |
| ŀ | Attribute description | | | | | | |
| | LaboratorySwitchI | LogicalState | | | | | |
| | LaboratorySwitchLo | <u>gicalState</u> | | | | | |
| | | | | | | | |
| | Data type: UNSIGNI | ED8 | | | | | |
| | Authorized values: | | | | | | |
| | 0: Pushed | | | | | | |

■ Attribute 3: scaler_unit

Default value: Released (1)

Access rights (clients)

1: Released

| E | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|----------|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| Att | ribute description | | | | | | |
| S | EQUENCE // 2 | elements | | | | | |
| { | Scaler | | | | | | |
| | Unit | | | | | | |
| } | | | | | | | |
| <u>s</u> | <u>caler</u> | | | | | | |
| Ν | o scaler | | | | | | |
| D | ata type: INTEGER | 88 | | | | | |
| Α | uthorized value: 0 | | | | | | |
| D | efault value: 0 | | | | | | |
| <u>U</u> | <u>nit</u> | | | | | | |
| D | ata type: ENUMER | ATED | | | | | |

Authorized value: 255: No unit Default value: No unit (255)

13.1.8 LaboratorySwitchState

This data provides the state of the laboratory switch.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;60;9;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | LaboratorySwitchStateOBISCode |
| A2. value | UNSIGNED8 | See below |
| A3. scaler unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|----------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attaile of a planting time | | | | | | |
| Attribute description | | | | | | |
| LaboratorySwitchS | State | | | | | |
| LaboratorySwitchSta | <u>ate</u> | | | | | |
| Data type: UNSIGNE | ED8 | | | | | |

Authorized values: 0: Pushed

0: Pushed 1: Released

Default value: Released (1)

Data type: ENUMERATED

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // { Scaler Unit | 2 elements | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGE | R8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |

Authorized value: 255: No unit Default value: No unit (255)

13.1.9 PowerSupplyVoltage

This data gives the value of the power supply voltage (value read on the ADC). It is the voltage of the Vsave.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;60;3;25 | 5 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------------|--|
| A1. logical_name | OCTETSTRING | PowerSupplyVoltageOBISCode | |
| A2. value | UNSIGNED8 | See below | |
| A3. scaler unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|-------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| | | | | | | | | |
| Attribute description | | | | | | | | |
| PowerSupplyVoltageValue | | | | | | | | |

<u>PowerSupplyVoltageValue</u>

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients) Electricity laboratory

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|-----------------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGE | R8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |

Data type: ENUMERATED Authorized value: 255: No unit

<u>Unit</u>

Default value: No unit (255)

13.1.10 PulseOutputState

This data allows, for testing purpose, to set the control output to a specific value.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;62;0;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | PulseOutputStateOBISCode |
| A2. value | UNSIGNED8 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

PulseOutputState

<u>PulseOutputState</u>

Each bit is relative to a specific physical pulse output:

- bit 0..1 not used
- bit 2 PO6 for full IO board (not used in light IO)
- bit 3 PO5 for full IO board (not used in light IO)
- bit 4 PO4 for full IO board (not used in light IO)
- bit 5 PO3 for full IO board (not used in light IO)
- bit 6 PO2
- bit 7 PO1

To speed up the output test, the pattern is applied on the output immediately by the meter (no validate needed).

sample:

PO1 = 128

PO1 & PO2 = 192

PO1 & PO2 & PO3 = 224

PO1 & PO2 & PO3 & PO4 = 240

PO1 & PO2 & PO3 & PO4 & PO5 = 248

PO1 & PO2 & PO3 & PO4 & PO5 & PO6 = 252

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 0

13.1.11 ResetPushButtonState

This data provide the state of the reset push button.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;60;8;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | | |
|----------------------|-------------|--------------|--|--|
| True | False | False | | |
| Attributes / Methods | | | | |
| Attribute (A) / Me | ethod (M) | Data type | | |
| A1. logical_nam | e | OCTETS | | |
| A2. value | | UNSIGNI | | |
| A3. scaler_unit | | SEQUEN | | |

Access rights (clients)

| • , | , | | | | | |
|--|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get | Get | Get | Get | Get | - | Get |
| Attribute description ResetPushButtonS | tate | | | | | |
| ResetPushButtonSt | <u>ate</u> | | | | | |
| Data type: UNSIGN | ED8 | | | | | |
| Authorized values:
0: Pushed
1: Released | | | | | | |

■ Attribute 3: scaler_unit

Default value: Pushed (0)

Access rights (clients)

| Electricity laboratory | Electricity utility | | | | Resources upgrader | |
|------------------------|---------------------|-----|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No un | nit (255) | | | | | |

13.1.12 RTCCorrectionValue

This data gives the value of the RTC correction.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;60;4;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | RTCCorrectionValueOBISCode |
| A2. value | INTEGER8 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description RTCCorrectionValue | | | | | | |
| | - | | | | | |

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|----------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | - 31 | 300 | | | | - 31 |
| · · | elements | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 25 | 5: No unit | | | | | |
| Default value: No un | it (255) | | | | | |

13.1.13 TemperatureVoltage

This data gives the value of the temperature voltage (value read on the ADC).

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;60;2;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

ManagementElectricityEnd customerTrueFalseFalse

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------------|--|
| A1. logical_name | OCTETSTRING | TemperatureVoltageOBISCode | |
| A2. value | UNSIGNED8 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

TemperatureVoltageValue

TemperatureVoltageValue

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 127

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---------------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No ur | nit (255) | | | | | |

13.1.14 WorkingMode

This data gives the working mode of the meter.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;60;5;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------|--|
| A1. logical_name | OCTETSTRING | WorkingModeOBISCode | |
| A2. value | UNSIGNED8 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| 1 | | | | | | 5 . | |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| | Get | Get | Get | Get | Get | _ | Get |
| ı | | | | | | | |
| | Attribute description | | | | | | |
| Ī | • | | | | | | |
| | WorkingMode | | | | | | |
| | | | | | | | |
| | WorkingMode | | | | | | |
| | | | | | | | |
| | Data tuna: LINGICNI | rno. | | | | | |
| | Data type: UNSIGN | EDO | | | | | |
| | A | | | | | | |
| | Authorized values: | | | | | | |
| | 7: NON OPERATION | NAI | | | | | |
| | | · - | | | | | |
| | 56: OPERATIONAL | | | | | | |
| | 192: MICRO FAILUI | RF | | | | | |

■ Attribute 3: scaler_unit

Default value: NON OPERATIONAL (7)

Access rights (clients)

| Electricity laboratory | Electricity utility | | | | Resources upgrader | |
|-----------------------------------|---------------------|-----|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| No scaler | | | | | | |
| Data type: INTEGE | R8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 25 | 55: No unit | | | | | |
| Default value: No ur | nit (255) | | | | | |

13.2 Cosem profiles

13.2.1 ENELCurrentData

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;142;0;5;255 | 7 | 1 | 12 | 0 | ROM | 4 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------------|-------------|--------------|
| True | True | True |
| Attributes / Met | hods | |

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | ENELCurrentDataOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get | Get | Get | Get | Get | - | Get | |
| | | | | | | | |
| Attribute description | | | | | | | |
| SEQUENCE OF | // 1 elements | | | | | | |
| { | | | | | | | |
| SEQUENCE / | / 4 elements | | | | | | |
|) | , i ciclicites | | | | | | |
| MatauTafaa / | 7 Tal. 0 7b | M | | | | | |
| , | Att. Id: 2, Abs | , | | | | | |
| LightTotalEnergies (Att. Id: 2, Abs. Number: 2) | | | | | | | |
| AllEnergyRat | es (Att. Id: 2, | Abs. Number: | 7) | | | | |
| AllMaximumDe | mands (Att. Id: | 2, Abs. Numbe | er: 1) | | | | |
| } | | | | | | | |
| } | | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (MeterInfos): Obis_code = 0;0;142;0;4;255, Class_id = 7, Attribute_index = 2, Data_index = 0 Index 2 (LightTotalEnergies): Obis_code = 0;0;98;133;3;255, Class_id = 7, Attribute_index = 2, Data_index = 0

Index 3 (AllEnergyRates): Obis_code = 0;0;98;133;1;255, Class_id = 7, Attribute_index = 2, Data_index = 0 Index 4 (AllMaximumDemands): Obis_code = 0;0;98;133;6;255, Class_id = 7, Attribute_index = 2, Data_index = 0

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF | // 4 elements | | | | | |
| SEQUENCE / { Class_id | / 4 elements | | | | | |
| Obis_code | | | | | | |
| Attribute_in | dex | | | | | |
| Data_index } | | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTETS | STRING | | | | | |
| Authorized value: D | ecoded as Decim | al (Size = 6) | | | | |
| Default value: 0;0;0 | ;0;0;0; | | | | | |

Attribute index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

13.2.2 InternalControlSignals

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;96;4;0;255 | 7 | 1 | 1 | 0 | ROM | 4 | 0 | 1 | 1 | 1 |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Electricity utility

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------------|--|
| A1. logical_name | OCTETSTRING | InternalControlSignalsOBISCode | |
| A2. buffer | ARRAY | See below | |
| A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manuacturer | Resources upgrader | Engineer | | |
|--|---------------------|--------------------|--------------|-------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| A 44 | | | | | | | | |
| Attribute description | | | | | | | | |
| SEQUENCE OF | // 1 elements | | | | | | | |
| { | | | | | | | | |
| SEQUENCE / | / 4 elements | | | | | | | |
| { | | | | | | | | |
| DisplayPushB | uttonState (Att | . Id: 2, Abs. | Number: 1) | | | | | |
| ResetPushBut | tonState (Att. | Id: 2, Abs. No | umber: 1) | | | | | |
| LaboratorySwitchState (Att. Id: 2, Abs. Number: 1) | | | | | | | | |
| CoverOpening | State (Att. Id: | 2, Abs. Numbe | er: 1) | | | | | |
| } | | | | | | | | |
| } | | | | | | | | |

Flactricity reader End customer Manufacturer Resources ungrader Engineer

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (DisplayPushButtonState): Obis_code = 0;0;96;60;7;255, Class_id = 3, Attribute_index = 2,

Data index = 0

Index 2 (ResetPushButtonState): Obis code = 0;0;96;60;8;255, Class id = 3, Attribute index = 2,

 $Data_index = 0$

Index 3 (LaboratorySwitchState): Obis_code = 0;0;96;60;9;255, Class_id = 3, Attribute_index = 2,

Data index = 0

Index 4 (CoverOpeningState): Obis_code = 0;0;96;60;1;255, Class_id = 3, Attribute_index = 2, Data_index = 0

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description SEQUENCE OF // 4 elements SEQUENCE // 4 elements Class_id Obis_code Attribute_index Data_index Class id Data type: UNSIGNED16 Authorized value: 0 to 65535 Default value: 0 Obis_code Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 6) Default value: 0;0;0;0;0;0;0; Attribute index Data type: INTEGER8 Authorized value: -128 to 127 Default value: 0 Data index Data type: UNSIGNED16 Authorized value: 0 to 65535

13.2.3 MeterInfos

Default value: 0

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;142;0;4;255 | 7 | 1 | 12 | 0 | ROM | 5 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| A1. logical_name OCTETSTRING MeterInfosOBISCode A2. buffer ARRAY See below | Attribute (A) / Method (M) | Data type | Content | |
|--|----------------------------|-------------|--------------------|--|
| A2. buffer ARRAY See below | A1. logical_name | OCTETSTRING | MeterInfosOBISCode | |
| | A2. buffer | ARRAY | See below | |
| A3. capture_objects ARRAY See below | A3. capture_objects | ARRAY | See below | |

■ Attribute 2: buffer

Access rights (clients)

| Get Get Get Get - Get | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |

Attribute description

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (SapAssignment): Obis_code = 0;0;41;0;0;255, Class_id = 17, Attribute_index = 0, Data_index = 0 Index 2 (CurrentDateAndTime): Obis_code = 0;0;1;0;0;255, Class_id = 8, Attribute_index = 1, Data_index = 0

Index 3 (CurrentDateAndTime): Obis_code = 0;0;1;0;0;255, Class_id = 8, Attribute_index = 2, Data_index = 0

Index 4 (NonFatalAlarms): Obis_code = 0;0;97;97;2;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Index 5 (FatalAlarms): Obis_code = 0;0;97;97;1;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | | |
|------------------------------|---------------------|--------------------|-----|-----|--------------------|-----|--|
| Get | Get | Get | Get | Get | - | Get | |
| Attribute description | | | | | | | |
| SEQUENCE OF { | // 5 elements | | | | | | |
| • | // 4 elements | | | | | | |
| {
Class_id | | | | | | | |
| Obis_code | | | | | | | |
| Attribute_i
Data_index | ndex | | | | | | |
| } | | | | | | | |
| } | | | | | | | |
| Class_id | | | | | | | |
| Data type: UNSIG | NED16 | | | | | | |
| Authorized value: 0 to 65535 | | | | | | | |
| Default value: 0 | | | | | | | |
| Obis_code | | | | | | | |
| Data type: OCTET | STRING | | | | | | |
| Authorized value: | Decoded as Decim | al (Size = 6) | | | | | |
| Default value: 0;0; | 0;0;0;0; | | | | | | |
| Attribute_index | | | | | | | |
| Data type: INTEG | ER8 | | | | | | |
| Authorized value: | -128 to 127 | | | | | | |
| Default value: 0 | | | | | | | |
| Data_index | | | | | | | |
| Data type: UNSIG | NED16 | | | | | | |
| Authorized value: | 0 to 65535 | | | | | | |

Default value: 0

14 Scripts

14.1 Cosem objects

14.1.1 Asynchronous EOBS cript Table

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;10;0;1;255 | 9 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | AsynchronousEOBScriptTableOBISCode |
| M1. scripts | UNSIGNED16 | See below |

■ Method 1: scripts

Script 1: EOB ResetScript 2: Data PushAccess rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Action | Action | Action | - | Action | - | - |

Attribute description

Data

Data

Data(1): EOB Reset script execution allows the user to copy to historic array the current billing registers and reset MDI.

Data(2): Data Push script execution involves the meter to send the data at the next minute.

Data type: UNSIGNED16

Authorized values:

1: EOB Reset

2: Data Push

Default value: EOB Reset (1)

14.1.2 EndTestScriptTable

The script described here stops all triggered tests. The output state are restored to their « normal » value meter and resume normal operation.

This script shall be executed automatically at logical logoff when a test was activated.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;10;0;102;255 | 9 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | EndTestScriptTableOBISCode |
| M1. scripts | UNSIGNED16 | See below |

■ Method 1: scripts

This object contains implicitely 1 script which stops all active tests.

Access rights (clients)

Electricity laboratory Electricity utility Electricity reader End customer Manufacturer Resources upgrader Engineer
Action - - Action - -

Attribute description

Data

<u>Data</u>

Data(1): EndTriggeredTest
Data type: UNSIGNED16

Authorized value: 1: End Triggered Test Default value: End Triggered Test (1)

14.1.3 EnterInDownloadMode

This script must be sent alone in a Cosem session.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;10;0;103;255 | 9 | 0 | 1 | 0 | False | True | True |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (| A) / Method (M) | Data type | Content |
|-------------|-----------------|-------------|-----------------------------|
| A1. logica | I_name | OCTETSTRING | EnterInDownloadModeOBISCode |
| M1. script | S | UNSIGNED16 | See below |

■ Method 1: scripts

This object contains 1 script that allows the user to enter in Download mode.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Action | _ | - | _ | Action | - | _ |

Attribute description

Data

Data

Data(1): EnterIndownloadMode script execution allows the user to enter in Download mode

This script must be sent alone in a Cosem session.

Data type: UNSIGNED16

Authorized value: 1: Enter in download mode Default value: Enter in download mode (1)

14.1.4 GlobalDeviceScriptTable

by identifying one of the above listed numbers for DATA, the relevant script is executed.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;10;0;0;255 | 9 | 0 | 3 | 0 | False | True | False |

Logical devices:

| Management | Electricity | End customer |
|-----------------------|-------------|--------------|
| True | False | False |
| Attributes / Met | nods | |
| Attribute (A) / Metho | d (M) | Data type |
| A1. logical_name | | OCTETSTRI |
| M1. scripts | | UNSIGNED1 |

■ Method 1: scripts

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Action | - | - | - | Action | - | - |

Attribute description

Data

Data

Data(1): Device Reset script execution, allows erasing of all the working data of the meter. (excepted TER registers, other than UFER/DMCR total registers and Magnet sensor TER which are reset).

Data(2): Start Measurement script execution, starts the processing of all metering objects.

Data(3): Stop Measurement script execution, stops the processing of all metering objects.

Data(4): Load Profile Reset script execution, reset the load profile data. The load profile array is flushed.

Data(5): Restore Default Passwords script execution, replaces all the client current passwords by their default password.

Data(6): Clear Fatal Alarms script execution, clears the fatal alarms detected by the meter.

For scripts Device Reset , Load Profile Reset and Clear Fatal Alarms, the meter must be in NON_OPERATIONNEL mode

Data type: UNSIGNED16

Authorized values:

- 1: Device Reset
- 2: Start Measurement
- 3: Stop Measurement
- 4: Load Profile Reset
- 5: Restore Default Passwords
- 6: Clear Fatal Alarms

Default value: Start Measurement (2)

14.1.5 ResetDipsNumber

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;10;2;0;255 | 9 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------|--|
| A1. logical_name | OCTETSTRING | ResetDipsNumberOBISCode | |
| M1. scripts | UNSIGNED16 | See below | |

■ Method 1: scripts

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Action | Action | - | - | Action | - | - |
| | | | | | | |

Attribute description

Data

Data

Data(1): Reset Dips Number script execution allows the user to reset every dips number at once.

Data type: UNSIGNED16

Authorized value: 1: Reset Dips Number Default value: Reset Dips Number (1)

14.1.6 ResetManufacturerAlarmsScriptTable

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;10;128;106;25
5 | 9 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | ResetManufacturerAlarmsScriptTableOBISCode |
| M1. scripts | UNSIGNED16 | See below |

■ Method 1: scripts

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | Action | - | - |

Attribute description

Data

Data

Data(1): ClearManufacturerAlarm script execution allows the user to reset the status of the manufacturer alarms.

Data type: UNSIGNED16

Authorized value: 1: Clear Manufacturer Alarms Default value: Clear Manufacturer Alarms (1)

14.1.7 ResetNonFatalAlarmScriptTable

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;10;1;0;255 | 9 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------------|--|
| A1. logical_name | OCTETSTRING | ResetNonFatalAlarmScriptTableOBISCode | |
| M1. scripts | UNSIGNED16 | See below | |

■ Method 1: scripts

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Action | Action | Action | - | Action | - | - |
| Attribute description | | | | | | |
| Data | | | | | | |

Dace

<u>Data</u>

Data(1): ClearNonFatalAlarm script execution allows the user to reset the current status of the non fatal

alarms.

Data type: UNSIGNED16

Authorized value: 1: Clear Non Fatal Alarms Default value: Clear Non Fatal Alarms (1)

14.1.8 ResetTERScript

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;10;128;109;25
5 | 9 | 0 | 1 | 0 | True | True | True |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------|
| A1. logical_name | OCTETSTRING | ResetTERScriptOBISCode |
| M1. scripts | UNSIGNED16 | See below |

■ Method 1: scripts

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Action | - | - | - | Action | - | - |

Attribute description

Data

Data

Data(1): ResetTER script execution allows the user to reset the TER data (UFER/DMCR total energy are

NOT concerned).

Data type: UNSIGNED16

Authorized value: 1: Reset TER Data
Default value: Reset TER Data (1)

14.1.9 SaveManufacturerParameters

This script must be sent alone in a Cosem session.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;10;0;104;255 | 9 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | SaveManufacturerParametersOBISCode |
| M1. scripts | UNSIGNED16 | See below |

■ Method 1: scripts

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Action | - | - | - | Action | - | - |

Attribute description

Data

Data

Data(1): SaveManufacturerParameter script execution triggers a saveguard of manufacturer parameters.

This script must be sent alone in a Cosem session.

Data type: UNSIGNED16

Authorized value: 1: SaveManufacturerParameters
Default value: SaveManufacturerParameters (1)

14.1.10 StartMeasurementScript

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;10;128;107;25
5 | 9 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------|
| A1. logical_name | OCTETSTRING | StartMeasurementScriptOBISCode |
| M1. scripts | UNSIGNED16 | See below |

■ Method 1: scripts

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Action | - | - | - | Action | - | - |

Attribute description

Data

Data

Data(1): Start Measurement script execution, starts the processing of all metering objects.

Data type: UNSIGNED16

Authorized value: 1: Start Measurement Default value: Start Measurement (1)

14.1.11 StartTestWatchdogScript

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;10;128;111;25
5 | 9 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | StartTestWatchdogScriptOBISCode |
| M1. execute | UNSIGNED16 | See below |

■ Method 1: execute

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | Action | - | - |

Attribute description

Execute a watchdog

Data type: UNSIGNED16

Authorized value: 1: Start watchdog script Default value: Start watchdog script (1)

14.1.12 StartWaveFormScriptTable

This script allows to start the Voltage and Current wave form acquisition on the 3 phases.

The object WaveFormStatus indicates the end of acquisition.

This script is taken into account at programming (it is not necessary to validate the programming).

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;10;0;105;255 | 9 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------------------|--|
| A1. logical_name | OCTETSTRING | StartWaveFormScriptTableOBISCode | |
| M1. scripts | UNSIGNED16 | See below | |

■ Method 1: scripts

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Action | Action | Action | - | Action | - | - |

Attribute description

Data

<u>Data</u>

Data(1): StartWaveForm script execution, starts the filling of waveform arrays, by the meter.

Data type: UNSIGNED16

Authorized value: 1: Start Wave Form Acquisition
Default value: Start Wave Form Acquisition (1)

14.1.13 StopMeasurementScript

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;10;128;108;25
5 | 9 | 0 | 1 | 0 | False | True | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 False
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | StopMeasurementScriptOBISCode |
| M1. scripts | UNSIGNED16 | See below |

■ Method 1: scripts

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Action | - | - | - | Action | - | - |

Attribute description

Data

Data

Data(1): Stop Measurement script execution, stop the processing of all metering objects.

Data type: UNSIGNED16

Authorized value: 1: Stop Measurement Default value: Stop Measurement (1)

14.1.14 TriggeredTestScriptTable

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;10;0;101;255 | 9 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------------------|--|
| A1. logical_name | OCTETSTRING | TriggeredTestScriptTableOBISCode | |
| M1. scripts | UNSIGNED16 | See below | |

■ Method 1: scripts

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Action | Action | - | - | Action | - | _ |

Attribute description

Data

Data

Data(1): TriggeredTest execution allows the user to test the concerned device whose identifier is given in data parameter.

This object contains implicitely 10 scripts which perform special tests.

Data type: UNSIGNED16

Authorized value: 1: Start IO Triggered Tests
Default value: Start IO Triggered Tests (1)

15 Time Of Use

15.1 Cosem objects

15.1.1 ActivityCalendar

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;13;0;0;255 | 20 | 0 | 2 | 0 | False | False | False |

Logical devices:

| _ | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |
| | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|-------------------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | ActivityCalendarOBISCode |
| A2. calendar_name_active | OCTETSTRING | See below |
| A3. season_profile_active | ARRAY | See below |
| A4. week_profile_table_active | ARRAY | See below |
| A5. day_profile_table_active | ARRAY | See below |
| A6. calendar_name_passive | OCTETSTRING | See below |
| A7. season_profile_passive | ARRAY | See below |
| A8. week_profile_table_passive | ARRAY | See below |
| A9. day_profile_table_passive | ARRAY | See below |
| A10. activate_passive_calendar_time | OCTETSTRING | See below |

■ Attribute 2: calendar_name_active

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| calendar_name_ac | tive | | | | | |
| calendar_name_act | <u>ive</u> | | | | | |
| Name of the current | calendar. | | | | | |
| Data type: OCTETS | TRING | | | | | |
| Authorized value: D | ecoded as ASCII | (Size = 8) | | | | |
| Default value: 48;48 | 3;48;48;48;48;48;4 | 18; (0000000) | | | | |

■ Attribute 3: season_profile_active

This array of 12 elements contains the beginning date for each current season and the week profile defined for this current season.

Acceptance rules:

- If there is at least one defined season, the first season must begin at 01 january.
- Seasons must be defined in chronological order.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | | Get |
| Attribute description | | | | | | |
| SEQUENCE OF | // 12 elements | | | | | |
| { | | | | | | |
| SEQUENCE | // 3 elements | | | | | |
| { | | | | | | |
| SeasonName | | | | | | |
| SeasonStart | | | | | | |

```
WeekName
SeasonName
This parameter is significative only when reading (value from 0 to 11). It is not taken in account when
programmed in the meter.
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 1)
Default value: 0;
SeasonStart
Fields 'day' and 'month' only are significative:
- field 'month': range 1 .. 12, or 255 (for unused season)
- field 'day': range 1 .. 31, or 255 (for unused season)
Other fields in UTC are not significative:
- when programmed, they are not taken into account
- when read, they take a fixed value: 255 for all these non significative fields, excepted for 'deviation
highbyte' (=128) and 'deviation
lowbyte' (=0).
For unused seasons, fields 'month' and 'day' (at least) must be set to 255.
Default values:
- Season 1: {255;255;1;1;255;255;255;255;255;128;0;255}
- Season 2 .. 12: {255;255;255;255;255;255;255;255;128;0;255}
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 12)
Default value: 255;255;255;255;255;255;255;255;128;0;255;
WeekName
Equal to SeasonName (same format and same value).
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 1)
Default value: 0;
```

■ Attribute 4: week_profile_table_active

This data is an array of 12 elements. Each element defines the day profile which must be applied for each current weekday.

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                         End customer Manufacturer Resources upgrader Engineer
                                                                           Get
         Get
                                               Get
                                                              Get
                                                                                                        Get
                            Get
Attribute description
 SEQUENCE OF
                    // 12 elements
 {
   SEQUENCE
                   // 8 elements
      WeekName
      Monday
      Tuesday
      Wednesday
      Thursday
     Friday
      Saturday
      Sunday
   }
```

WeekName

This parameter is significative only when reading (value from 0 to 11). It is not taken in account when programmed in the meter.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 1)

Default value: 0;

Monday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Tuesday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Wednesday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Thursday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Friday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Saturday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255 Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Sunday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

■ Attribute 5: day_profile_table_active

This table is a sequence of up to 24 elements, one element for one current day profile.

A day profile table element contains up to 16 switching elements, but the maximum number of switching elements is only 100 (and not 16 * 24).

Acceptance rules:

- The first switching element of each day profile must be equal to 00:00 (StartTime).
- Switching elements must be sorted in chronological order.

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | A | | | | | | |
| 4 | Attribute descriptio | n | | | | | |
| | SEQUENCE OF | // 124 element | ts | | | | |
| | { | | | | | | |
| | SEQUENCE | // 2 elements | | | | | |
| | (| | | | | | |

day_profile_name SEQUENCE OF // 1..16 elements { SEQUENCE // 3 elements { StartTime script_logical_name script_selector }

day profile name

}

This parameter is significative only when reading (value from 0 to 23). It is not taken in account when programmed in the meter.

Data type: UNSIGNED8
Authorized value: 0 to 23

Default value: 0

StartTime

The two first fields only (hour and minute) are significative.

The third field (second) is always equal to 0 and the fourth field is not used.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 4)

Default value: 0;0;0;255; script logical name

This element is not used.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

script selector

This element defines the index number linked to this switching.

Data type: UNSIGNED16 Authorized value: 0 to 49

Default value: 0

■ Attribute 6: calendar_name_passive

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|---|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| | Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get | |
| , | Attribute description calendar_name_pas | sive | | | | | | |
| | calendar_name_passive | | | | | | | |
| | Name of the latent ca | alendar. | | | | | | |
| | Data type: OCTETSTRING | | | | | | | |
| | Authorized value: Decoded as ASCII (Size = 8) | | | | | | | |
| | Default value: 48;48; | 48;48;48;48;48;4 | 18; (00000000) | | | | | |

■ Attribute 7: season_profile_passive

This array of 12 elements contains the beginning date for each latent season and the week profile defined for this latent season.

Acceptance rules:

- If there is at least one defined season, the first season must begin at 01 january.
- Seasons must be defined in chronological order.

Access rights (clients)

SeasonStart

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------------------|---------------------|--------------------|----------------|-----------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF | // 12 elements | | | | | |
| SEQUENCE / | // 3 elements | | | | | |
| SeasonName
SeasonStart | | | | | | |
| WeekName | | | | | | |
| } | | | | | | |
| <u>SeasonName</u> | | | | | | |
| This parameter is s programmed in the | • | en reading (valu | e from 0 to 11 |). It is not ta | ken in account wh | en |
| Data type: OCTETS | STRING | | | | | |
| Authorized value: D | ecoded as Decima | al (Size = 1) | | | | |
| Default value: 0; | | | | | | |

End customer Manufacturer Resources upgrader Engineer

Fields 'day' and 'month' only are significative: - field 'month': range 1 .. 12, or 255 (for unused season) - field 'day': range 1 .. 31, or 255 (for unused season) Other fields in UTC are not significative: - when programmed, they are not taken into account - when read, they take a fixed value: 255 for all these non significative fields, excepted for 'deviation highbyte' (=128) and 'deviation lowbyte' (=0). For unused seasons, fields 'month' and 'day' (at least) must be set to 255. Default values: - Season 1: {255;255;1;1;255;255;255;255;255;128;0;255} - Season 2 .. 12: {255;255;255;255;255;255;255;255;128;0;255} Data type: OCTETSTRING Authorized value: Decoded as Decimal (Size = 12) Default value: 255;255;255;255;255;255;255;255;128;0;255; WeekName Equal to SeasonName (same format and same value). Data type: OCTETSTRING

■ Attribute 8: week_profile_table_passive

Authorized value: Decoded as Decimal (Size = 1)

Electricity utility

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

This data is an array of 12 elements. Each element defines the day profile which must be applied for each latent weekday.

Electricity reader

Access rights (clients)

Electricity laboratory

Default value: 0;

| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |
|-------------------------------------|--------------------------------------|------------------|----------------|-----------------|-------------------|-----|
| | | 203001 | 301 | 203001 | | 301 |
| Attribute description | | | | | | |
| SEQUENCE OF { | // 12 elements | | | | | |
| SEQUENCE | // 8 elements | | | | | |
| { | | | | | | |
| WeekName | | | | | | |
| Monday | | | | | | |
| Tuesday
Wednesday | | | | | | |
| Thursday | | | | | | |
| Friday | | | | | | |
| Saturday | | | | | | |
| Sunday | | | | | | |
| } | | | | | | |
| } | | | | | | |
| <u>WeekName</u> | | | | | | |
| This parameter is programmed in the | s significative only who
e meter. | en reading (valu | e from 0 to 11 |). It is not ta | ken in account wh | en |
| Data type: OCTE | TSTRING | | | | | |
| Authorized value: | Decoded as Decima | ıl (Size = 1) | | | | |
| Default value: 0; | | | | | | |
| <u>Monday</u> | | | | | | |

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Tuesday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Wednesday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Thursday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Friday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Saturday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

Default value: 255

Sunday

Allowed values are 0 .. 23, and 255 (not significative).

Default value for the first element: 0 Default value for the other one: 255

Data type: UNSIGNED8

Authorized value: 0 to 23 and 255

End customer Manufacturer Resources upgrader Engineer

Cat/Sat

Default value: 255

■ Attribute 9: day_profile_table_passive

script_logical_name
script_selector

This table is a sequence of up to 24 elements, one element for one latent day profile. A day profile table element contains up to 16 switching elements.

Electricity reader

Cations

Acceptance rules:

- The first switching element of each day profile must be equal to 00:00 (StartTime).
- Switching elements must be sorted in chronological order.

Electricity utility

Caticat

Access rights (clients)

Electricity laboratory

Cat/Sat

| Gel/Sel | Gel/Sel | Gersei | Gei | Gel/Sel | - | Gei |
|-----------------------------|---------------|--------|-----|---------|---|-----|
| Attribute description | on | | | | | |
| , itti io atto a coo. ipiii | | | | | | |
| SEQUENCE OF { | // 124 elemen | ts | | | | |
| SEQUENCE | // 2 elements | | | | | |
| { | | | | | | |
| day_profil | e_name | | | | | |
| SEQUENCE C | F // 116 el | ements | | | | |
| { | | | | | | |
| SEQUENCE | // 3 element | S | | | | |
| { | | | | | | |
| StartI | 'ime | | | | | |

0-4

day profile name

} } }

This parameter is significative only when reading (value from 0 to 23). It is not taken in account when programmed in the meter.

Data type: UNSIGNED8
Authorized value: 0 to 23

Default value: 0

StartTime

The two first fields only (hour and minute) are significative.

The third field (second) is always equal to 0 and the fourth field is not used.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 4)

Default value: 0;0;0;255;

script logical name

This element is not used.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

script selector

This element defines the index number linked to this switching.

Data type: UNSIGNED16 Authorized value: 0 to 49

Default value: 0

■ Attribute 10: activate_passive_calendar_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

activate_passive_calendar_time

activate passive calendar time

It is the latent calendar due date parameter:

- field 'year highbyte': when programmed, this field is not taken into account (it is calculated by the meter according to the year lowbyte).
- field 'year lowbyte': range 0 .. 99
- field 'month': range 1 .. 12
- field 'day' : range 1 .. 31
- field 'day of week': is not taken into account when programmed (it is calculated by the meter according to the current date).
- other fields are not significative :
- -> when programmed, they are not taken into account.
- -> when read, they are equal to a fixed value (=255), excepted for, 'deviation highbyte' (=128) and 'deviation lowbyte' (=0).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;3;255;255;255;255;128;0;255;

15.1.2 BatteryUseTimeCounter

This register contains the battery use time, expressed in hours. This counter is reset when a new battery end of life date is programmed.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;96;6;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | BatteryUseTimeCounterOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

BatteryUseTime

BatteryUseTime

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

Access rights (clients)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---------------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 5: | hour | | | | | |
| Default value: hour (| (5) | | | | | |

15.1.3 ClockSettingParameters

This object defines the clock setting limitations (Italian behavior).

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|--------------------|----------|---------------|-----------------|------------------------------------|-------------------------|-------------------------|----------------|
| 0;0;131;0;2;255 | 1 | 0 | 1 | 0 | False | False | False |
| Logical device | s: | | | | | | |
| Management | Ele | ectricity | End customer | | | | |
| True | | True | False | | | | |
| Attributes / M | lethods | | | | | | |
| Attribute (A) / Me | thod (M) | | Data type | е | Content | | |
| A1. logical_name | | OCTETS | STRING | ING ClockSettingParametersOBISCode | | | |
| A2. value | | | SEQUEN | NCE | See below | | |

■ Attribute 2: value

| Access rights (chefits) | | | | | | | | | | | | |
|---------------------------|---------------------------|--------------------|---------------|--------------|--------------------|----------|--|--|--|--|--|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | | |
| Get/Set | Get | Get | Get | Get/Set | - | Get | | | | | | |
| Attribute description | | | | | | | | | | | | |
| SEQUENCE // 2 | elements | | | | | | | | | | | |
| ThresholdPerMin | ute | | | | | | | | | | | |
| ThresholdPerBP | | | | | | | | | | | | |
| } | } | | | | | | | | | | | |
| <u>ThresholdPerMinute</u> | <u>ThresholdPerMinute</u> | | | | | | | | | | | |
| Defines the clock cor | rection (it is limit | ed to a certain an | nount per min | ute). | | | | | | | | |
| The Unit is "second". | . Value 0 means | no limit. | | | | | | | | | | |
| Data type: UNSIGNE | D16 | | | | | | | | | | | |
| Authorized value: 0 t | o 29 | | | | | | | | | | | |
| Default value: 0 | | | | | | | | | | | | |

ThresholdPerBP

Defines the clock correction (it is limited to a certain amount per billing period).

The Unit is "minute". Value 0 means no limit.

Data type: UNSIGNED16 Authorized value: 0 to 60

Default value: 0

15.1.4 CurrentDateAndTime

This object models the device clock managing all information related to date and time.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;1;0;0;255 | 8 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|--------------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | CurrentDateAndTimeOBISCode |
| A2. time | OCTETSTRING | See below |
| A3. time_zone | NULL | See below |
| A4. status | NULL | See below |
| A5. daylight_savings_begin | OCTETSTRING | See below |
| A6. daylight_savings_end | OCTETSTRING | See below |
| A7. daylight_savings_deviation | INTEGER8 | See below |
| A8. daylight_savings_enabled | BOOLEAN | See below |
| A9. clock_base | ENUMERATED | See below |

■ Attribute 2: time

This data contains the device actual date and time expressed in UTC.

Wait 500 ms before reading after programming

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| L | Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

Time

<u>Time</u>

Year highbyte:

- When programmed, this field is not taken into account (it is calculated by the meter according to the year lowbyte).

Year lowbyte : - Range : 0 .. 99.

Month:

- Range : 1 .. 12.

Day:

- Range : 1 .. 31. Day of week :

- Range: 1..7. When programmed, this field is not taken into account (it is calculated by the meter according to the current date).

Hour:

- Range: 0 .. 23.

Minute:

- Range: 0..59.

Second:

- Range : 0 .. 59.

Hundredth of sec:

This field is not significative:

- when programmed, it is not taken into account.
- when read, it is always equal to 255, which means not specified.

Deviation highbyte & deviation lowbyte:

These fields are not significative:

- when programmed, they are not taken into account.
- when read, they are always equal to {128;0} (= 0x80), which means not specified.

Clock status:

Can take following discrete values:

- 128 : daylight savings function is active (the transmitted time contains the daylight savings deviation -> summer time).
- 0 : daylight savings function is inactive (-> normal time).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 7;200;1;1;3;0;0;0;255;128;0;0;

■ Attribute 3: time_zone

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 4: status

Not used (the information is already inside the time attribute).

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: daylight_savings_begin

This data contains the current year summer season begin. Another structure is used for programming.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
|----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| Get | Get | Get | Get | Get | - '- | Get | | | | |
| Attribute description | | | | | | | | | | |
| daylight_savings_begin | | | | | | | | | | |
| daylight_savings_begin | | | | | | | | | | |
| Some fields have a fixed value : | | | | | | | | | | |
| - field 'hundredth of | sec' = 255 | | | | | | | | | |

- field 'deviation highbyte' = 128

- field 'deviation lowbyte' = 0
- field 'clock status' = 0 (normal time).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 7;200;1;1;3;0;0;0;255;128;0;0;

■ Attribute 6: daylight_savings_end

This data contains the current year summer season end. Another structure is used for programming.

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|--|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description daylight_savings_ | _end | | | | | |
| daylight savings en
Some fields have a field 'hundredth of
field 'deviation high
field 'deviation lowl
field 'clock status' | fixed value :
sec' = 255
hbyte' = 128
byte' = 0 | me). | | | | |
| Data type: OCTETS | | | | | | |
| Authorized value: De | ecoded as Decim | al (Size = 12) | | | | |

■ Attribute 7: daylight_savings_deviation

Default value: 7;200;1;1;3;0;0;0;255;128;0;128;

This data contains the deviation to apply to the normal date, expressed in minutes. Another structure is used for programming.

Access rights (clients)

Default value: 0

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|---|----------------------------|---------------------|--------------------|---------------|---------------|---------------------|----------|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | |
| | | | | | | | | | | |
| , | Attribute description | | | | | | | | | |
| | daylight_savings_ | _deviation | | | | | | | | |
| | | | | | | | | | | |
| | daylight_savings_deviation | | | | | | | | | |
| | This data contains th | ne deviation to ap | ply to the normal | date, express | sed in minute | es. Another structu | re is | | | |
| | used for programmir | • | . , | , , | | | | | | |
| | acca ic. programmi | ·9· | | | | | | | | |
| | Data type: INTEGER | ₹8 | | | | | | | | |
| | A 41 1 1 O . 4 | - 400 | | | | | | | | |
| | Authorized value: 0 t | 120 | | | | | | | | |

■ Attribute 8: daylight_savings_enabled

This data specifies if the daylight savings function is used or not. Another structure is used for programming. Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|-----------------------|--------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| | Get | Get | Get | Get | Get | - | Get | |
| Attribute description | | | | | | | | |
| | daylight_savings_enabled | | | | | | | |
| | daylight savings er | <u>nabled</u> | | | | | | |

This data specifies if the daylight savings function is used or not:

- Enabled = TRUE
- Disabled = FALSE

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

■ Attribute 9: clock_base

It contains the hard clock parameters.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

clock_base

clock base

It contains the hard clock parameters.

The 2 first values only can be programmed in the meter (external clock or mains frequency).

When reading, if hard clock = mains frequency, returned values are 'mains frequency 50 Hz' or 'mains frequency 60 Hz',

according to configured nominal frequency.

Data type: ENUMERATED

Authorized values:

- 1: Internal cristal
- 2: Mains frequency 50 Hz
- 3: Mains frequency 60 Hz

Default value: Internal cristal (1)

15.1.5 DSTParameters

This object defines the working mode of the daylight saving.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;131;0;4;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------|
| A1. logical_name | OCTETSTRING | DSTParametersOBISCode |
| A2. value | UNSIGNED8 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| A thaile and a sale a second discussion | | | | | | |
| Attribute description | | | | | | |
| DerworkingModo | | | | | | |

DSTWorkingMode

Data type: UNSIGNED8

Authorized values:

- 0: No DST
- 1: Generic DST
- 2: Programmed DST
- 3: Generic DST with season
- 4: Programmed DST with season

Default value: No DST (0)

15.1.6 EOBSingleActionScheduleParameters

This data allows the programming of generic EOB dates and the programmed ones, depending on the value of the attribute 'type'.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;15;0;0;255 | 22 | 0 | 4 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------------|---|
| A1. logical_name | OCTETSTRING | EOBSingleActionScheduleParametersOBISCode |
| A2. executed_script | NULL | See below |
| A3. type | ENUMERATED | See below |
| A4. execution_time | ARRAY | See below |

■ Attribute 2: executed_script

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | - | - | - | - | - |
| Attribute description | | | | | | |

Data type: NULL Authorized value: Default value:

■ Attribute 3: type

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

Type

<u>Type</u>

Type 1 : generic dates . It indicates that wildcard use in the date are allowed, permitting to define the generic date of EOB.

Type 4 : programmed dates. It indicates that wildcard use in the date are not allowed. This permits to define preprogrammed dates.

Data type: ENUMERATED

Authorized values:

```
1: Type 1
4: Type 4
Default value: Type 1 (1)
```

■ Attribute 4: execution_time

It contains 1 element for generic dates, up to 24 elements for programmed dates :

- When Type = 1, only one date is allowed.
- When Type = 4, up to 24 dates are programmed and 24 dates are read.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------------------------|---|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |
| Attribute description | n | | | | | |
| SEQUENCE OF | // 124 elemen | ts | | | | |
| SEQUENCE | // 2 elements | | | | | |
| {
Time | | | | | | |
| Date | | | | | | |
| } | | | | | | |
| <u>Time</u> | | | | | | |
| | s:hour;minut;sec
s not significative (al | | 5). | | | |
| Data type: OCTE | TSTRING | | | | | |
| Authorized value: | Decoded as Decima | al (Size = 4) | | | | |
| Default value: 0;0 | ;0;255; | | | | | |
| <u>Date</u> | | | | | | |
| Default value is : - 255;255;255;1;2 | s : high year ; year ;
55, for generic dates
programmed dates | | of week. | | | |
| Data type: OCTE | _ | | | | | |
| | | ol (Cino – F) | | | | |
| | Decoded as Decima | ai (Size = 5) | | | | |
| Default value: 255 | 5;255;255;1;255; | | | | | |

15.1.7 GenericDSTParameters

This variable allows the programming of the daylight saving data in the case of periodical change at the same date.

The data structure is a sequence which contains 2 elements :

- one element to define the time shift
- the other to define a sequence of 2 elements :
 - one for going into summer time
 - the other to come back to normal time and event to execute

The dates must be programmed in chronological order.

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|----------------|
| 0;0;131;0;6;255 | 1 | 0 | 3 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | GenericDSTParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Access rights (clients | 3) | | | | | |
|-------------------------|---------------------|--------------------|-----|---------|--------------------|-----|
| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| { | | | | | | |
| DSTvalue
SEQUENCE OF | // 2 elements | | | | | |
| SEQUENCE OF | // Z elements | | | | | |
| SEQUENCE | // 3 elements | | | | | |
| { | | | | | | |
| DateAndTim
Direction | .e | | | | | |
| SEQUENCE | // 2 elements | 9 | | | | |
| { | , , | _ | | | | |
| EventTyp | | | | | | |
| EventTyp | eParameter | | | | | |
| } | | | | | | |
| } | | | | | | |
| } | | | | | | |
| <u>DSTvalue</u> | | | | | | |
| In minutes. | | | | | | |
| Data type: UNSIGN | IED8 | | | | | |
| Authorized value: 1 | to 120 | | | | | |
| Default value: 60 | | | | | | |
| <u>DateAndTime</u> | | | | | | |
| // year, month, month | thday, weekday, ho | our | | | | |
| DateAndTime: 5 by | | | | | | |
| - year this field mus | | | | | | |
| - month this field mu | ust no be generic: | value 01 12 | | | | |

- day of month -15 .. 00 .. 31 , (127 for wildcard is rejected)

Negative date means the number of days before the end of the month (e.g.: -10 May means 21st May). If day of month is negative, day of week must be set to wildcard.

- day of week 0 .. 6 , 127 for wildcard (0 is Sunday)
- hour 00 .. 23

Example: last Sunday in march:

- year: 127 - month: 03
- day of month: 00 (the last)
- day of week :0 (Sunday)

The date is the date where the event needs to be executed.

Default value: reference date = 1/1/92, weekday = wildcard (127), hour = 0

If the 2 programmed dates correspond to reference dates (92;1;1;127), programming is accepted.

If one programmed date (among 2) correponds to reference date(, programming is rejected.

If any programmed date correspond to reference date, dates are checked by applying conditions above.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 5)

Default value: 92;1;1;127;0;

Direction

Direction specifies if the clock has to go to summer (value 0), or back to the normal time (value 1).

Data type: UNSIGNED8

Authorized values:
0: ToSummer
1: ToNormal

Default value: ToNormal (1)

EventType

EventType indicates if DST is linked to a season or not.

DST not linked to season : Event type : 33 DST linked to season : Event type : 14

Data type: UNSIGNED8

Authorized values:

14: EV_EVENT_DST_WITH_SEASON
33: EV_EVENT_DST_WITHOUT_SEASON
255: EV_EVENT_NON_SIGNIFICATIVE

Default value: EV_EVENT_NON_SIGNIFICATIVE (255)

EventTypeParameter

If DST is linked to a season (Event type = EV_EVENT_DST_WITH_SEASON), EventTypeParameter gives the linked season number (0 to 11).

If DST is not linked to a season (Event type = EV_EVENT_DST_WITHOUT_SEASON), any value can be set for EventTypeParameter (not used by the meter).

Data type: UNSIGNED8

Authorized value: 0 to 11 and 255

Default value: 255

15.1.8 GenericEOBParameters

This object defines the generic dates on which the end of billing period data have to be frozen.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;132;0;1;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| N | /lanagement | Electricity | End customer |
|---|-------------|-------------|--------------|
| | True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | GenericEOBParametersOBISCode |
| A2. value | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

GenericDate

GenericDate

// year, month, day, weekday, hour, minute and second

Year:

Allowed values are between 0 and 99, 127 for wildcard and 255.

When year = 255, the generic date is set to reference date (01/01/92 00:00:00). Other fields in octet string are not used.

Month:

Allowed values are between 1 and 12, 127 for wildcard.

When month = 127, day and weekday cannot be set both to wildcard too (every day is prohibited).

Day: allowed values are between 1 and 31

or 0 for last day of month

or 255 2nd last day of month (-1)

or 254 3th last day of month (-2)

or ... (-15).

or 127 for Wilcard

Weekday:

Allowed values are between 0 and 6 (0: Sunday), 127 for wildcard.

Hour :

Allowed values are between 0 and 23, 127 for wildcard.

Minute:

Allowed values are between 0 and 59, 127 for wildcard.

Second:

Second is not used in the meter (always set to 0).

See the DGS for the definition of the generic dates capabilities.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 7)

Default value: 127;127;1;127;0;0;0;

15.1.9 PowerFailureParameters

This object defines the threshold of the long outages.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;131;0;3;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------|
| A1. logical_name | OCTETSTRING | PowerFailureParametersOBISCode |
| A2. value | UNSIGNED8 | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

LongPowerFailureThreshold

LongPowerFailureThreshold

The value contains the threshold of long outage, expressed in seconds.

Default value = 30 (all power failures processed as long power failure, including a clock loss)

Data type: UNSIGNED8

Authorized value: 0 to 255

Default value: 30

15.1.10 ProgrammedDSTParameters

Non generic DST parameters COSEM Object.

Acceptance rules:

- A DST must not pass a daily top in the future (if DST to summer) or in the past (if DST back to normal time) => field hour in UTC and DST value has to be set according to this constraint.

Example: if DST to summer and Hour = 20, DST value must be < (4*60)mn.

- Only 2 dates with opposite direction in a year.
- Two successive DST must be of opposite direction.
- The dates must be in chronological order.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 0;0;131;0;5;255 | 1 | 0 | 2 | 0 | False | False | False |

Logical devices:

| • | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | ProgrammedDSTParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

DSTValueProg

Exprimé en minutes

Data type: UNSIGNED8

Authorized value: 1 to 120

Default value: 60

<u>DateAndTimeProg</u>

The DateAndTime is the date and time (round hour) where the event needs to be executed. It is in UTC:

- field 'year highbyte': when programmed, this field is not taken into account (it is calculated by the meter according to the year lowbyte).
- field 'year lowbyte': range 0 .. 99 or 255 (not specified)
- field 'month': range 1 .. 12 or 255 (not specified)
- field 'day': range 1 .. 31 or 255 (not specified)
- field 'day of week': is not taken into account when programmed (it is calculated by the meter according to the current date).
- field 'hour': range 0 .. 23 or 255 (not specified)
- fields 'minute' and 'second' are not significative :
- when programmed, they are not taken into account (round hour).
- when read, they are always equal to 0.
- fields 'hundredth of sec', 'deviation highbyte', 'deviation lowbyte' and 'clock status' are not significative :
- when programmed, they are not taken into account.
- when read, 'hundredth of sec' = 255, 'deviation highbyte' = 128, 'deviation

lowbyte' = 0 and 'clock status = 255.

For unused dates, fields 'year lowbyte' and 'hour' (at least) have to be set to 255.

Default value: reference date {7;200;1;1;3;0;0;0;255;128;0;255}.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)
Default value: 7;200;1;1;3;0;0;0;255;128;0;255;

DirectionProg

The Direction specifies if the clock has to go to summer (value 0), or back to the normal time (value 1). For unused programmed DST dates, direction must be set to 255 (means not specified).

Data type: UNSIGNED8

Authorized values:

0: ToSummer

1: ToNormal

255: NotSpecified

Default value: ToNormal (1)

EventTypeProg

it indicates if DST is linked to a season or not. DST not linked to season: Event type: 33 DST linked to season: Event type: 14.

. Default value :

Event type: 255 (EV_EVENT_NOT_SIGNIFICATIVE)

Data type: UNSIGNED8

Authorized values:

14: EV_EVENT_DST_WITH_SEASON
33: EV_EVENT_DST_WITHOUT_SEASON
255: EV_EVENT_NON_SIGNIFICATIVE

Default value: EV EVENT NON SIGNIFICATIVE (255)

EventTypeParameterProg

If DST is linked to a season (Event type = EV_EVENT_DST_WITH_SEASON), EventTypeParameter gives the linked season number (0 to 11).

If DST is not linked to a season (Event type = EV_EVENT_DST_WITHOUT_SEASON), any value can be set for EventTypeParameter (not used by the meter).

Data type: UNSIGNED8

Authorized value: 0 to 11 and 255

Default value: 255

15.1.11 ProgrammedEOBParameters

This object defines the programmed dates on which the end of billing period data have to be frozen. 24 elements, one for each programmed EOB

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;132;0;2;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | ProgrammedEOBParametersOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |

Attribute description

ProgrammedEOBDate

Fields of UTC date are the following:

- 'year highbyte': when programmed, this field is not taken into account (it is calculated by the meter according to the year lowbyte).
- 'year lowbyte' : range 0 .. 99
- 'day of week': is not taken into account when programmed (it is calculated by the meter according to the current date).

For unused dates, field 'month' (at least) must be set to 255. In that case, the programmed EOB date is set to reference date (01/01/92 00:00:00).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

Default value: 7;200;1;1;3;0;0;0;255;128;0;255;

15.1.12 SpecialDayParameters

This object defines the special days in the calendar. It is an array, size 100. (for 100 special days).

Two kinds of special days can be defined: repetitive and not repetitive.

Is is the field 'year' in the 'special day date' which defines the kind os special day.

Acceptance rules :

- The not repetitive special days must be inserted in the table before the repetitive days.
- Both set of special days must be sorted in chronological order.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;11;0;0;255 | 11 | 0 | 2 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------|--|
| A1. logical_name | OCTETSTRING | SpecialDayParametersOBISCode | |
| A2. entries | ARRAY | See below | |

■ Attribute 2: entries

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get/Set | Get | Get/Set | - | Get |

Attribute description

Index

This parameter is significative only when reading.

It holds the day profile number (value from 0 to 23, or 255 when not defined).

It is not taken in account when programmed in the meter.

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 255
SpecialDayDate

Special_day_date // high year ; year ; month ; day ; day of week ;

- The field 'high year' is significative only when reading (calculated from the field 'year'). It is not taken into account when programmed in the meter.
- Values of field 'year' from 00 to 99 for non repetitive exclusion days, and 255 for repetitive exclusion days.
- Values of field 'month' from 01 to 11 (TBC).
- Values of field 'day' from 01 to 31.
- Value of field 'day of week' is always equal to 255 when reading in the meter.

It is not taken into account when programmed in the meter.

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 5)

Default value: 19;92;1;1;255;

Specialld

It holds the day profile number to apply.

The values allowed are between 0 and 23, or 255 (not defined).

Data type: UNSIGNED8 Authorized value: 0 to 255

Default value: 255

15.1.13 SynchronizationParameters

This object defines the synchronization acceptance rules (daily or hourly).

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|----------------|
| 0;0;131;0;1;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | SynchronizationParametersOBISCode |
| A2. value | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get/Set | Get | Get | Get/Set | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| (| - O + | | | | | |
| Synchronization Synchronization | | | | | | |
| } | moar | | | | | |
| SynchronizationOpti | <u>on</u> | | | | | |
| | | | | | | |
| Data type: UNSIGN | ED8 | | | | | |
| Authorized values: | | | | | | |
| 0: Daily | | | | | | |
| 1: Hourly | | | | | | |
| Default value: Hourly | y (1) | | | | | |
| SynchronizationHou | <u>r</u> | | | | | |
| Data type: UNSIGNI | ED8 | | | | | |
| Authorized value: 0 | to 23 | | | | | |
| Default value: 0 | | | | | | |

15.1.14 TotalMeterOperatingTime

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;96;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | TotalMeterOperatingTimeOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | 3 (| , | | | | | | |
|---|----------------------------|---------------------|----------------------|---------------|--------------|--------------------|----------|--|
| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
| | Get | Get | Get | Get | Get | - ' - | Get | |
| | Attribute description | | | | | | | |
| - | Attribute description | | | | | | | |
| | TotalMeterOperati | ingDuration | | | | | | |
| | | | | | | | | |
| | <u>TotalMeterOperating</u> | <u>¡Duration</u> | | | | | | |
| | This register contain | is the working tim | e of the device. It | is expressed | l in hours | | | |
| | The regional contain | o and morning and | 0 01 1110 401100. 11 | . io oxprocod | | | | |
| | Data type: UNSIGNED32 | | | | | | | |
| | 71 | - | | | | | | |
| | Authorized value: 0 t | to 4294967295 | | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: hour (5)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|-------------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 5: | hour | | | | | |

16 Total Energy Registering

16.1 Cosem objects

16.1.1 AuthorisationImaxInTERParameters

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;140;0;8;255 | 1 | 0 | 2 | 0 | True | True | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | AuthorisationImaxInTERParametersOBISCode |
| A2. value | BOOLEAN | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| - | - | = | - | Get/Set | = | Get |

Attribute description

AuthorisationImaxInTERParameters

<u>AuthorisationImaxInTERParameters</u>

Authorisation (TRUE) or Inhibition (FALSE) when Magnet sensor detection.

If MIDComplianceParameters = TRUE, AuthorisationImaxInTERParameters is not authorized (FALSE).

Data type: BOOLEAN

Authorized values:

0: FALSE 1: TRUE

Default value: 0: FALSE

16.1.2 ExportActiveAggregate

This object defines the total of export active energy.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;2;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------------|--|
| A1. logical_name | OCTETSTRING | ExportActiveAggregateOBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|----------------------------------|------------------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get | Get | Get | Get | Get | - | Get | |
| Attribute description | | | | | | | |
| ExportActiveAggre | egate | | | | | | |
| ExportActiveAggreg | <u>ExportActiveAggregate</u> | | | | | | |
| Data type: UNSIGN | Data type: UNSIGNED32 | | | | | | |
| Authorized value: 0 to 999999999 | | | | | | | |
| Default value: 0 | | | | | | | |

Access rights (clients)

| Electrical Laboratory | Et action one | Electric control | = | | D | |
|-----------------------------|-------------------------|------------------------|-----------------------|---------------------|--------------------|-----------------|
| Electricity laboratory Get | Electricity utility Get | Electricity reader Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
| Get | Gei | Gel | Gel | Gel | - | Gei |
| Attribute description | | | | | | |
| SEQUENCE // 2 | elements | | | | | |
| { | | | | | | |
| Scaler
Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| | c c. | | / I T (IF | - 5 | | |
| Scaler is defined by | configuration of A | Active energy gro | up (see 'Totall | ⊨nergyParar | neters' object) | |
| Data type: INTEGER | 88 | | | | | |
| Authorized values: | | | | | | |
| 0: unity | | | | | | |
| 3: kilo | | | | | | |
| 6: mega | | | | | | |
| Default value: unity (| 0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| | | | | | | |
| Authorized value: 30 | . VVII | | | | | |
| Default value: Wh (3 | 0) | | | | | |
| | | | | | | |

16.1.3 ExportActivePhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;22;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | ExportActivePhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | | | |
|----------------------------------|-----------------------|--------------------|-----|-----|--------------------|-----|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | | | | | | | | |
| ExportActivePhase | e1 | | | | | | | |
| ExportActivePhase1 | ExportActivePhase1 | | | | | | | |
| Data type: UNSIGN | Data type: UNSIGNED32 | | | | | | | |
| Authorized value: 0 to 999999999 | | | | | | | | |
| Default value: 0 | | | | | | | | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|-----------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit | elements | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of A | active energy grou | up (see 'Totall | EnergyParar | neters' object) | |
| Data type: INTEGER | 18 | | | | | |
| Authorized values: 0: unity 3: kilo 6: mega | | | | | | |
| Default value: unity (| 0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 30 | : Wh | | | | | |
| Default value: Wh (3 | 0) | | | | | |

16.1.4 ExportActivePhase2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;42;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical devic | es . | | | | | | |

Logical devices :

| Management | Electricity | End customer |
|-------------------|-------------|--------------|
| True | True | False |
| A 44!!4 / B# - 41 | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | ExportActivePhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | 0 | | |
|----------------------------------|-----------------------|--------------------|-----|-----|--------------------|-----|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | | | | | | | | |
| ExportActivePhase | e2 | | | | | | | |
| ExportActivePhase2 | ExportActivePhase2 | | | | | | | |
| Data type: UNSIGN | Data type: UNSIGNED32 | | | | | | | |
| Authorized value: 0 to 999999999 | | | | | | | | |
| Default value: 0 | | | | | | | | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|-----------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | -
- | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of A | Active energy gro | up (see 'Totall | EnergyParar | neters' object) | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized values: | | | | | | |
| 0: unity | | | | | | |
| 3: kilo
6: mega | | | | | | |
| Default value: unity (| (0) | | | | | |
| · · | (0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 | : Wh | | | | | |
| Default value: Wh (3 | 0) | | | | | |

16.1.5 ExportActivePhase3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;62;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | ExportActivePhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get | | |
|----------------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|--|--|
| Get | Get | Gei | Gei | Gei | <u>-</u> | Get | | |
| Attribute description | | | | | | | | |
| ExportActivePhase | e3 | | | | | | | |
| ExportActivePhase3 | ExportActivePhase3 | | | | | | | |
| Data type: UNSIGN | Data type: UNSIGNED32 | | | | | | | |
| Authorized value: 0 to 999999999 | | | | | | | | |
| Default value: 0 | | | | | | | | |

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | 2 - 2 | | | | | |
| SEQUENCE // 2 { Scaler | 2 elements | | | | | |
| Unit | | | | | | |
| Scaler | | | | | | |
| Scaler is defined by | configuration of A | ctive energy grou | up (see 'Totall | EnergyParar | neters' object) | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized values: 0: unity 3: kilo 6: mega | | | | | | |
| Default value: unity | (0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 |): Wh | | | | | |
| Default value: Wh (3 | 30) | | | | | |

16.1.6 ExportActiveSnapshotAggregate

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;2;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| | Management | Electricity | End customer | | | |
|---|----------------------|-------------|--------------|--|--|--|
| | True | True | False | | | |
| 4 | Attributes / Methods | | | | | |

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | ExportActiveSnapshotAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |

See below

A4. status NULL
A5. capture_time OCTETSTRING

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | | |
|-------------------------------|--------------------------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | | | |
| Attribute description | Attribute description | | | | | | | | | | | |
| ExportActiveSnapshotAggregate | | | | | | | | | | | | |
| ExportActiveSnapsl | <u>ExportActiveSnapshotAggregate</u> | | | | | | | | | | | |
| Data type: UNSIGN | Data type: UNSIGNED32 | | | | | | | | | | | |
| Authorized value: 0 | to 99999999 | | | | | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|------------------------|---|--------------------|--------------|--------------|--------------------|----------|--|
| Get | Get | Get | Get | Get | - | Get | |
| Attribute description | | | | | | | |
| SEQUENCE // | 2 elements | | | | | | |
| { | | | | | | | |
| Scaler
Unit | | | | | | | |
|) | | | | | | | |
| , | | | | | | | |
| <u>Scaler</u> | | | | | | | |
| • | Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object) : - discrete values possible are : 0, 3 and 6. | | | | | | |
| Data type: INTEGE | R8 | | | | | | |
| Authorized value: 0 | to 6 | | | | | | |
| Default value: 0 | | | | | | | |
| <u>Unit</u> | | | | | | | |
| Data type: ENUMER | RATED | | | | | | |
| Authorized value: 30 | 0: Wh | | | | | | |

■ Attribute 4: status

Default value: Wh (30)

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attails of a share and attack | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |
| Data type: NULL | | | | | | |
| 2010 1960 110== | | | | | | |
| Authorized value: | | | | | | |
| | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

16.1.7 ExportActiveSnapshotPhase1

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;22;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | ExportActiveSnapshotPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

ExportActiveSnapshotPhase1

ExportActiveSnapshotPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

<u>Scaler</u>

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 30: Wh
Default value: Wh (30)

■ Attribute 4: status

Not used.

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| , | Attribute description | | | | | | |
| | Data type: NULL | | | | | | |
| | Authorized value: | | | | | | |
| | Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|---|---------------------|---------------------|--|--------------|--------------------|----------|--|--|
| | Get | Get | Get | Get | Get | - | Get | | |
| , | Attribute description capture_time | | | | | | | | |
| | <u>capture_time</u> Date and time of the snapshot (synchronized on load profile 1). | | | | | | | | |
| | Data type: OCTETS | | 10111200 011 1000 p | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | | | |
| | Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | |
| | Default value: 255;255;255;255;255;255;255;255;255;255 | | | | | | | | |

16.1.8 ExportActiveSnapshotPhase2

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;42;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Logical devices. | | |
|------------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | ExportActiveSnapshotPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|----------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | | | | | | | | |
| ExportActiveSnaps | shotPhase2 | | | | | | | |
| ExportActiveSnapshotPhase2 | | | | | | | | |
| Data type: UNSIGNED32 | | | | | | | | |
| Authorized value: 0 | to 99999999 | | | | | | | |
| Default value: 0 | | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE //: { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by - discrete values pos | | - ' ' | 'TotalEnergyP | Parameters' o | object): | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 |): Wh | | | | | |

■ Attribute 4: status

Default value: Wh (30)

Not used.

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|-------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - '- | Get |
| | A their cate of a social time | | | | | | |
| 4 | Attribute description | | | | | | |
| | | | | | | | |
| | Data type: NULL | | | | | | |
| | • • | | | | | | |
| | Authorized value: | | | | | | |
| | Default value: | | | | | | |

■ Attribute 5: capture_time

| 7 toocoo riginto (olicinto | , | | | | | |
|----------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| capture_time | | | | | | |

capture time

Date and time of the snapshot (synchronized on load profile 1).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.9 ExportActiveSnapshotPhase3

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;62;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | ExportActiveSnapshotPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

ExportActiveSnapshotPhase3

ExportActiveSnapshotPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

<u>Scaler</u>

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 30: Wh Default value: Wh (30)

■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Authorized value. | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | Attribute description | | | | | | |
| , | Attribute description | | | | | | |
| | capture_time | | | | | | |
| | contura tima | | | | | | |
| | <u>capture_time</u> | | | | | | |
| | Date and time of the | snapshot (synch | ronized on load p | orofile 1). | | | |
| | D-1- 1 00TETO | TDINO | | | | | |
| | Data type: OCTETS | TRING | | | | | |
| | Authorized value: De | ecoded as Decim | al (Size = 12) | | | | |
| | , | | u. (uu) | | | | |
| | Default value: 255;2 | 55;255;255;255;2 | 255;255;255;255; | 255;255;255; | | | |

16.1.10 ExportApparentAggregate

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;10;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| Logical device | es: | | | | | | |
| Management | El | ectricity | End customer | | | | |

Management Electricity True

| Attributes / Methods | | | | | | | |
|----------------------------|-------------|---------------------------------|--|--|--|--|--|
| Attribute (A) / Method (M) | Data type | Content | | | | | |
| A1. logical_name | OCTETSTRING | ExportApparentAggregateOBISCode | | | | | |
| A2. value | UNSIGNED32 | See below | | | | | |
| A3. scaler_unit | SEQUENCE | See below | | | | | |

False

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ExportApparentAggregate

ExportApparentAggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|---------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| { | | | | | | |
| Scaler
Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration for | each group (see | 'TotalEnergyP | arameters' c | hiect) · | |
| - discrete values po | | • • • | lotalEnergyi | arameters t | object). | |
| · | | | | | | |
| Data type: INTEGEI | ₹8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| | | | | | | |
| Data type: ENUMER | KATED | | | | | |
| Authorized value: 3 | 1: VAh | | | | | |
| Default value: VAh (| 31) | | | | | |

16.1.11 ExportApparentPhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| | | | Hullibei | | parameter | programming | compliance |
| 1;1;30;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |
| | | | | | | | |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | ExportApparentPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ExportApparentPhase1

ExportApparentPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description SEQUENCE // 2 { Scaler Unit } | ? elements | | | | | |
| Scaler | configuration of A | pagent aparay s | roup (oog 'To | talEnarayDa | ramatara' ahiaat) | |
| Scaler is defined by
Data type: INTEGER | _ | pparent energy g | group (see To | laiEnergyPa | nameters object) | |
| Authorized values: 0: unity 3: kilo 6: mega | | | | | | |
| Default value: unity (| (0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 31 | : VAh | | | | | |
| Default value: VAh (3 | 31) | | | | | |

16.1.12 ExportApparentPhase2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;50;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| · · | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------|--|
| A1. logical_name | OCTETSTRING | ExportApparentPhase2OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |

Attribute description

 ${\tt ExportApparentPhase2}$

ExportApparentPhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                                         End customer Manufacturer Resources upgrader Engineer
                                         Electricity reader
                                              Get
                                                                          Get
                                                                                                        Get
Attribute description
 SEQUENCE
               // 2 elements
   Scaler
   Unit
 Scaler
Scaler is defined by configuration of Apparent energy group (see 'TotalEnergyParameters' object)
 Data type: INTEGER8
 Authorized values:
 0: unity
 3: kilo
 6: mega
 Default value: unity (0)
Unit
Data type: ENUMERATED
 Authorized value: 31: VAh
 Default value: VAh (31)
```

16.1.13 ExportApparentPhase3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;70;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------|--|
| A1. logical_name | OCTETSTRING | ExportApparentPhase3OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| , | Attribute description | | | | | | |

ExportApparentPhase3

ExportApparentPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler unit

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                         End customer Manufacturer Resources upgrader Engineer
        Get
Attribute description
 SEQUENCE
              // 2 elements
   Scaler
   Unit
 }
Scaler
 Scaler is defined by configuration of Apparent energy group (see 'TotalEnergyParameters' object)
Data type: INTEGER8
 Authorized values:
 0: unity
 3: kilo
6: mega
Default value: unity (0)
Unit
 Data type: ENUMERATED
 Authorized value: 31: VAh
 Default value: VAh (31)
```

16.1.14 ExportApparentSnapshotAggregate

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID | | |
|-------------------|----------|---------------|----------|----------|---------------|-------------|------------|--|--|
| | | | number | | parameter | programming | compliance | | |
| 1;1;10;17;0;255 | 4 | 0 | 1 | 0 | False | False | False | | |
| Logical devices : | | | | | | | | | |

Logical devices :

| Management | Electricity | End customer |
|-----------------------|-------------|--------------|
| True | True | False |
| Attributes / Metl | nods | |
| Attribute (A) / Metho | d (M) | Data type |

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | ExportApparentSnapshotAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |
| | | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| ExportApparentSna | apshotAggregate | 2 | | | | |

ExportApparentSnapshotAggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---------------------|--------------------|---------------|---------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by - discrete values pos | | | 'TotalEnergyP | 'arameters' o | object): | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 31 | I: VAh | | | | | |

■ Attribute 4: status

Default value: VAh (31)

Not used.

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | Attribute description | | | | | | |
| 1 | Attribute description | | | | | | |
| | | | | | | | |
| | Data type: NULL | | | | | | |
| | , · | | | | | | |
| | Authorized value: | | | | | | |
| | Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

capture_time

capture_time

Date and time of the snapshot (synchronized on load profile 1).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.15 ExportApparentSnapshotPhase1

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID
 |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;30;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| _ | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ExportApparentSnapshotPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| Attribute description ExportApparentSnapshotPhase1 | | | | | | | |
| | ExportApparentSnap | shotPhase1 | | | | | |

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |

```
{
Scaler
Unit
```

<u>Scaler</u>

}

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object) :

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 31: VAh Default value: VAh (31)

■ Attribute 4: status

Not used.

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| , | Attribute description | | | | | | |
| | · | | | | | | |

Data type: NULL Authorized value: Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description capture_time | | | | | | | | |
| <u>capture_time</u> Date and time of the snapshot (synchronized on load profile 1). | | | | | | | | |
| Data type: OCTETS1 | TRING | | | | | | | |
| Authorized value: De | coded as Decima | al (Size = 12) | | | | | | |

16.1.16 ExportApparentSnapshotPhase2

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;50;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ExportApparentSnapshotPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Get Get Get Get - Get | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |

Attribute description

ExportApparentSnapshotPhase2

ExportApparentSnapshotPhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
         Get
Attribute description
 SEQUENCE
               // 2 elements
   Scaler
   Unit
 }
Scaler
 Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object) :
 - discrete values possible are: 0, 3 and 6.
Data type: INTEGER8
 Authorized value: 0 to 6
 Default value: 0
<u>Unit</u>
Data type: ENUMERATED
 Authorized value: 31: VAh
Default value: VAh (31)
```

■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | ⊏ngineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |
| | | | | | | |
| Data type: NULL | | | | | | |
| A 41 1 1 | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |
| Delault value. | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | J (, | , | | | | | | | | | |
|---|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
| | Get | Get | Get | Get | Get | - | Get | | | | |
| | Attribute description | | | | | | | | | | |
| 1 | Attribute description | | | | | | | | | | |
| | capture_time | | | | | | | | | | |
| | | | | | | | | | | | |
| | <u>capture_time</u> | | | | | | | | | | |
| | Date and time of the | snapshot (synch | ronized on load r | rofile 1). | | | | | | | |
| | | o | | | | | | | | | |
| | Data type: OCTETS | TRING | | | | | | | | | |
| | | | 1 (0) | | | | | | | | |
| | Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | | | |
| | Default value: 255:2 | EE-2EE-2EE-2EE-2 |)
 EE | 255-255-255- | | | | | | | |
| | Default value: 255;2 | 00,200,200,200,2 | .55,255,255,255,4 | ۷55,255,255, | | | | | | | |

16.1.17 ExportApparentSnapshotPhase3

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;70;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ExportApparentSnapshotPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| ExportApparentSnapshotPhase2 | | | | | | | | | |
| ExportApparentSnapshotPhase2 | | | | | | | | | |
| Data time a UNICIONEDO | | | | | | | | | |

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A | | | | | | |

Attribute description

<u>Scaler</u>

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object) :

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 31: VAh Default value: VAh (31)

■ Attribute 4: status

Not used.

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| , | Attribute description | | | | | | |

Data type: NULL Authorized value: Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| capture_time | | | | | | |
| capture time | | | | | | |

Date and time of the snapshot (synchronized on load profile 1). Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.18 ExportReactiveAggregate

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|----------------|
| 1;1;4;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------|--|
| A1. logical_name | OCTETSTRING | ExportReactiveAggregateOBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | _ | Get |

Attribute description

ExportReactiveAggregate

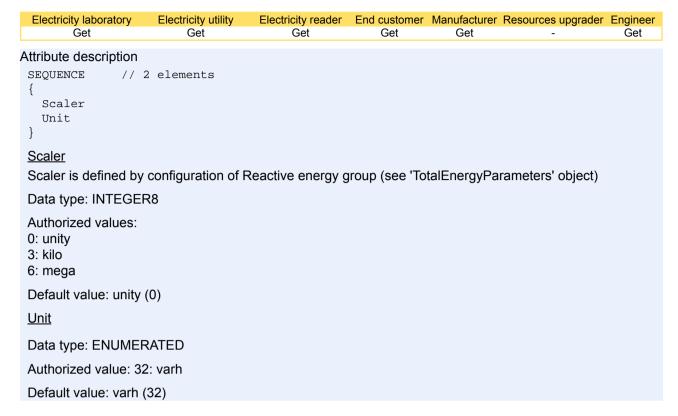
ExportReactiveAggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit



16.1.19 ExportReactivePhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;24;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------|--|
| A1. logical_name | OCTETSTRING | ExportReactivePhase1OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ExportReactivePhase1

ExportReactivePhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|-----------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | . 1 | | | | | |
| { | elements | | | | | |
| Scaler
Unit | | | | | | |
| } | | | | | | |
| Scaler Scaler is defined by | configuration of F | Popotivo oporav o | ırayın (saa 'Ta | talEnarayDa | rameters' chiect) | |
| Data type: INTEGER | - | Reactive energy g | Toup (see To | lai⊑⊓ergy⊢a | nameters object) | |
| Authorized values: | NO . | | | | | |
| 0: unity | | | | | | |
| 3: kilo
6: mega | | | | | | |
| Default value: unity (| 0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 32 | : varh | | | | | |
| Default value: varh (| 32) | | | | | |

16.1.20 ExportReactivePhase2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;44;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------|--|
| A1. logical_name | OCTETSTRING | ExportReactivePhase2OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

ExportReactivePhase2

ExportReactivePhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description SEQUENCE // 2 { Scaler Unit } | elements | | | | | |
| Scaler Scaler is defined by o | _ | Reactive energy g | roup (see 'To | talEnergyPa | rameters' object) | |
| Data type: INTEGER Authorized values: 0: unity 3: kilo 6: mega | 8 | | | | | |
| Default value: unity (0
<u>Unit</u> | 0) | | | | | |
| Data type: ENUMERA
Authorized value: 32: | | | | | | |
| Default value: varh (3 | 32) | | | | | |

16.1.21 ExportReactivePhase3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;64;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------|--|
| A1. logical_name | OCTETSTRING | ExportReactivePhase3OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A (() () () () | | | | | | |

Attribute description

ExportReactivePhase3

ExportReactivePhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|-----------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | . 1 | | | | | |
| { | elements | | | | | |
| Scaler
Unit | | | | | | |
| } | | | | | | |
| Scaler Scaler is defined by | configuration of F | Popotivo oporav o | ırayın (saa 'Ta | talEnarayDa | rameters' chiect) | |
| Data type: INTEGER | - | Reactive energy g | Toup (see To | lai⊑⊓ergy⊢a | nameters object) | |
| Authorized values: | NO . | | | | | |
| 0: unity | | | | | | |
| 3: kilo
6: mega | | | | | | |
| Default value: unity (| 0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 32 | : varh | | | | | |
| Default value: varh (| 32) | | | | | |

16.1.22 ExportReactiveSnapshotAggregate

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;4;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | ExportReactiveSnapshotAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| , | Attribute description | | | | | | |

ExportReactiveSnapshotAggregate

ExportReactiveSnapshotAggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|--|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| | 331 | Jei | Oet | Oet | | OGI |
| Attribute description | | | | | | |
| SEQUENCE // 2 | elements | | | | | |
| Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by a discrete values pos | | | TotalEnergyP | arameters' o | object) : | |
| Data type: INTEGER | 88 | | | | | |
| Authorized value: 0 t | o 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 32 | : VARh | | | | | |
| Default value: VARh | (32) | | | | | |

■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Attribute description | | | | | | |
| 5 | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Defections | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | |
|---|--------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | | | |
| | | | | | | | | | | | | |
| , | Attribute description | | | | | | | | | | | |
| | capture_time | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | <u>capture_time</u> | | | | | | | | | | | |
| | Date and time of the | snapshot (synch | ronized on load p | rofile 1). | | | | | | | | |
| | | | | | | | | | | | | |
| | Data type: OCTETS1 | TRING | | | | | | | | | | |
| | A satisfaction of scales of Da | anded on Design | -L (C: 40) | | | | | | | | | |
| | Authorized value: De | ecoded as Decim | ai (Size = 12) | | | | | | | | | |

16.1.23 ExportReactiveSnapshotPhase1

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;24;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ExportReactiveSnapshotPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ExportReactiveSnapshotPhase1

ExportReactiveSnapshotPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Data type: NULL Authorized value: Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | = | Get |
| | | | | | | |
| Attribute description | | | | | | |
| capture_time | | | | | | |

capture time

Date and time of the snapshot (synchronized on load profile 1).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.24 ExportReactiveSnapshotPhase2

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;44;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ExportReactiveSnapshotPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ExportReactiveSnapshotPhase2

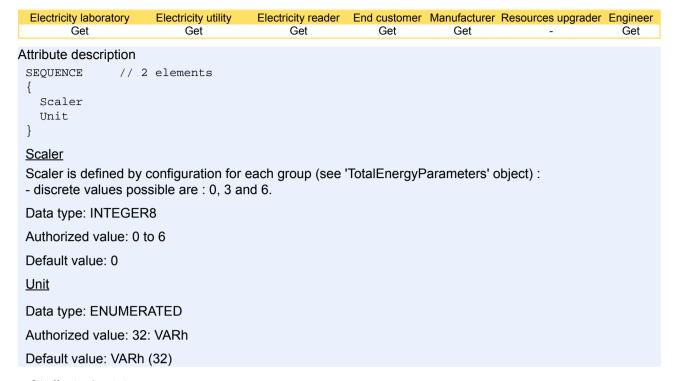
ExportReactiveSnapshotPhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit



■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|---|--|---------------------|---------------------|--------------|--------------|--------------------|----------|--|
| | Get | Get | Get | Get | Get | - | Get | |
| | Attribute description | | | | | | | |
| 1 | • | | | | | | | |
| | capture_time | | | | | | | |
| | | | | | | | | |
| | <u>capture_time</u> | | | | | | | |
| | Date and time of the | enanehot (evnch | ronized on load r | rofile 1) | | | | |
| | Date and time of the | Shapshot (Syrich | iroriized orrioad p | nonic 1). | | | | |
| | Data type: OCTETS | TRING | | | | | | |
| | 2010 19 20 20 12 10 | | | | | | | |
| | Authorized value: Decoded as Decimal (Size = 12) | | | | | | | |
| | | | | | | | | |
| | Default value: 255;2 | 55;255;255;255;2 | 255;255;255;255; | 255;255;255; | | | | |

16.1.25 ExportReactiveSnapshotPhase3

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;64;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ExportReactiveSnapshotPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ExportReactiveSnapshotPhase3

ExportReactiveSnapshotPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | _ | Get |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object) :

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Data type: NULL Authorized value: Default value:

■ Attribute 5: capture_time

Access rights (clients)

| 4 | Access rights (chefts) | , | | | | | | | |
|---|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
| | Get | Get | Get | Get | Get | - | Get | | |
| | Attribute description | | | | | | | | |
| 4 | Attribute description | | | | | | | | |
| | capture_time | | | | | | | | |
| | | | | | | | | | |
| | <u>capture_time</u> | | | | | | | | |
| | Date and time of the | snapshot (synch | ronized on load p | rofile 1). | | | | | |
| | | | | | | | | | |
| | Data type: OCTETS | TRING | | | | | | | |
| | | | | | | | | | |
| | Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | |
| | Default value: 255;255;255;255;255;255;255;255;255;255 | | | | | | | | |
| | Default value. 200,200,200,200,200,200,200,200,200, | | | | | | | | |

16.1.26 Fractional Energies

This object allows the reading of the remainding of all energies as a whole.

The remainding is the result of the real energy quantity measured minus the value of the total energy register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|------------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;98;133;3;255 | 1 | 0 | 1 | 0 | False | False | False |
| Logical devices | s : | | | | | | |
| Management | Ele | ctricity | End customer | | | | |
| True | 7 | Γrue | False | | | | |
| Attributes / Me | ethods | | | | | | |

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | FractionalEnergiesOBISCode |
| Δ2 value | ΔΡΡΔΥ | See helow |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | ⊏ngineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | - | - | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

```
SEQUENCE OF // 52 elements
 FractionRegister
```

FractionRegister

This object is manufacturer specific and contents only the fractional value of the 52 total energy registers. Sort order is the same as in 'All total energy registers' object.

The number is independent of the configuration.

The unit is always 1/10th of unit of corresponding total energy register group:

0.1 kWh for active registers, 0.1 varh for reactive and 0.1 VAh for apparent.

Example: suppose the real energy measured is 5896.3528kWh.

The total energy register will be 5896kWh and the fractional energy will be 3528 (352.8Wh).

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 0

16.1.27 ImportActiveAggregate

This object defines the total of import active energy.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;1;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | ImportActiveAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | | |
| | ImportActiveAggre | gate | | | | | |

<u>ImportActiveAggregate</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

```
SEQUENCE // 2 elements {
    Scaler
    Unit
}
```

<u>Scaler</u>

Scaler is defined by configuration of Active energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity 3: kilo 6: mega Default value: unity (0)

<u>Unit</u>

Data type: ENUMERATED
Authorized value: 30: Wh
Default value: Wh (30)

16.1.28 ImportActivePhase1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;21;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | ImportActivePhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ImportActivePhase1

ImportActivePhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A (() | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| { | | | | | | |
| Scaler | | | | | | |

} <u>Scaler</u>

Unit

Scaler is defined by configuration of Active energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity 3: kilo

6: mega

Default value: unity (0)

Unit

Data type: ENUMERATED Authorized value: 30: Wh Default value: Wh (30)

16.1.29 ImportActivePhase2

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;41;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | ImportActivePhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attaile de eninties | | | | | | |
| Attribute description | | | | | | |
| ImportActivePhase | 2 | | | | | |
| | | | | | | |

ImportActivePhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

```
SEQUENCE // 2 elements {
    Scaler
    Unit
}
```

Scaler

Scaler is defined by configuration of Active energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity 3: kilo 6: mega

Default value: unity (0)

<u>Unit</u>

Data type: ENUMERATED Authorized value: 30: Wh Default value: Wh (30)

16.1.30 ImportActivePhase3

Interface

| Logical name | e Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|------------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;61;8;0;25 | 5 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|----------------------------|--|
| A1. logical_name | OCTETSTRING | ImportActivePhase3OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

ImportActivePhase3

ImportActivePhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>Unit</u>

■ Attribute 3: scaler_unit

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|-----------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of A | Active energy grou | up (see 'Totall | EnergyParar | neters' object) | |
| Data type: INTEGE | R8 | | | | | |
| Authorized values: 0: unity 3: kilo 6: mega | | | | | | |
| Default value: unity | (0) | | | | | |

Data type: ENUMERATED Authorized value: 30: Wh Default value: Wh (30)

16.1.31 ImportActiveSnapshotAggregate

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;1;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |
| | | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | ImportActiveSnapshotAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| ImportActiveSnaps | shotAggregate | | | | | |
| <u>ImportActiveSnapsh</u> | <u>otAggregate</u> | | | | | |
| Data type: UNSIGNI | ED32 | | | | | |

Authorized value: 0 to 999999999

7.01.1011200 70100. 0 10 00000000

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are : 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 30: Wh Default value: Wh (30)

■ Attribute 4: status

Not used.

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| i | Attribute description | | | | | | |
| 1 | Attribute description | | | | | | |

Data type: NULL Authorized value: Default value:

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|------------------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| F | Attribute description | | | | | | |
| | capture_time | | | | | | |
| | 0ap 0ar 0_0rm0 | | | | | | |
| | capture_time | | | | | | |
| | Date and time of the | enanchot (eynch | ronized on load r | rofile 1) | | | |
| | Date and time of the | Shapshot (Synch | ionized on load p | 70111 6 1). | | | |
| | Data type: OCTETS1 | TRING | | | | | |
| | = | · · · · · · · | | | | | |
| | Authorized value: De | coded as Decim | al (Size = 12) | | | | |

16.1.32 ImportActiveSnapshotPhase1

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;21;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | ImportActiveSnapshotPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ImportActiveSnapshotPhase1

ImportActiveSnapshotPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | | | | |
|--|-----------------------|--------------------|---------------|---------------|--------------------|----------|--|--|--|--|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | | | | | |
| Attribute description | Attribute description | | | | | | | | | | | | | |
| SEQUENCE //: | 2 elements | | | | | | | | | | | | | |
| Scaler | | | | | | | | | | | | | | |
| Unit | | | | | | | | | | | | | | |
| } | | | | | | | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | | | | | | |
| Scaler is defined by - discrete values pos | | • • • | 'TotalEnergyP | 'arameters' o | object): | | | | | | | | | |
| Data type: INTEGER | ₹8 | | | | | | | | | | | | | |
| Authorized value: 0 | to 6 | | | | | | | | | | | | | |
| Default value: 0 | | | | | | | | | | | | | | |
| <u>Unit</u> | | | | | | | | | | | | | | |
| Data type: ENUMER | RATED | | | | | | | | | | | | | |
| Authorized value: 30 | D: Wh | | | | | | | | | | | | | |
| Default value: Wh (3 | 30) | | | | | | | | | | | | | |

■ Attribute 4: status

Not used.

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|----|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| Αt | tribute description | | | | | | |
| | | | | | | | |
| Е | Data type: NULL | | | | | | |
| | | | | | | | |
| Α | Authorized value: | | | | | | |
| _ | S 6 11 1 | | | | | | |
| L | Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

capture_time

capture_time

Date and time of the snapshot (synchronized on load profile 1).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.33 ImportActiveSnapshotPhase2

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;41;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | ImportActiveSnapshotPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ImportActiveSnapshotPhase2

ImportActiveSnapshotPhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laborator | y Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | on | | | | | |
| SEOUENCE / | / 2 elements | | | | | |

```
Scaler
  Unit
}
```

<u>Scaler</u>

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8 Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 30: Wh

Default value: Wh (30)

■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | = | Get |
| | | | | | | |

Attribute description

Data type: NULL Authorized value:

Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |

capture_time

capture_time

Date and time of the snapshot (synchronized on load profile 1).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.34 ImportActiveSnapshotPhase3

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;61;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------------|
| A1. logical_name | OCTETSTRING | ImportActiveSnapshotPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ImportActiveSnapshotPhase3

ImportActiveSnapshotPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE //: { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by - discrete values pos | | • • • | 'TotalEnergyP | 'arameters' o | object): | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 | D: Wh | | | | | |

■ Attribute 4: status

Default value: Wh (30)

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A thuilet. a la a a ui u ti a u | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |
| Data type: NULL | | | | | | |
| ,p | | | | | | |
| Authorized value: | | | | | | |
| 5 () , | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

capture_time

capture_time

Date and time of the snapshot (synchronized on load profile 1).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.35 ImportApparentAggregate

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;9;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | ImportApparentAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ImportApparentAggregate

<u>ImportApparentAggregate</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

<u>Scaler</u>

Scaler is defined by configuration of Apparent energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity 3: kilo 6: mega

Default value: unity (0)

<u>Unit</u>

16.1.36 ImportApparentPhase1

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;29;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | ImportApparentPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| T 7 Db | 1 | | | | | |

ImportApparentPhase1

ImportApparentPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

<u>Scaler</u>

Scaler is defined by configuration of Apparent energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity 3: kilo 6: mega

Default value: unity (0)

<u>Unit</u>

16.1.37 ImportApparentPhase2

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;49;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer True True False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | ImportApparentPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |

ImportApparentPhase2

ImportApparentPhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

```
SEQUENCE
          // 2 elements
 Scaler
 Unit
}
```

<u>Scaler</u>

Scaler is defined by configuration of Apparent energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity 3: kilo 6: mega

Default value: unity (0)

Unit

16.1.38 ImportApparentPhase3

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;69;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | ImportApparentPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| ImportApparentPha | .se3 | | | | | |

ImportApparentPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

```
SEQUENCE // 2 elements {
   Scaler
   Unit
}
```

<u>Scaler</u>

Scaler is defined by configuration of Apparent energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity 3: kilo 6: mega

Default value: unity (0)

<u>Unit</u>

16.1.39 ImportApparentSnapshotAggregate

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|---------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;9;17;0;25 | 5 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | ImportApparentSnapshotAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A thuilet. al a a a windi a .a | | | | | | |

Attribute description

ImportApparentSnapshotAggregate

<u>ImportApparentSnapshotAggregate</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laborator | y Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | on | | | | | |
| • | // 2 elements | | | | | |

```
SEQUENCE // 2 element {
    Scaler
    Unit
```

Scaler

}

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object) :

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Data ton a NIIII | | | | | | |

Data type: NULL
Authorized value:
Default value:

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| L | Get | Get | Get | Get | Get | - | Get | | |
| ŀ | Attribute description | | | | | | | | |
| | capture_time | | | | | | | | |
| | capture_time | | | | | | | | |
| | Date and time of the snapshot (synchronized on load profile 1). | | | | | | | | |
| | Data type: OCTETS | TRING | | | | | | | |
| | Authorized value: De | ecoded as Decim | al (Size = 12) | | | | | | |

16.1.40 ImportApparentSnapshotPhase1

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;29;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ImportApparentSnapshotPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| E | lectricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------|-----------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| ۸ 11. | | | | | | | |

Attribute description

 ${\tt ImportApparentSnapshotPhase1}$

ImportApparentSnapshotPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

```
Electricity laboratory
                        Electricity utility
                                         Electricity reader
                                                          End customer Manufacturer Resources upgrader Engineer
         Get
Attribute description
 SEQUENCE
               // 2 elements
   Scaler
   Unit
 }
Scaler
 Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):
 - discrete values possible are : 0, 3 and 6.
Data type: INTEGER8
 Authorized value: 0 to 6
 Default value: 0
<u>Unit</u>
Data type: ENUMERATED
 Authorized value: 31: VAh
Default value: VAh (31)
```

■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |
| Data type: NULL | | | | | | |
| _ a.a, po | | | | | | |
| Authorized value: | | | | | | |
| 5 6 11 1 | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | J (, | , | | | | | | | | | |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
| | Get | Get | Get | Get | Get | - | Get | | | | |
| | Attribute description | | | | | | | | | | |
| 1 | Attribute description | | | | | | | | | | |
| | capture_time | | | | | | | | | | |
| | | | | | | | | | | | |
| | <u>capture_time</u> | | | | | | | | | | |
| | Date and time of the | snapshot (synch | ronized on load r | rofile 1). | | | | | | | |
| | | o | | | | | | | | | |
| | Data type: OCTETS | TRING | | | | | | | | | |
| | | | | | | | | | | | |
| | Authorized value: De | ecoded as Decima | al (Size = 12) | | | | | | | | |
| | Default value: 255:2 | EE-2EE-2EE-2EE-2 |)
 EE | 255-255-255- | | | | | | | |
| | Default value: 255;2 | 00,200,200,200,2 | .55,255,255,255,4 | ۷55,255,255, | | | | | | | |

16.1.41 ImportApparentSnapshotPhase2

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;1;49;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ImportApparentSnapshotPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|---|------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | |
| | | | | | | | | | | |
| 4 | Attribute description | | | | | | | | | |
| | ImportApparentSnapshotPhase2 | | | | | | | | | |
| | ImportApparentSnapshotPhase2 | | | | | | | | | |
| | Data type: UNSIGNI | ED32 | | | | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 0 to 999999999

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

```
SEQUENCE
             // 2 elements
 Scaler
  Unit
}
```

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object) :

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8 Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 31: VAh Default value: VAh (31)

■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

Data type: NULL Authorized value: Default value:

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|------------------------------------|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| | Get | Get | Get | Get | Get | - | Get | | |
| Attribute description capture_time | | | | | | | | | |
| | capture_time | | | | | | | | |
| | Date and time of the | snapshot (synch | ronized on load p | orofile 1). | | | | | |

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.42 ImportApparentSnapshotPhase3

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;69;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ImportApparentSnapshotPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ImportApparentSnapshotPhase3

ImportApparentSnapshotPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                         End customer Manufacturer Resources upgrader Engineer
        Get
                                              Get
                                                                          Get
                            Get
                                                                                                       Get
Attribute description
SEQUENCE
             // 2 elements
   Scaler
   Unit
Scaler
 Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object) :
 - discrete values possible are: 0, 3 and 6.
 Data type: INTEGER8
 Authorized value: 0 to 6
 Default value: 0
Unit
Data type: ENUMERATED
Authorized value: 31: VAh
Default value: VAh (31)
```

■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get | Get | Get | Get | Get | | Get | |
| Attribute description | | | | | | | |
| Attribute description | | | | | | | |
| capture_time | | | | | | | |
| conturo timo | | | | | | | |
| <u>capture_time</u> | | | | | | | |
| Date and time of the | snapshot (synch | ronized on load p | orofile 1). | | | | |
| Data type: OCTETS | TDING | | | | | | |
| Data type. OCTETS | INING | | | | | | |
| Authorized value: De | ecoded as Decim | al (Size = 12) | | | | | |
| | | , | | | | | |
| Default value: 255:2 | 55:255:255:255:2 | 255:255:255:255: | 255:255:255: | | | | |

16.1.43 ImportReactiveAggregate

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;3;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | ImportReactiveAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ImportReactiveAggregate

<u>ImportReactiveAggregate</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

Scaler

Scaler is defined by configuration of Reactive energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity

3: kilo

6: mega

Default value: unity (0)

<u>Unit</u>

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

16.1.44 ImportReactivePhase1

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;23;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | ImportReactivePhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| , | Attribute description | | | | | | |
| | ImportReactivePha | ase1 | | | | | |

ImportReactivePhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Get Get Get Get Get - Get Attribute description SEQUENCE // 2 elements { Scaler Unit } | | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| SEQUENCE // 2 elements { Scaler | | Get | Get | Get | Get | Get | - | Get |
| { Scaler | , | Attribute description | | | | | | |
| | | { Scaler | 2 elements | | | | | |

Scaler

Scaler is defined by configuration of Reactive energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity 3: kilo

6: mega

Default value: unity (0)

<u>Unit</u>

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

16.1.45 ImportReactivePhase2

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;43;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|------------------------------|--|
| A1. logical_name | OCTETSTRING | ImportReactivePhase2OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Elec | ricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------|-------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| Attribi | ite description | | | | | | |
| Impo | rtReactivePha | ıse2 | | | | | |

ImportReactivePhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description SEQUENCE // 3 { Scaler Unit } | 2 elements | | | | | |
| Scaler Scaler is defined by Data type: INTEGER | _ | Reactive energy g | group (see 'To | talEnergyPa | rameters' object) | |
| Authorized values: 0: unity 3: kilo 6: mega | | | | | | |
| Default value: unity <u>Unit</u> | (0) | | | | | |

16.1.46 ImportReactivePhase3

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;63;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|------------------------------|
| A1. logical_name | OCTETSTRING | ImportReactivePhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description ImportReactivePha | ase3 | | | | | |
| <u>ImportReactivePhas</u> | <u>:e3</u> | | | | | |

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|---------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE //: { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of F | Reactive energy g | roup (see 'To | talEnergyPa | rameters' object) | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized values: 0: unity 3: kilo 6: mega | | | | | | |
| Default value: unity | (0) | | | | | |
| <u>Unit</u> | | | | | | |

16.1.47 ImportReactiveSnapshotAggregate

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;3;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---|
| A1. logical_name | OCTETSTRING | ImportReactiveSnapshotAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ImportReactiveSnapshotAggregate

<u>ImportReactiveSnapshotAggregate</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

```
SEQUENCE // 2 elements {
    Scaler
    Unit
}
```

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object) :

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Data type: NULL Authorized value: Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Attribute description | | | | | | |

capture_time

capture time

Date and time of the snapshot (synchronized on load profile 1).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.48 ImportReactiveSnapshotPhase1

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;23;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ImportReactiveSnapshotPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ImportReactiveSnapshotPhase1

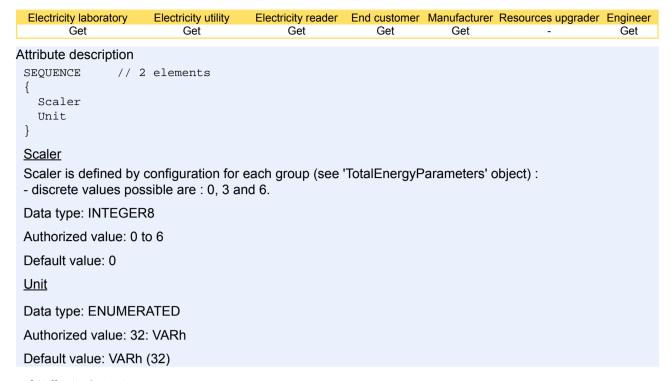
ImportReactiveSnapshotPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit



■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | | |
|--|------------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | | | |
| Attribute description | | | | | | | | | | | | |
| capture_time | | | | | | | | | | | | |
| capture_time | | | | | | | | | | | | |
| Date and time of the | snapshot (synch | ronized on load p | orofile 1). | | | | | | | | | |
| Data type: OCTETS | Data type: OCTETSTRING | | | | | | | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | | | | | |
| Default value: 255;2 | 55;255;255;255;2 | 255;255;255;255; | 255;255;255; | | | | | | | | | |

16.1.49 ImportReactiveSnapshotPhase2

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;43;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ImportReactiveSnapshotPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A (() | | | | | | |

Attribute description

ImportReactiveSnapshotPhase2

ImportReactiveSnapshotPhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| | Liectricity utility | Liectricity reader | Life Custoffier | Manuacture | resources upgrader | Liigiileei |
|-----------------------|---------------------|--------------------|-----------------|------------|--------------------|------------|
| Get | Get | Get | Get | Get | = - | Get |
| | | | | | | |
| Attribute description | | | | | | |

SEQUENCE

```
// 2 elements
Scaler
Unit
```

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8 Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Data type: NULL
Authorized value:
Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | | Electricity reader | | | Resources upgrader | | | |
|------------------------|---|--------------------|-----|-----|--------------------|-----|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | า | | | | | | | |
| capture_time | | | | | | | | |
| capture_time | | | | | | | | |
| Date and time of t | Date and time of the snapshot (synchronized on load profile 1). | | | | | | | |

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.50 ImportReactiveSnapshotPhase3

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;63;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------------------|
| A1. logical_name | OCTETSTRING | ImportReactiveSnapshotPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

 ${\tt ImportReactiveSnapshotPhase3}$

<u>ImportReactiveSnapshotPhase3</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|-------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| Scaler | | | | | | |
| Unit
} | | | | | | |
| Scaler | | | | | | |
| Scaler is defined by - discrete values pos | | | TotalEnergyP | 'arameters' d | object): | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 t | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 32 | :: VARh | | | | | |
| Default value: VARh | (32) | | | | | |

■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description capture_time | | | | | | |
| <u>capture_time</u> Date and time of the snapshot (synchronized on load profile 1). | | | | | | |
| Data type: OCTETS | TRING | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | |
| Default value: 255;25 | 55;255;255;255;2 | :55;255;255;255;2 | 255;255;255; | | | |

16.1.51 MagnetSensorRegister

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;134;0;4;255 | 3 | 0 | 1 | 0 | False | False | False |

A3. scaler_unit

| Management | Electricity | End customer |
|-----------------------|-------------|--------------|
| True | True | False |
| Attributes / Met | hods | |
| Attribute (A) / Metho | od (M) | Data type |
| A1. logical_name | | OCTETS: |
| A2. value | | UNSIGNE |

See below

SEQUENCE

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| ļ | Attribute description Register | | | | | | |
| | Register The register value shall be modelled by Unsigned32 | | | | | | |
| | Data type: UNSIGNED32 | | | | | | |
| | Authorized value: 0 t | o 99999999 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Fly (13) Liberate | Electric de | Fig. (2.9) | E. I | N.A | D | |
|----------------------------|-------------------------|---------------|---------------------|---------------------|--------------------|----------|
| Electricity laboratory Get | Electricity utility Get | Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer |
| | Gei | Gei | Gei | Gei | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler according CT* | ·VT. | | | | | |
| Scaler = 0 if, 1<=Nu | | | | | | |
| Scaler = 3 if, 250 <= | | | | | | |
| Scaler = 6 if, 250 00 | 00 <=NumC1/De | nC1*NumV1/Der | IV I. | | | |
| Data type: INTEGER | 8 | | | | | |
| Authorized value: -12 | 28 to 127 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| always Wh. | | | | | | |
| Data type: ENUMERA | ATED | | | | | |
| Authorized value: 30: | Wh | | | | | |
| Default value: Wh (30 | 0) | | | | | |

16.1.52 ReactiveQ1Aggregate

This object defines the total of reactive energy aggregate in the case of the reactive energy is positive and active energy is positive.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;5;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Management Electricity End customer True True False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ1AggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

ReactiveQ1Aggregate

ReactiveQ1Aggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| | Lieutiuity laboratory | Liectricity utility | Liectricity reader | Life Custoffier | Manufacturer | resources upgrader | Lilgilleei |
|---|-----------------------|---------------------|--------------------|-----------------|--------------|--------------------|------------|
| | Get | Get | Get | Get | Get | - | Get |
| į | Attribute description | | | | | | |

SEQUENCE // 2 elements

Scaler Unit

Scaler

Scaler is defined by configuration of Reactive energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity 3: kilo

6: mega

Default value: unity (0)

<u>Unit</u>

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

16.1.53 ReactiveQ1Phase1

| Logical nam | e Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|--------------|------------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;25;8;0;2 | 55 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ1Phase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| ReactiveQ1Phase1 | | | | | | |
| ReactiveQ1Phase1 | | | | | | |
| Data type: UNSIGNE | D32 | | | | | |
| Authorized value: 0 to | o 99999999 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| o , , | | | | | | |
|--|---------------------|--------------------|----------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get | Get | Get | Get | Get | - | Get |
| Attribute description SEQUENCE // 2 { Scaler Unit } | elements | | | | | |
| Scaler is defined by | configuration of F | Reactive energy g | group (see 'To | talEnergyPa | rameters' object) | |
| Data type: INTEGER | 88 | | | | | |
| Authorized values: 0: unity 3: kilo 6: mega | | | | | | |
| Default value: unity (| 0) | | | | | |
| <u>Unit</u> | | | | | | |

16.1.54 ReactiveQ1Phase2

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;45;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ1Phase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| ReactiveQ1Phase2 | | | | | | |
| ReactiveQ1Phase2 | | | | | | |

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | = | Get |
| | | | | | | |
| Attribute descriptior |) | | | | | |
| SECUENCE // | 2 elements | | | | | |

Unit }

Scaler

<u>Scaler</u>

Scaler is defined by configuration of Reactive energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity 3: kilo

6: mega

Default value: unity (0)

<u>Unit</u>

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

16.1.55 ReactiveQ1Phase3

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;65;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------|--|
| A1. logical_name | OCTETSTRING | ReactiveQ1Phase3OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity | laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------|---------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| G | et | Get | Get | Get | Get | - | Get |
| Attribute d | escription | | | | | | |
| Reactive | Q1Phase3 | | | | | | |
| Reactive | Q1Phase3 | | | | | | |
| Data type | : UNSIGNE | ED32 | | | | | |
| Authorize | ed value: 0 t | o 99999999 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|-------------------------------------|--------------------|----------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of F | Reactive energy g | group (see 'To | talEnergyPa | rameters' object) | |
| Data type: INTEGER | R8 | | | | | |
| Authorized values: 0: unity 3: kilo 6: mega | Authorized values: 0: unity 3: kilo | | | | | |
| Default value: unity (| (0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 32 | : varh | | | | | |
| Default value: varh (| 32) | | | | | |

16.1.56 ReactiveQ1SnapshotAggregate

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;5;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ1SnapshotAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ReactiveQ1SnapshotAggregate

ReactiveQ1SnapshotAggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get Get | | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| | Attribute description | | | | | | |

Auribute description

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object) :

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | _ | Get |

Attribute description

Data type: NULL
Authorized value:
Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | | | | | | | | |
| capture_time | | | | | | | | |
| capture time | | | | | | | | |
| Date and time of the snapshot (synchronized on load profile 1). | | | | | | | | |

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.57 ReactiveQ1SnapshotPhase1

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;25;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ1SnapshotPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ1SnapshotPhase1

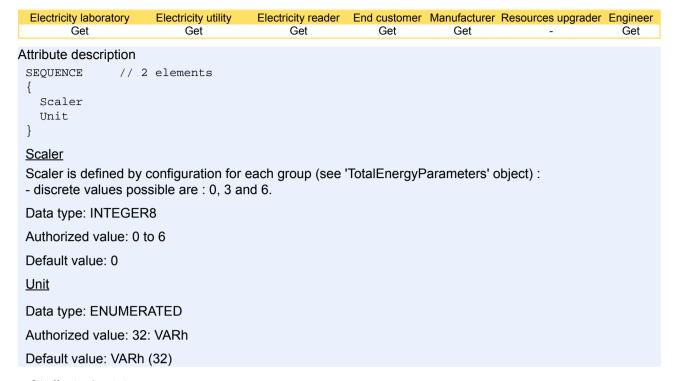
ReactiveQ1SnapshotPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit



■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |
| Data type: NULL | | | | | | |
| A cather of a calculation | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| | Get | Get | Get | Get | Get | - | Get | | |
| | Attributa description | | | | | | | | |
| 4 | Attribute description | | | | | | | | |
| | capture_time | | | | | | | | |
| | | | | | | | | | |
| | <u>capture_time</u> | | | | | | | | |
| | Date and time of the | snapshot (synch | ronized on load p | rofile 1). | | | | | |
| | D / / 00TETO | TDINIO | · | , | | | | | |
| | Data type: OCTETS | TRING | | | | | | | |
| | Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | |
| | Authorized value. Decoded as Decimal (Size = 12) | | | | | | | | |
| | Default value: 255;25 | 55;255;255;255;2 | 255;255;255;255; | 255;255;255; | | | | | |

16.1.58 ReactiveQ1SnapshotPhase2

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;45;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ1SnapshotPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Get Get Get Get - Get | | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | L | Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ1SnapshotPhase2

ReactiveQ1SnapshotPhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Data type: NULL
Authorized value:
Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|
| Get Get Get Get - G | | | | | | | | | | | |
| attribute description | | | | | | | | | | | |
| capture_time | · | | | | | | | | | | |
| capture_time | | | | | | | | | | | |
| Date and time of the snapshot (synchronized on load profile 1). | | | | | | | | | | | |

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.59 ReactiveQ1SnapshotPhase3

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;65;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ1SnapshotPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Т | Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ1SnapshotPhase3

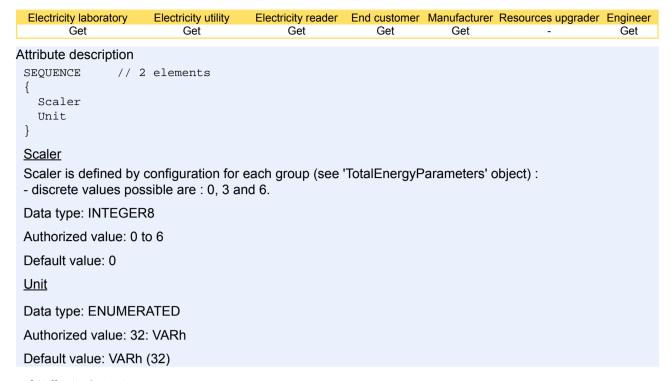
ReactiveQ1SnapshotPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit



■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | | | |
| | | | | | | | | | | | | |
| Attribute description | | | | | | | | | | | | |
| capture_time | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| <u>capture_time</u> | | | | | | | | | | | | |
| Date and time of the snapshot (synchronized on load profile 1). | | | | | | | | | | | | |
| Date and time of the shapshot (synonionized on load profile 1). | | | | | | | | | | | | |
| Data type: OCTETSTRING | | | | | | | | | | | | |
| 2, | | | | | | | | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | | | | | |
| Default value 255:20 | |) | 055.055.055. | | | | | | | | | |
| Default value: 255;25 | 00,200,200,200,2 | (55,255,255,255, | Z55;Z55;Z55; | | | | | | | | | |

16.1.60 ReactiveQ2Aggregate

This object defines the total of reactive energy aggregate in the case of the reactive energy is positive and active energy are negative.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;6;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Management Electricity End customer True True False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ2AggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

ReactiveQ2Aggregate

ReactiveQ2Aggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients) Electricity laboratory

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description | | | | | | | | |
| SEQUENCE // | 2 elements | | | | | | | |
| { | | | | | | | | |
| Scaler | | | | | | | | |

<u>Scaler</u>

}

Unit

Scaler is defined by configuration of Reactive energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity

3: kilo

6: mega

Default value: unity (0)

<u>Unit</u>

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

16.1.61 Reactive Q2Phase 1

| | Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1 | 1;1;26;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

ManagementElectricityEnd customerTrueTrueFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ2Phase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| ReactiveQ2Phase1 | | | | | | |
| ReactiveO2Phase1 | | | | | | |

ReactiveQ2Phase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |

SEQUENCE // 2 elements

{
 Scaler
 Unit
}

Scaler

Scaler is defined by configuration of Reactive energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity

3: kilo 6: mega

Default value: unity (0)

<u>Unit</u>

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

16.1.62 Reactive Q2Phase 2

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;46;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ2Phase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Attribute description | | | | | | |
| ReactiveQ2Phase2 | | | | | | |
| ReactiveQ2Phase2 | | | | | | |
| | | | | | | |
| Data type: UNSIGNE | ED32 | | | | | |
| | | | | | | |
| Authorized value: 0 t | o 999999999 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| 3 (| , | | | | | |
|--|---------------------|--------------------|----------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // . { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of F | Reactive energy o | group (see 'To | talEnergyPa | rameters' object) | |
| Data type: INTEGE | R8 | | | | | |
| Authorized values:
0: unity
3: kilo
6: mega | | | | | | |
| Default value: unity | (0) | | | | | |
| <u>Unit</u> | | | | | | |

16.1.63 ReactiveQ2Phase3

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;66;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ2Phase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| , | Attribute description | | | | | | |
| | ReactiveQ2Phase3 | | | | | | |
| | ReactiveQ2Phase3 | | | | | | |
| | Data type: UNSIGNE | D32 | | | | | |
| | Authorized value: 0 t | o 99999999 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|---------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | elements | | | | | |
| Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of R | eactive energy g | roup (see 'To | talEnergyPa | rameters' object) | |
| Data type: INTEGER | 18 | | | | | |
| Authorized values: | | | | | | |
| 0: unity | | | | | | |
| 3: kilo | | | | | | |
| 6: mega | | | | | | |
| Default value: unity (| 0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 32 | : varh | | | | | |
| Default value: varh (3 | 32) | | | | | |

16.1.64 ReactiveQ2SnapshotAggregate

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;6;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ2SnapshotAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

ReactiveQ2SnapshotAggregate

ReactiveQ2SnapshotAggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

```
SEQUENCE // 2 elements
 Scaler
 Unit
```

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8 Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Data type: NULL
Authorized value:
Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | | Electricity reader | | | Resources upgrader | |
|------------------------|--------------------|--------------------|-------------|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | า | | | | | |
| capture_time | | | | | | |
| capture_time | | | | | | |
| Date and time of t | he snapshot (synch | ronized on load p | orofile 1). | | | |

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.65 ReactiveQ2SnapshotPhase1

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;26;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| 3 | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ2SnapshotPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ2SnapshotPhase1

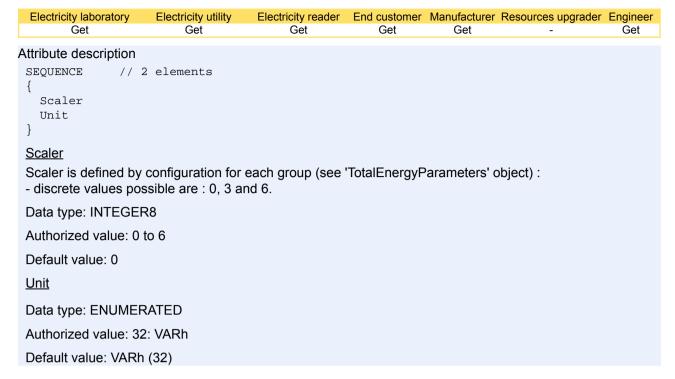
ReactiveQ2SnapshotPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit



■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|---------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | Attribute description | | | | | | |
| 1 | • | | | | | | |
| | capture_time | | | | | | |
| | | | | | | | |
| | <u>capture_time</u> | | | | | | |
| | Date and time of the | enanehot (evnch | ronized on load r | rofile 1) | | | |
| | Date and time of the | Shapshot (Syrich | iroriized orrioad p | nonic 1). | | | |
| | Data type: OCTETS | TRING | | | | | |
| | 2010 19 20 20 12 10 | | | | | | |
| | Authorized value: De | ecoded as Decim | al (Size = 12) | | | | |
| | | | , | | | | |
| | Default value: 255;2 | 55;255;255;255;2 | 255;255;255;255; | 255;255;255; | | | |

16.1.66 ReactiveQ2SnapshotPhase2

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;46;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ2SnapshotPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ2SnapshotPhase2

ReactiveQ2SnapshotPhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

```
SEQUENCE // 2 elements {
   Scaler
   Unit
}
```

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Data type: NULL
Authorized value:
Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|------------------------------------|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| ttribute description capture_time | | | | | | |
| capture_time Date and time of the | snanshot (synch | ronized on load r | orofile 1) | | | |

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.67 ReactiveQ2SnapshotPhase3

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;66;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ2SnapshotPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |
| | | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ2SnapshotPhase3

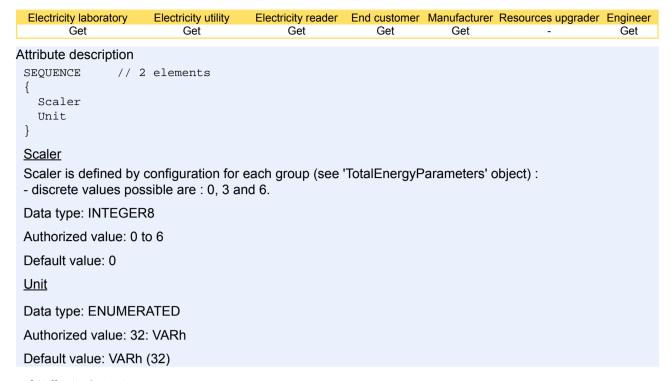
ReactiveQ2SnapshotPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit



■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |
| Data type: NULL | | | | | | |
| A cather of a calculation | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|---|------------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| | Get | Get | Get | Get | Get | - | Get | | |
| ļ | Attribute description capture_time | | | | | | | | |
| | <u>capture_time</u> Date and time of the snapshot (synchronized on load profile 1). | | | | | | | | |
| | Data type: OCTETS | Data type: OCTETSTRING | | | | | | | |
| | Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | |
| | Default value: 255;25 | 55;255;255;255;2 | 255;255;255;255; | 255;255;255; | | | | | |

16.1.68 ReactiveQ3Aggregate

This object defines the total of reactive energy aggregate in the case of the reactive energy is negative and active energy are negative.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;7;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Management Electricity End customer True True False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ3AggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

ReactiveQ3Aggregate

ReactiveQ3Aggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| { | | | | | | |
| Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| , | | | | | | |
| <u>Scaler</u> | | | | | | |

Scaler is defined by configuration of Reactive energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8

Authorized values:

0: unity

3: kilo 6: mega

Default value: unity (0)

<u>Unit</u>

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

16.1.69 ReactiveQ3Phase1

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;27;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ3Phase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A (() () () () () | | | | | | |
| Attribute description | | | | | | |
| ReactiveQ3Phase1 | | | | | | |
| ReactiveQ3Phase1 | | | | | | |
| Data type: UNSIGNE | D32 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 0 to 999999999

Access rights (clients)

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|---|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE //: { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of F | Reactive energy g | roup (see 'To | talEnergyPa | rameters' object) | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized values: 0: unity 3: kilo 6: mega | | | | | | |
| Default value: unity | (0) | | | | | |
| <u>Unit</u> | | | | | | |

16.1.70 ReactiveQ3Phase2

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;47;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ3Phase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | = | Get |
| A (() () () () | | | | | | |
| Attribute description | | | | | | |
| ReactiveQ3Phase2 | | | | | | |
| ReactiveQ3Phase2 | | | | | | |
| Data type: UNSIGNE | ED32 | | | | | |
| Authorized value: 0 t | o 999999999 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| tooosa riginto (ononto | , | | | | | |
|------------------------|---------------------|--------------------|----------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of F | Reactive energy (| group (see 'To | talEnergyPa | rameters' object) | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized values: | | | | | | |
| 0: unity | | | | | | |
| 3: kilo | | | | | | |
| 6: mega | | | | | | |
| Default value: unity | (0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | PATED | | | | | |
| Data type. LINUMER | VALLD | | | | | |

16.1.71 ReactiveQ3Phase3

Authorized value: 32: varh Default value: varh (32)

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;67;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------|--|
| A1. logical_name | OCTETSTRING | ReactiveQ3Phase3OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| , | Attribute description | | | | | | |
| | ReactiveQ3Phase3 | | | | | | |
| | ReactiveQ3Phase3 | | | | | | |
| | Data type: UNSIGNE | ED32 | | | | | |
| | Authorized value: 0 t | o 999999999 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory | Electricity utility | • | | | Resources upgrader | |
|------------------------|---------------------|--------------------|----------------|---------------|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | elements | | | | | |
| { | | | | | | |
| Scaler
Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of F | Reactive energy of | ıroun (see 'To | talEnergyPa | rameters' object) | |
| | _ | Codon vo on orgy g | 1000 10 | taiLiloigyi a | ramotoro object, | |
| Data type: INTEGER | (8 | | | | | |
| Authorized values: | | | | | | |
| 0: unity
3: kilo | | | | | | |
| 6: mega | | | | | | |
| _ | 0) | | | | | |
| Default value: unity (| 0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 32 | : varh | | | | | |
| Default value: varh (3 | 32) | | | | | |

16.1.72 ReactiveQ3SnapshotAggregate

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;7;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ3SnapshotAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ3SnapshotAggregate

ReactiveQ3SnapshotAggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Data type: NULL
Authorized value:
Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| capture_time | | | | | | |
| acotura tima | | | | | | |

capture_time

Date and time of the snapshot (synchronized on load profile 1).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.73 ReactiveQ3SnapshotPhase1

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;1;27;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ3SnapshotPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |
| | | |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Т | Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ3SnapshotPhase1

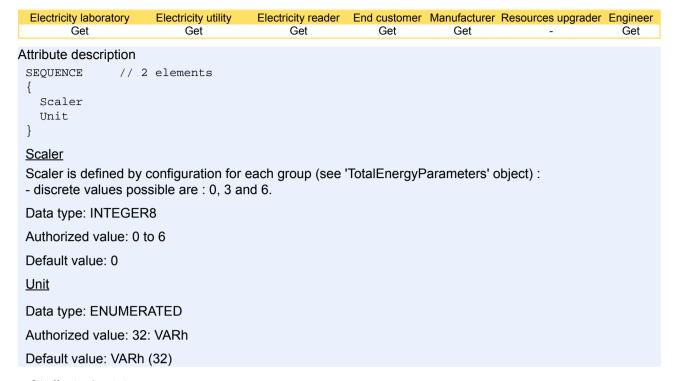
ReactiveQ3SnapshotPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit



■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| | | | | | | |
| Data type: NULL | | | | | | |
| Data type: NOLL | | | | | | |
| Authorized value: | | | | | | |
| | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | | |
|--|---|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | | |
| Attribute description capture_time | | | | | | | | | | | |
| capture_time Date and time of the | <u>capture_time</u> Date and time of the snapshot (synchronized on load profile 1). | | | | | | | | | | |
| Data type: OCTETS | TRING | | | | | | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | | | | |
| Default value: 255;25 | 55;255;255;255;2 | :55;255;255;255;2 | 255;255;255; | | | | | | | | |

16.1.74 ReactiveQ3SnapshotPhase2

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;47;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ3SnapshotPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ3SnapshotPhase2

ReactiveQ3SnapshotPhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

```
SEQUENCE // 2 elements {
    Scaler
    Unit
}
```

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object) :

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Data type: NULL Authorized value: Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |

capture_time

capture_time

Date and time of the snapshot (synchronized on load profile 1).

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.75 ReactiveQ3SnapshotPhase3

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;67;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ3SnapshotPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ3SnapshotPhase3

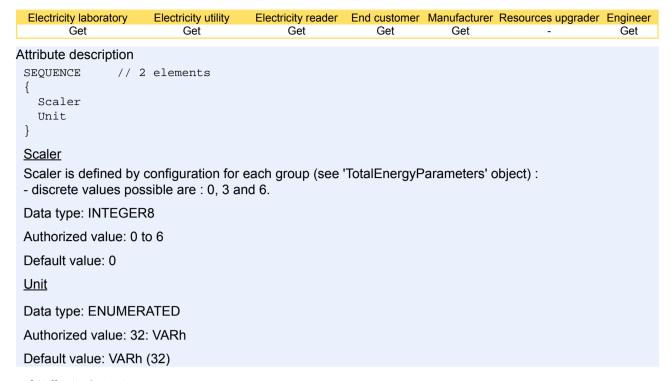
ReactiveQ3SnapshotPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit



■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get | Get | Get | Get | Get | - | Get | |
| Attribute description capture_time | | | | | | | |
| capture_time Date and time of the snapshot (synchronized on load profile 1). | | | | | | | |
| Data type: OCTETS | TRING | | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | | |
| Default value: 255;255;255;255;255;255;255;255;255;255 | | | | | | | |

16.1.76 ReactiveQ4Aggregate

This object defines the total of reactive energy aggregate in the case of the reactive energy is negative and active energy are positive.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;8;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Management Electricity End customer True True False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ4AggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

ReactiveQ4Aggregate

ReactiveQ4Aggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE //
{ | 2 elements | | | | | |
| Scaler
Unit | | | | | | |
| } | | | | | | |
| Scaler | | | | | | |

Scaler is defined by configuration of Reactive energy group (see 'TotalEnergyParameters' object)

Data type: INTEGER8 Authorized values:

0: unity

3: kilo

6: mega

Default value: unity (0)

<u>Unit</u>

Data type: ENUMERATED Authorized value: 32: varh Default value: varh (32)

16.1.77 ReactiveQ4Phase1

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;28;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ4Phase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A () 1 | | | | | | |
| Attribute description | | | | | | |
| ReactiveQ4Phase1 | | | | | | |
| ReactiveQ4Phase1 | | | | | | |
| Data type: UNSIGNE | ED32 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 0 to 999999999

Access rights (clients)

| Access rights (chefts | ') | | | | | |
|---|---------------------|--------------------|----------------|--------------|--------------------|----------|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
| Get | Get | Get | Get | Get | - | Get |
| ttribute description | | | | | | |
| SEQUENCE // { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of F | Reactive energy of | group (see 'To | talEnergyPa | rameters' object) | |
| Data type: INTEGEI | R8 | | | | | |
| Authorized values: 0: unity 3: kilo 6: mega | | | | | | |
| Default value: unity | (0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |

16.1.78 ReactiveQ4Phase2

Authorized value: 32: varh Default value: varh (32)

| | Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1 | 1;1;48;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ4Phase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|-------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| A (() () () () () | | | | | | | | |
| Attribute description | | | | | | | | |
| ReactiveQ4Phase2 | | | | | | | | |
| ReactiveQ4Phase2 | | | | | | | | |
| Data type: UNSIGNE | D32 | | | | | | | |
| Authorized value: 0 to | o 99999999 | | | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---------------------|--------------------|----------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| tribute description EQUENCE // Scaler Unit | 2 elements | | | | | |
| Scaler
Scaler is defined by
Data type: INTEGEI | _ | Reactive energy ç | group (see 'To | talEnergyPa | rameters' object) | |
| Authorized values: 0: unity 3: kilo 6: mega | | | | | | |
| Default value: unity | (0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMEF | RATED | | | | | |

16.1.79 ReactiveQ4Phase3

Authorized value: 32: varh Default value: varh (32)

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;68;8;0;255 | 3 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|--------------------------|--|
| A1. logical_name | OCTETSTRING | ReactiveQ4Phase3OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| F | Attribute description | | | | | | |
| | ReactiveQ4Phase3 | | | | | | |
| | ReactiveQ4Phase3 | | | | | | |
| | Data type: UNSIGNE | D32 | | | | | |
| | Authorized value: 0 to | o 99999999 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|-------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description SEQUENCE // 2 { Scaler Unit } | elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by | configuration of R | Reactive energy g | roup (see 'To | talEnergyPa | rameters' object) | |
| Data type: INTEGER | 8 | | | | | |
| Authorized values: 0: unity 3: kilo 6: mega | | | | | | |
| Default value: unity (| 0) | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 32 | : varh | | | | | |
| Default value: varh (3 | 32) | | | | | |

16.1.80 ReactiveQ4SnapshotAggregate

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;8;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ4SnapshotAggregateOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ4SnapshotAggregate

ReactiveQ4SnapshotAggregate

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

```
SEQUENCE // 2 elements {
    Scaler
    Unit
}
```

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Data type: NULL
Authorized value:
Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|------------------------|---|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| capture_time | | | | | | | | | |
| capture_time | | | | | | | | | |
| Date and time of the | Date and time of the snapshot (synchronized on load profile 1). | | | | | | | | |

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.81 ReactiveQ4SnapshotPhase1

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;28;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ4SnapshotPhase1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ4SnapshotPhase1

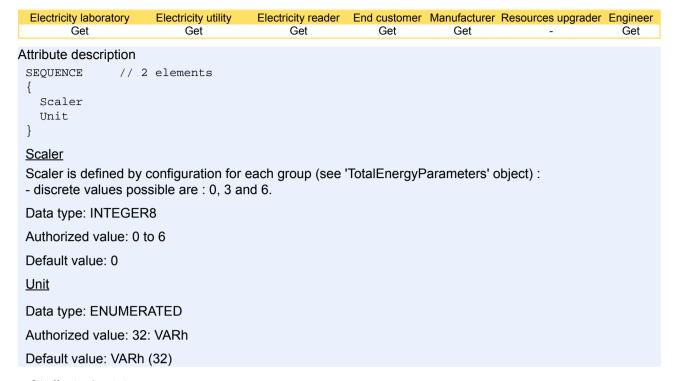
ReactiveQ4SnapshotPhase1

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit



■ Attribute 4: status

Not used.

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| Data type: NULL | | | | | | |
| Authorized value: | | | | | | |
| Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| capture_time | | | | | | | | | |
| <u>capture_time</u> | | | | | | | | | |
| Date and time of the | snapshot (synch | ronized on load p | orofile 1). | | | | | | |
| Data type: OCTETS | TRING | | | | | | | | |
| Authorized value: De | ecoded as Decim | al (Size = 12) | | | | | | | |
| Default value: 255;2 | 55;255;255;255;2 | 255;255;255;255; | 255;255;255; | | | | | | |

16.1.82 ReactiveQ4SnapshotPhase2

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;48;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ4SnapshotPhase2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ4SnapshotPhase2

ReactiveQ4SnapshotPhase2

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

```
SEQUENCE // 2 elements {
    Scaler Unit
}
```

Scaler

Scaler is defined by configuration for each group (see 'TotalEnergyParameters' object):

- discrete values possible are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 32: VARh Default value: VARh (32)

■ Attribute 4: status

Not used.

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

Data type: NULL
Authorized value:
Default value:

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| capture_time | | | | | | |
| capture_time | | | | | | |
| Date and time of the | snapshot (synch | ronized on load r | profile 1). | | | |

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

16.1.83 ReactiveQ4SnapshotPhase3

When Load Profile 1 end of recording occurs, each total energy register is copied into a snapshot register.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;1;68;17;0;255 | 4 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------------|
| A1. logical_name | OCTETSTRING | ReactiveQ4SnapshotPhase3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A4. status | NULL | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Т | Get | Get | Get | Get | Get | - | Get |

Attribute description

ReactiveQ4SnapshotPhase3

ReactiveQ4SnapshotPhase3

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| Scaler | | | | | | |
| Unit } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is defined by - discrete values pos | _ | | TotalEnergyP | arameters' o | object): | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: 0 t | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 32 | :: VARh | | | | | |
| Default value: VARh | (32) | | | | | |

■ Attribute 4: status

Not used.

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | A 44 miles 4 e . el e . e . miles 4 i e . e | | | | | | |
| 4 | Attribute description | | | | | | |
| | | | | | | | |
| | Data type: NULL | | | | | | |
| | Authorized value: | | | | | | |
| | Authorized value. | | | | | | |
| | Default value: | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description capture_time | | | | | | |
| capture_time Date and time of the | snapshot (synch | ronized on load p | profile 1). | | | |
| Data type: OCTETS | TRING | | | | | |
| Authorized value: De | ecoded as Decim | al (Size = 12) | | | | |
| Default value: 255;25 | 55;255;255;255;2 | 255;255;255;255;2 | 255;255;255; | | | |

16.1.84 ResetTerAlwaysAuthorizedParameters

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;134;0;5;255 | 1 | 0 | 1 | 0 | True | False | False |

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--|
| A1. logical_name | OCTETSTRING | ResetTerAlwaysAuthorizedParametersOBISCode |
| A2. value | ENUMERATED | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|----------|---------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get/Set | - ` | Get |
| Αt | ttribute description | | | | | | |
| F | ResetTerAlwaysAut | horized | | | | | |
| <u> </u> | ResetTerAlwaysAuth | norized | | | | | |
| [| Data type: ENUMER | ATED | | | | | |
| | Authorized values:
): RESET_TER_NO | T ALLOW | | | | | |
| | | - | | | | | |

1: RESET_TER_ALLOW

Default value: RESET_TER_NOT_ALLOW (0)

16.1.85 TotalEnergyOBISCodeParameters

This object transmits the data for the energy identification relative to the OBIS code for external and summation energies.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;134;0;2;255 | 1 | 0 | 1 | 0 | True | False | False |

| L | ogical devices : | | |
|---|------------------|-------------|--------------|
| | Management | Electricity | End customer |
| | True | False | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------------|
| A1. logical_name | OCTETSTRING | TotalEnergyOBISCodeParametersOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

The 12 elements in the sequence are ordered in the following way:

- TER external 1 import
- TER external 2 import
- TER external 3 import
- TER external 4 import
- TER external 1 export
- TER external 2 export
- TER external 3 export
- TER external 4 export
- TER summation 1
- TER summation 2
- TER summation 3
- TER summation 4

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

```
Attribute description
 SEQUENCE OF
                  // 12 elements
   SEQUENCE
                  // 2 elements
     Fluid
     QuantityType
Fluid
Data type: UNSIGNED8
 Authorized values:
 0: Electricity
 1: Heat
 2: Gas
 3: Water
 255: No fluid
 Default value: Electricity (0)
QuantityType
it defines the value of the third field DEVELOPMENT in the OBIS code of the concerned total energy
 register.
 Quantilyless value is 82.
 Data type: UNSIGNED8
 Authorized values:
 1: Import Active Energy Aggregate
 2: Export Active Energy Aggregate
 3: Import Reactive Energy Aggregate
4: Export Reactive Energy Aggregate
 5: Q1 Energy Aggregate
 6: Q2 Energy Aggregate
 7: Q3 Energy Aggregate
 8: Q4 Energy Aggregate
 9: Import Apparent Energy Aggregate
 10: Export Apparent Energy Aggregate
 21: Import Active Energy Phase 1
22: Export Active Energy Phase 1
 23: Import Reactive Energy Phase 1
 24: Export Reactive Energy Phase 1
 25: Q1 Energy Phase 1
 26: Q2 Energy Phase 1
 27: Q3 Energy Phase 1
 28: Q4 Energy Phase 1
 29: Import Apparent Energy Phase 1
 30: Export Apparent Energy Phase 1
41: Import Active Energy Phase 2
42: Export Active Energy Phase 2
43: Import Reactive Energy Phase 2
44: Export Reactive Energy Phase 2
45: Q1 Energy Phase 2
46: Q2 Energy Phase 2
 47: Q3 Energy Phase 2
 48: Q4 Energy Phase 2
 49: Import Apparent Energy Phase 2
 50: Export Apparent Energy Phase 2
```

61: Import Active Energy Phase 3

62: Export Active Energy Phase 3
63: Import Reactive Energy Phase 3
64: Export Reactive Energy Phase 3
65: Q1 Energy Phase 3
66: Q2 Energy Phase 3
67: Q3 Energy Phase 3
68: Q4 Energy Phase 3
69: Import Apparent Energy Phase 3
70: Export Apparent Energy Phase 3
82: Unitless quantity

Default value: Unitless quantity (82)

16.1.86 TotalEnergyParameters

This object contains the total energy registering configuration: type of energy, ratio and unit.

SL7K (till 4.60 for 761)

It is a sequence of 7 elements. Order of the sequence:

- active energy
- reactive energy
- apparent energy
- external energy and summation 1
- external energy and summation 2
- external energy and summation 3
- external energy and summation 4

SL7K (from 4.61 for 761)

It is a sequence of 11 elements. Order of the sequence :

- active energy
- reactive energy
- apparent energy
- external energy 1
- external energy 2
- external energy 3
- external energy 4
- summation energy 1
- summation energy 2
- summation energy 3
- summation energy 4

ACE8K

It is a sequence of 13 elements. Order of the sequence :

- active energy
- reactive energy
- apparent energy
- external energy 1
- external energy 2
- external energy 3
- external energy 4
- summation energy 1
- summation energy 2
- summation energy 3
- summation energy 4
- V2h energy
- I2h energy

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 0;0;134;0;1;255 | 1 | 0 | 15 | 0 | True | False | False |

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | False | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------|
| A1. logical_name | OCTETSTRING | TotalEnergyParametersOBISCode |
| A2. value | ARRAY | See below |

■ Attribute 2: value

Here is defined a sequence of 11 elements which will apply to group of energies.

Order of the sequence:

- -active energy
- reactive energy
- apparent energy
- external energy 1
- external energy 2
- external energy 3
- external energy 4
- summation energy 1
- summation energy 2
- summation energy 2
- summation energy 3 -summation energy 4
- Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

```
SEQUENCE OF // 11 elements
{
    SEQUENCE // 2 elements
    {
        Scaler
        Unit
    }
}
```

Scaler

Defines for each of 11 elements (energy groups) the scaler linked to it.

Default value:

- for active energy group : scaler = 3 (kilo)
- for other groups : scaler = 0 (unity)

When the meter is "MID compliant" (MIDComplianceParameters = TRUE), allowed values for ACTIVE energy group are 3 and 6 only.

Data type: INTEGER8

Authorized values:

- 0: unity
- 3: kilo
- 6: mega

Default value: unity (0)

<u>Unit</u>

Defines for each of 11 elements (energy groups) the unit linked to it.

Default values:

Wh (30) for active energy ,varh (32) for reactive energy $\,$,VAh (31) for apparent energy $\,$,no unit (255) for other energy types

Data type: UNSIGNED8

Authorized values:

30: Wh 31: VAh 32: VARh 255: No unit

Default value: Wh (30)

16.1.87 TotalEnergyRegisterInitParameters

The total energy registers defined for external input and summation must be available for initialization with Cosem.

These TER have got variable logical name because they are configuration dependent.

Programming of a TER value triggers the reset of its fraction register.

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;134;0;3;255 | 1 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|-------------------------------|-------------------------|--|
| A1. logical_name
A2. value | OCTETSTRING
SEQUENCE | TotalEnergyRegisterInitParametersOBISCode
See below |
| Az. value | OLQULINOL | See below |

■ Attribute 2: value

In order to avoid the programming of variable logical name object, this specific object is defined. Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|-----|--------------------|----------|
| Set | Set | - | - | Set | - | - |
| | | | | | | |

Attribute description

```
SEQUENCE // 12 elements

{

ExternalInput1TERImportValue
ExternalInput2TERImportValue
ExternalInput3TERImportValue
ExternalInput4TERImportValue
ExternalInput4TERExportValue
ExternalInput1TERExportValue
ExternalInput3TERExportValue
ExternalInput4TERExportValue
Summation1TERValue
Summation2TERValue
Summation3TERValue
Summation4TERValue
```

ExternalInput1TERImportValue

Range: 0 ... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295

ExternalInput2TERImportValue

Range: 0... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295

ExternalInput3TERImportValue

Range: 0... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295

ExternalInput4TERImportValue

Range: 0... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295

ExternalInput1TERExportValue

Range: 0... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295

ExternalInput2TERExportValue

Range: 0... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295

ExternalInput3TERExportValue

Range: 0... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295

<u>ExternalInput4TERExportValue</u>

Range: 0... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295

Summation1TERValue

Range: 0... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295 Summation2TERValue

Range: 0... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295 Summation3TERValue

Range: 0... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295 Summation4TERValue

Range: 0... 999 999 999 and 0xFFFFFFF (4294967295).

The value 0xFFFFFFF means no initialization.

Data type: UNSIGNED32

Authorized value: 0 to 4294967295

Default value: 4294967295

16.2 Cosem profiles

16.2.1 AllTotalEnergies

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;2;25
5 | 7 | 1 | 4 | 0 | RAM | 40 | 0 | 1 | 1 | 1 |

Logical devices:

| J | | | |
|------------|-------------|--------------|--|
| Management | Electricity | End customer | |
| True | True | True | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|--------------------------|
| A1. logical_name | OCTETSTRING | AllTotalEnergiesOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Total energy registers are ordered as following:

- ImportActivePhase1
- ImportActivePhase2
- ImportActivePhase3
- ImportActiveAggregate

- ExportActivePhase1
- ExportActivePhase2
- ExportActivePhase3
- ExportActiveAggregate
- ImportReactivePhase1
- ImportReactivePhase2
- ImportReactivePhase3
- ImportReactiveAggregate
- ExportReactivePhase1
- ExportReactivePhase2
- ExportReactivePhase3
- ExportReactiveAggregate
- ReactiveQ1Phase1
- ReactiveQ1Phase2
- ReactiveQ1Phase3
- ReactiveQ1Aggregate
- ReactiveQ2Phase1
- ReactiveQ2Phase2
- ReactiveQ2Phase3
- ReactiveQ2Aggregate
- ReactiveQ3Phase1
- ReactiveQ3Phase2
- ReactiveQ3Phase3
- ReactiveQ3Aggregate
- ReactiveQ4Phase1
- ReactiveQ4Phase2
- ReactiveQ4Phase3
- ReactiveQ4Aggregate
- ImportApparentPhase1
- ImportApparentPhase2
- ImportApparentPhase3
- ImportApparentAggregate
- ExportApparentPhase1
- ExportApparentPhase2
- ExportApparentPhase3
- ExportApparentAggregate
- ImportExternal 1
- ImportExternal 2
- ImportExternal 3
- ImportExternal 4
- ExportExternal 1
- ExportExternal 2
- ExportExternal 3
- ExportExternal 4
- Summation 1
- Summation 2
- Summation 3
- Summation 4

| Electricity laborator | y Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | on | | | | | |
| SEQUENCE OF | // 1 elements | | | | | |
| SEQUENCE { | // 52 elements | | | | | |
| SEQUENCE | // 3 elements | | | | | |

```
ImportActivePhase1
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ImportActivePhase2
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ImportActivePhase3
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ImportActiveAggregate
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ExportActivePhase1
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ExportActivePhase2
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ExportActivePhase3
 Value
 SEQUENCE // 2 elements
```

```
scaler
   unit
SEQUENCE
          // 3 elements
 ExportActiveAggregate
 Value
 SEQUENCE // 2 elements
   scaler
   unit
          // 3 elements
SEQUENCE
 ImportReactivePhase1
 Value
 SEQUENCE
            // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ImportReactivePhase2
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ImportReactivePhase3
 Value
          // 2 elements
 SEQUENCE
   scaler
   unit
SEQUENCE // 3 elements
 ImportReactiveAggregate
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ExportReactivePhase1
 Value
 SEQUENCE // 2 elements
   scaler
   unit
```

```
SEQUENCE // 3 elements
 ExportReactivePhase2
 Value
 SEQUENCE // 2 elements
  scaler
   unit
SEQUENCE // 3 elements
 ExportReactivePhase3
 Value
 SEQUENCE
            // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ExportReactiveAggregate
 Value
 SEQUENCE
          // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ1Phase1
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ1Phase2
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ1Phase3
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ1Aggregate
```

```
Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE
          // 3 elements
 ReactiveQ2Phase1
 Value
 SEQUENCE // 2 elements
   scaler
   unit
          // 3 elements
SEQUENCE
 ReactiveQ2Phase2
 Value
 SEQUENCE
            // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ2Phase3
 Value
 SEQUENCE // 2 elements
  scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ2Aggregate
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ3Phase1
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ3Phase2
 Value
 SEQUENCE // 2 elements
   scaler
```

```
unit
SEQUENCE // 3 elements
 ReactiveQ3Phase3
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ3Aggregate
 Value
 SEQUENCE
            // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ4Phase1
 Value
          // 2 elements
 SEQUENCE
   scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ4Phase2
 Value
 SEQUENCE // 2 elements
   scaler
   unit
          // 3 elements
SEQUENCE
 ReactiveQ4Phase3
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ReactiveQ4Aggregate
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
```

```
ImportApparentPhase1
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ImportApparentPhase2
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ImportApparentPhase3
 Value
 SEQUENCE
            // 2 elements
   scaler
SEQUENCE // 3 elements
 ImportApparentAggregate
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ExportApparentPhase1
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ExportApparentPhase2
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ExportApparentPhase3
 Value
 SEQUENCE // 2 elements
```

```
scaler
   unit
SEQUENCE
          // 3 elements
 ExportApparentAggregate
 Value
 SEQUENCE // 2 elements
   scaler
   unit
          // 3 elements
SEQUENCE
 ImportExternal1
 Value
 SEQUENCE
            // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ImportExternal2
 Value
 SEQUENCE // 2 elements
  scaler
   unit
SEQUENCE // 3 elements
 ImportExternal3
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ImportExternal4
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ExportExternal1
 Value
 SEQUENCE // 2 elements
   scaler
   unit
```

```
SEQUENCE // 3 elements
 ExportExternal2
 Value
 SEQUENCE // 2 elements
  scaler
  unit
SEQUENCE // 3 elements
 ExportExternal3
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 ExportExternal4
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 Summation1
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 Summation2
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 Summation3
 Value
 SEQUENCE // 2 elements
   scaler
   unit
SEQUENCE // 3 elements
 Summation4
```

Data type: ENUMERATED

Authorized value: Default value: (0)

```
Value
                  // 2 elements
       SEQUENCE
         scaler
         unit
  }
}
ImportActivePhase1
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
Value
Data type: UNSIGNED32
Authorized value: 0 to 999999999
Default value: 0
<u>scaler</u>
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
<u>unit</u>
Data type: ENUMERATED
Authorized value:
Default value: (0)
ImportActivePhase2
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
<u>Value</u>
Data type: UNSIGNED32
Authorized value: 0 to 999999999
Default value: 0
<u>scaler</u>
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
<u>unit</u>
```

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ImportActivePhase3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

<u>ImportActiveAggregate</u>

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ExportActivePhase1

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ExportActivePhase2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ExportActivePhase3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

unit

Data type: ENUMERATED

Authorized value: Default value: (0)

ExportActiveAggregate

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

unit

Data type: ENUMERATED

Authorized value: Default value: (0)

ImportReactivePhase1

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ImportReactivePhase2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

Value

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

ImportReactivePhase3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

<u>ImportReactiveAggregate</u>

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

ExportReactivePhase1

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

ExportReactivePhase2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

unit

Data type: ENUMERATED

Authorized value: Default value: (0)

ExportReactivePhase3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

<u>ExportReactiveAggregate</u>

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ1Phase1

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

Value

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ1Phase2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

Value

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ1Phase3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ1Aggregate

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ2Phase1

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0) ReactiveQ2Phase2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

unit

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ2Phase3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ2Aggregate

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

unit

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ3Phase1

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

unit

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ3Phase2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

unit

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ3Phase3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

unit

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ3Aggregate

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ4Phase1

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

Value

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ4Phase2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ4Phase3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ReactiveQ4Aggregate

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

<u>ImportApparentPhase1</u>

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

unit

Data type: ENUMERATED

Authorized value:
Default value: (0)

ImportApparentPhase2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

ImportApparentPhase3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

Data type: ENUMERATED

Authorized value: Default value: (0)

<u>ImportApparentAggregate</u>

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

ExportApparentPhase1

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

ExportApparentPhase2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

ExportApparentPhase3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

Value

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0)

ExportApparentAggregate

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ImportExternal1

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0) ImportExternal2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ImportExternal3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value: Default value: (0) ImportExternal4

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

Value

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ExportExternal1

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ExportExternal2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ExportExternal3

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
ExportExternal4

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
Summation1

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
Summation2

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
<u>Summation3</u>

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

scaler

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:
Default value: (0)
Summation4

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 255;255;255;255;255;

<u>Value</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

<u>scaler</u>

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>unit</u>

Data type: ENUMERATED

Authorized value:

Default value: (0)

■ Attribute 3: capture_objects

Access rights (clients)

```
Electricity laboratory
                      Electricity utility
                                      Electricity reader
                                                      End customer Manufacturer Resources upgrader Engineer
        Get
                          Get
Attribute description
 SEQUENCE OF
                  // 52 elements
                  // 4 elements
   SEQUENCE
     class_id
     ConcernedQuantityOBISCode
     attribut_index
     data_index
 }
class id
Data type: UNSIGNED16
Authorized value: 0 to 65535
 Default value: 0
ConcernedQuantityOBISCode
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 6)
Default value: 255;255;255;255;255;
attribut_index
Data type: INTEGER8
Authorized value: -128 to 127
Default value: 0
data_index
Data type: UNSIGNED16
Authorized value: 0 to 65535
Default value: 0
```

16.2.2 LightTotalEnergies

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;98;133;3;25
5 | 7 | 1 | 2 | 0 | ROM | 6 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | LightTotalEnergiesOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

```
Electricity laboratory
                     Electricity utility
                                     Electricity reader
                                                    End customer Manufacturer Resources upgrader Engineer
        Get
                                          Get
                                                        Get
                                                                   Get
                         Get
                                                                                              Get
Attribute description
SEQUENCE OF
                  // 1 elements
   SEQUENCE
                 // 6 elements
     ExportActiveAggregate (Att. Id: 0, Abs. Number: 1)
     ImportActiveAggregate (Att. Id: 0, Abs. Number: 1)
     ReactiveQ1Aggregate (Att. Id: 0, Abs. Number: 1)
     ReactiveQ2Aggregate (Att. Id: 0, Abs. Number: 1)
     ReactiveQ3Aggregate (Att. Id: 0, Abs. Number: 1)
     ReactiveQ4Aggregate (Att. Id: 0, Abs. Number: 1)
}
```

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

```
Index 1 (ExportActiveAggregate): Obis_code = 1;1;2;8;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0
```

Index 2 (ImportActiveAggregate): Obis_code = 1;1;1;8;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 3 (ReactiveQ1Aggregate): Obis_code = 1;1;5;8;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 4 (ReactiveQ2Aggregate): Obis_code = 1;1;6;8;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 5 (ReactiveQ3Aggregate): Obis_code = 1;1;7;8;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 6 (ReactiveQ4Aggregate): Obis_code = 1;1;8;8;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description
```

Class_id

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0
Obis_code

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 6)

Default value: 0;0;0;0;0;0;0;

Attribute_index

Data type: INTEGER8

Authorized value: -128 to 127

Default value: 0

<u>Data_index</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

17 UFER_DMCR Registering

17.1 Cosem objects

17.1.1 DmcrCumulativeRateRegister1

Interface

| Logical name | Class Id | Class version | Absolute
number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|------------------|----------|---------------|--------------------|----------|-------------------------|-------------------------|-------------------|
| 1;0;181;0;11;255 | 4 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | DmcrCumulativeRateRegister1OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

${\tt DmcrCumulativeRateRegister1}$

<u>DmcrCumulativeRateRegister1</u>

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A ttuille out a college and a time | | | | | | |
| Attribute descriptior | 1 | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| 1 | | | | | | |

}

Scaler Unit

Scaler

Scaler is identical to this defined for Energy Registering Channel 1 configuration :

- discrete values allowed are : 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED

Authorized value: 27: W Default value: W (27)

■ Attribute 5: capture_time

Access rights (clients)

| Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------|--------------------|--------------|--------------|--------------------|---------------|
| Get | Get | Get | Get | - | Get |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| STRING | | | | | |
| 3 · · · · · · · · | | | | | |
| Decoded as Decim | al (Size = 12) | | | | |
| | Get STRING | Get Get | Get Get Get | Get Get Get STRING | Get Get Get - |

17.1.2 DmcrCumulativeRateRegister2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;181;0;12;255 | 4 | 0 | 2 | 0 | False | False | False |

| L | ogical devices : | | |
|---|------------------|-------------|--------------|
| | Management | Electricity | End customer |
| | True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | DmcrCumulativeRateRegister2OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|-----------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| | Get | Get | Get | Get | Get | - | Get | | |
| | | | | | | | | | |
| , | Attribute description | | | | | | | | |
| | DmcrCumulativeRateRegister2 | | | | | | | | |

<u>DmcrCumulativeRateRegister2</u>

Data type: UNSIGNED16

Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| 3 (| , | | | | | | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
| Get | Get | Get | Get | Get | - | Get | |
| Attribute description | | | | | | | |
| SEQUENCE // | / 2 elements | | | | | | |
| Scaler | | | | | | | |
| Unit | | | | | | | |
| } | | | | | | | |

Scaler

Scaler is identical to this defined for Energy Registering Channel 1 configuration :

- discrete values allowed are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DateTime

DateTime

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

17.1.3 DmcrCumulativeRateRegister3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;181;0;13;255 | 4 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| A1. logical_name OCTETSTRING DmcrCumulativeRateRegister3OBISCode A2. value UNSIGNED16 See below A3. scaler_unit SEQUENCE See below A5. capture time OCTETSTRING See below | Attribute (A) / Method (M) | Data type | Content |
|---|----------------------------|-------------|-------------------------------------|
| A3. scaler_unit SEQUENCE See below | A1. logical_name | OCTETSTRING | DmcrCumulativeRateRegister3OBISCode |
| | A2. value | UNSIGNED16 | See below |
| A5. capture_time OCTETSTRING See below | A3. scaler_unit | SEQUENCE | See below |
| | A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Г | Get | Get | Get | Get | Get | - | Get |

Attribute description

DmcrCumulativeRateRegister3

DmcrCumulativeRateRegister3

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | , , | | | | Resources upgrader | | |
|--------------------------|--------------------|-------|---------------|---------------|--------------------|-----|--|
| Get | Get | Get | Get | Get | - | Get | |
| Attribute description | | | | | | | |
| SEQUENCE // | 2 elements | | | | | | |
| { | | | | | | | |
| Scaler
Unit | | | | | | | |
| } | | | | | | | |
| Scalor | | | | | | | |
| <u>Scaler</u> | | | 0 | . | | | |
| Scaler is identical to | | | g Channel 1 d | configuration | : | | |
| - discrete values allo | owed are : 0, 3 ar | 10 6. | | | | | |
| Data type: INTEGER | R8 | | | | | | |
| Authorized value: 0 to 6 | | | | | | | |
| Default value: 0 | | | | | | | |
| <u>Unit</u> | | | | | | | |
| | DATED | | | | | | |
| Data type: ENUMER | KAIED | | | | | | |
| Authorized value: 27 | 7: W | | | | | | |
| Default value: W (27 | 7) | | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | |
| Attribute description | | | | | | | | | |
| DateTime | | | | | | | | | |
| <u>DateTime</u> | | | | | | | | | |
| Data type: OCTETSTRING | | | | | | | | | |
| Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | | |
| Default value: 255:255:255:255:255:255:255:255:255:25 | | | | | | | | | |

17.1.4 DmcrCumulativeRateRegister4

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;181;0;14;255 | 4 | 0 | 2 | 0 | False | False | False |
| | | | | | | | |

Logical devices :

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | DmcrCumulativeRateRegister4OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A5. capture_time | OCTETSTRING | See below |

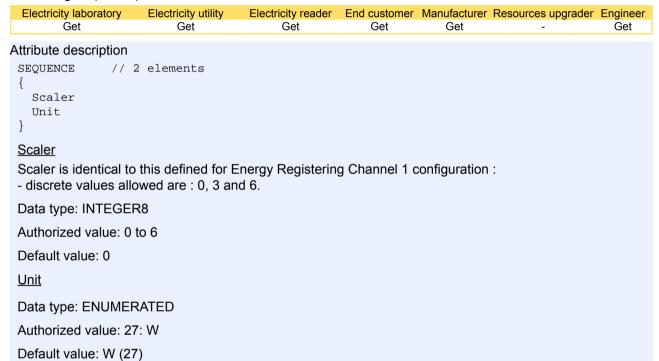
■ Attribute 2: value

Access rights (clients)

| - : | | | | | | | |
|------------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
| Get | Get | Get | Get | Get | - | Get | |
| Addution of a relation of the co | | | | | | | |
| Attribute description | | | | | | | |
| DmcrCumulativeRat | eRegister4 | | | | | | |
| <u>DmcrCumulativeRateRegister4</u> | | | | | | | |
| Data type: UNSIGNED16 | | | | | | | |
| Authorized value: 0 t | to 65535 | | | | | | |
| Default value: 0 | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)



■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
|---|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | | |
| | ۸ 44 سنام 4 م ما م م مان مان مان | | | | | | | | | | |
| , | Attribute description | | | | | | | | | | |
| | DateTime | | | | | | | | | | |
| | DataTima | | | | | | | | | | |
| | <u>DateTime</u> | | | | | | | | | | |
| | Data type: OCTETS: | TDING | | | | | | | | | |
| | Data type: OCTETSTRING | | | | | | | | | | |
| | Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | | | |
| | | | | | | | | | | | |
| | Default value: 255;255;255;255;255;255;255;255;255;255 | | | | | | | | | | |

17.1.5 DmcrCumulativeRateRegister5

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;181;0;15;255 | 4 | 0 | 2 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | DmcrCumulativeRateRegister5OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | |
|-----------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | |
| | | | | | | | | | |
| Attribute description | | | | | | | | | |
| DmcrCumulativeRateRegister5 | | | | | | | | | |

DmcrCumulativeRateRegister5

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

<u>Scaler</u>

Scaler is identical to this defined for Energy Registering Channel 1 configuration :

- discrete values allowed are : 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

DateTime

DateTime

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

17.1.6 DmcrCumulativeRateRegister6

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;0;181;0;16;255 | 4 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | DmcrCumulativeRateRegister6OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

 ${\tt DmcrCumulativeRateRegister6}$

<u>DmcrCumulativeRateRegister6</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute descriptior | 1 | | | | | |
| SEQUENCE // | 2 elements | | | | | |

Scaler

Scaler Unit

Scaler is identical to this defined for Energy Registering Channel 1 configuration :

- discrete values allowed are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

Unit

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DateTime

DateTime

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

17.1.7 DmcrCumulativeRateRegister7

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|------------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;181;0;17;255 | 4 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | DmcrCumulativeRateRegister7OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DmcrCumulativeRateRegister7

DmcrCumulativeRateRegister7

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

```
SEQUENCE // 2 elements
{
    Scaler
    Unit
}
```

Scaler

Scaler is identical to this defined for Energy Registering Channel 1 configuration :

- discrete values allowed are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

■ Attribute 5: capture_time

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
|---|--|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | | |
| | N (() | | | | | | | | | | |
| F | Attribute description | | | | | | | | | | |
| | DateTime | | | | | | | | | | |
| | D (T | | | | | | | | | | |
| | <u>DateTime</u> | | | | | | | | | | |
| | Data tura concentra | TDINO | | | | | | | | | |
| | Data type: OCTETS | TRING | | | | | | | | | |
| | Authorized value: Decoded as Decimal (Size = 12) | | | | | | | | | | |

17.1.8 DmcrCumulativeRateRegister8

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;181;0;18;255 | 4 | 0 | 2 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | DmcrCumulativeRateRegister8OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A5. capture_time | OCTETSTRING | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DmcrCumulativeRateRegister8

DmcrCumulativeRateRegister8

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|---------------|---------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | elements | | | | | |
| Scaler | | | | | | |
| Scaler is identical to - discrete values allo | | | g Channel 1 c | configuration | : | |
| Data type: INTEGER | 88 | | | | | |
| Authorized value: 0 t | o 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 27 | : W | | | | | |
| Default value: W (27 |) | | | | | |

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get | Get | Get | Get | Get | | Get | |
| Attribute description | | | | | | | |
| DateTime | | | | | | | |
| <u>DateTime</u> | | | | | | | |
| Data type: OCTETS1 | TRING | | | | | | |
| Authorized value: De | coded as Decim | al (Size = 12) | | | | | |
| Default value: 255:25 | 55:255:255:255:2 | 255-255-255-255-2 | 255:255:255: | | | | |

17.1.9 DmcrCumulativeTotalRegister

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 1;0;181;0;10;255 | 4 | 0 | 2 | 0 | False | False | False |

Logical devices :

 Management
 Electricity
 End customer

 True
 True
 False

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | DmcrCumulativeTotalRegisterOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |
| A5. capture time | OCTETSTRING | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-----------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| | | | | | | |
| DmcrCumulativeTo | talRegister | | | | | |
| DmcrCumulativeTot | alRegister | | | | | |
| <u>Binor Camalative rot</u> | <u>an tegioter</u> | | | | | |
| Data type: UNSIGN | FD16 | | | | | |
| Bata type: Offeren | | | | | | |
| Authorized value: 0 | to 65535 | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

<u>Scaler</u>

Scaler is identical to this defined for Energy Registering Channel 1 configuration :

- discrete values allowed are : 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

■ Attribute 5: capture_time

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DateTime

DateTime

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 12)

17.1.10 DmcrInstantaneousRegister

This Cosem register object carries the DMCR Instantaneous register value.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID
 |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;181;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-----------------------------------|
| A1. logical_name | OCTETSTRING | DmcrInstantaneousRegisterOBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|---|----------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| | Get | Get | Get | Get | Get | - | Get | |
| | Attribute description | | | | | | | |
| 4 | Allibute description | | | | | | | |
| | DmcrInstantaneousRegister | | | | | | | |
| | <u>DmcrInstantaneousRegister</u> | | | | | | | |
| | | | | | | | | |

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 27: W Default value: W (27)

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---------------------|--------------------|---------------|---------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is identical to
- discrete values allo | | • • | g Channel 1 c | configuration | : | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |

17.1.11 DmcrMaxGenRateRegister1

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;181;0;1;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------|--|
| A1. logical_name | OCTETSTRING | DmcrMaxGenRateRegister1OBISCode | |
| A2. value | UNSIGNED16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
|-------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Get | Get | Get | Get | Get | - | Get | |
| | | | | | | | |
| Attribute description | | | | | | | |
| DmcrMaxGenRateRegister1 | | | | | | | |
| DmcrMaxGenRateRegister1 | | | | | | | |
| Data type: UNSIGN | ED16 | | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 0 to 65535

Access rights (clients)

<u>Unit</u>

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---------------------|--------------------|---------------|---------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |
| { | | | | | | |
| Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is identical to | | · · · | g Channel 1 c | configuration | : | |
| discrete values allo | owed are : 0, 3 an | d 6. | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| | | | | | | |

Data type: ENUMERATED

Authorized value: 27: W

Default value: W (27)

17.1.12 DmcrMaxGenRateRegister2

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID |
|-----------------|----------|---------------|----------|----------|---------------|-------------|------------|
| | | | number | | parameter | programming | compliance |
| 1;0;181;0;2;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| P | Attribute (A) / Method (M) | Data type | Content |
|---|----------------------------|-------------|---------------------------------|
| ŀ | A1. logical_name | OCTETSTRING | DmcrMaxGenRateRegister2OBISCode |
| / | A2. value | UNSIGNED16 | See below |
| A | A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description DmcrMaxGenRateReg | jister2 | | | | | |
| DmcrMaxGenRateR | egister2 | | | | | |

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|-------------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| ^ | Atalla at a lata a substituta | | | | | | |
| Α | ttribute description | | | | | | |
| | SEQUENCE // | 2 elements | | | | | |
| | 1 | | | | | | |

Scaler

Scaler Unit

Scaler is identical to this defined for Energy Registering Channel 1 configuration :

- discrete values allowed are: 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

17.1.13 DmcrMaxGenRateRegister3

Interface

| Logica | I name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|---------|---------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;181 | 0;3;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | DmcrMaxGenRateRegister3OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | = | Get |

Attribute description

DmcrMaxGenRateRegister3

<u>DmcrMaxGenRateRegister3</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--|---------------------|--------------------|---------------|---------------|--------------------|----------|
| Get | Get | Get | Get | Get | | Get |
| attribute description | | | | | | |
| SEQUENCE // : | 2 elements | | | | | |
| {
Scaler | | | | | | |
| Unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is identical to
- discrete values allo | | 0, 0 | g Channel 1 d | configuration | : | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| Unit | | | | | | |

17.1.14 DmcrMaxGenRateRegister4

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;181;0;4;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | DmcrMaxGenRateRegister4OBISCode |
| A2. value | UNSIGNED16 | See below |
| A3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| DmcrMaxGenRateRe | gister4 | | | | | |
| <u>DmcrMaxGenRateF</u> | Register4 | | | | | |
| Data type: UNSIGN | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory
Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get |
|--|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2
{
Scaler
Unit | 2 elements | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is identical to
- discrete values allo | | | g Channel 1 c | configuration | : | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |

17.1.15 DmcrMaxGenRateRegister5

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;181;0;5;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

Authorized value: 27: W Default value: W (27)

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------|--|
| A1. logical_name | OCTETSTRING | DmcrMaxGenRateRegister5OBISCode | |
| A2. value | UNSIGNED16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

■ Attribute 2: value

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
|-------------------------|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| | Get | Get | Get | Get | Get | - | Get | | | | |
| F | Attribute description | | | | | | | | | | |
| | DmcrMaxGenRateReg | gister5 | | | | | | | | | |
| DmcrMaxGenRateRegister5 | | | | | | | | | | | |
| | Data type: UNSIGNI | ED16 | | | | | | | | | |

Default value: 0

■ Attribute 3: scaler_unit

Authorized value: 0 to 65535

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|---------------|---------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |
| { | | | | | | |
| Scaler
Unit | | | | | | |
| } | | | | | | |
| , | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler is identical to | | | g Channel 1 c | configuration | : | |
| - discrete values alle | owed are : 0, 3 an | d 6. | | | | |
| Data type: INTEGE | R8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 27 | 7: W | | | | | |
| Default value: W (27 | 7) | | | | | |

17.1.16 DmcrMaxGenRateRegister6

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;181;0;6;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices :

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------|--|
| A1. logical_name | OCTETSTRING | DmcrMaxGenRateRegister6OBISCode | |
| A2. value | UNSIGNED16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

DmcrMaxGenRateRegister6

<u>DmcrMaxGenRateRegister6</u>

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

Scaler

Scaler is identical to this defined for Energy Registering Channel 1 configuration :

- discrete values allowed are : 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

17.1.17 DmcrMaxGenRateRegister7

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;181;0;7;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------|--|
| A1. logical_name | OCTETSTRING | DmcrMaxGenRateRegister7OBISCode | |
| A2. value | UNSIGNED16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

DmcrMaxGenRateRegister7

<u>DmcrMaxGenRateRegister7</u>

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | 2 elements | | | | | |

{
 Scaler
 Unit
}

Scaler

Scaler is identical to this defined for Energy Registering Channel 1 configuration :

- discrete values allowed are : 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

17.1.18 DmcrMaxGenRateRegister8

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;181;0;8;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------|--|
| A1. logical_name | OCTETSTRING | DmcrMaxGenRateRegister8OBISCode | |
| A2. value | UNSIGNED16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

DmcrMaxGenRateRegister8

DmcrMaxGenRateRegister8

Data type: UNSIGNED16
Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // | 2 elements | | | | | |

SEQUENCE // 2 eleme { Scaler

Unit }

<u>Scaler</u>

Scaler is identical to this defined for Energy Registering Channel 1 configuration :

- discrete values allowed are : 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

17.1.19 DmcrMaxGenTotalRegister

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;181;0;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------------|--|
| A1. logical_name | OCTETSTRING | DmcrMaxGenTotalRegisterOBISCode | |
| A2. value | UNSIGNED16 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

DmcrMaxGenTotalRegister

DmcrMaxGenTotalRegister

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

```
SEQUENCE  // 2 elements
{
   Scaler
   Unit
}
```

Scaler

Scaler is identical to this defined for Energy Registering Channel 1 configuration :

- discrete values allowed are : 0, 3 and 6.

Data type: INTEGER8
Authorized value: 0 to 6

Default value: 0

<u>Unit</u>

Data type: ENUMERATED Authorized value: 27: W Default value: W (27)

17.1.20 UferCumulativeRateRegister1

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;11;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | UferCumulativeRateRegister1OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

UferCumulativeRateRegister1

<u>UferCumulativeRateRegister1</u>

Summation of all UferRateRegister1.

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // : | 2 elements | | | | | |
| Scaler | | | | | | |
| unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler defined by En-
discrete values allo | | | guration | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 | D: Wh | | | | | |
| Default value: Wh (3 | 30) | | | | | |

17.1.21 UferCumulativeRateRegister2

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;12;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | UferCumulativeRateRegister2OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| Е | lectricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|-----------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |

Attribute description

UferCumulativeRateRegister2

UferCumulativeRateRegister2

Summation of all UferRateRegister2.

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity labor | atory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------|-----------|--|--------------------|--------------|--------------|--------------------|----------|
| Get | | Get | Get | Get | Get | - | Get |
| Attribute descri | iption | | | | | | |
| { | // 2 | elements | | | | | |
| Scaler
unit | | | | | | | |
| } | | | | | | | |
| <u>Scaler</u> | | | | | | | |
| | - | ergy Registering
wed are : 0, 3 and | | guration | | | |
| Data type: IN | TEGER | 88 | | | | | |
| Authorized va | ılue: 0 t | o 6 | | | | | |
| Default value: | : 0 | | | | | | |
| <u>unit</u> | | | | | | | |
| Data type: EN | IUMER | ATED | | | | | |
| Authorized va | lue: 30 | : Wh | | | | | |
| Default value: | : Wh (3 | 0) | | | | | |

17.1.22 UferCumulativeRateRegister3

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;13;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

Management Electricity End customer
True True False

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | UferCumulativeRateRegister3OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| Е | lectricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|-----------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |

Attribute description

UferCumulativeRateRegister3

<u>UferCumulativeRateRegister3</u>

Summation of all UferRateRegister3.

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 | elements | | | | | |
| {
Scaler | | | | | | |
| unit | | | | | | |
| } | | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler defined by En - discrete values allo | | | guration | | | |
| Data type: INTEGER | 18 | | | | | |
| Authorized value: 0 t | o 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 30 | : Wh | | | | | |
| Default value: Wh (3 | 0) | | | | | |

17.1.23 UferCumulativeRateRegister4

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;14;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | UferCumulativeRateRegister4OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

Attribute description

UferCumulativeRateRegister4

UferCumulativeRateRegister4

Summation of all UferRateRegister4

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
|---|-----------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | |
| Attribute description | | | | | | | | | | |
| SEQUENCE // : | 2 elements | | | | | | | | | |
| Scaler | | | | | | | | | | |
| unit | | | | | | | | | | |
| } | | | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | | |
| Scaler defined by En-
discrete values allo | | | guration | | | | | | | |
| Data type: INTEGER | ₹8 | | | | | | | | | |
| Authorized value: 0 | to 6 | | | | | | | | | |
| Default value: 0 | | | | | | | | | | |
| <u>unit</u> | <u>unit</u> | | | | | | | | | |
| Data type: ENUMER | Data type: ENUMERATED | | | | | | | | | |
| Authorized value: 30 | D: Wh | | | | | | | | | |
| Default value: Wh (3 | 30) | | | | | | | | | |

17.1.24 UferCumulativeRateRegister5

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;15;25 | 5 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | UferCumulativeRateRegister5OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

UferCumulativeRateRegister5

<u>UferCumulativeRateRegister5</u>

Summation of all UferRateRegister5.

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
|------------------------|---|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | |
| Attribute description | | | | | | | | | | |
| SEQUENCE // 2 | elements | | | | | | | | | |
| {
Scaler | | | | | | | | | | |
| unit | | | | | | | | | | |
| } | | | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | | |
| _ | Scaler defined by Energy Registering Channel 1 configuration - discrete values allowed are: 0, 3 and 6. | | | | | | | | | |
| Data type: INTEGER | 18 | | | | | | | | | |
| Authorized value: 0 t | o 6 | | | | | | | | | |
| Default value: 0 | | | | | | | | | | |
| <u>unit</u> | | | | | | | | | | |
| Data type: ENUMER | Data type: ENUMERATED | | | | | | | | | |
| Authorized value: 30 | : Wh | | | | | | | | | |
| Default value: Wh (3 | 0) | | | | | | | | | |

17.1.25 UferCumulativeRateRegister6

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;16;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | UferCumulativeRateRegister6OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

UferCumulativeRateRegister6

<u>UferCumulativeRateRegister6</u>

Summation of all UferRateRegister6

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | | | |
|---|---------------------|--------------------|--------------|--------------|--------------------|----------|--|--|--|--|
| Get | Get | Get | Get | Get | - | Get | | | | |
| Attribute description | | | | | | | | | | |
| { | elements | | | | | | | | | |
| Scaler
unit | | | | | | | | | | |
| } | | | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | | |
| Scaler defined by En - discrete values allo | | | guration | | | | | | | |
| Data type: INTEGER | 88 | | | | | | | | | |
| Authorized value: 0 t | o 6 | | | | | | | | | |
| Default value: 0 | | | | | | | | | | |
| <u>unit</u> | | | | | | | | | | |
| Data type: ENUMER | ATED | | | | | | | | | |
| Authorized value: 30 | : Wh | | | | | | | | | |
| Default value: Wh (3 | 0) | | | | | | | | | |

17.1.26 UferCumulativeRateRegister7

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;17;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

End customer Management Electricity True True False

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|-------------------------------------|--|
| A1. logical_name | OCTETSTRING | UferCumulativeRateRegister7OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |

UferCumulativeRateRegister7

<u>UferCumulativeRateRegister7</u>

Summation of all UferRateRegister7

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity labor | atory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|-------------------|-----------|--|--------------------|--------------|--------------|--------------------|----------|
| Get | | Get | Get | Get | Get | - | Get |
| Attribute descri | iption | | | | | | |
| { | // 2 | elements | | | | | |
| Scaler
unit | | | | | | | |
| } | | | | | | | |
| <u>Scaler</u> | | | | | | | |
| | - | ergy Registering
wed are : 0, 3 and | | guration | | | |
| Data type: IN | TEGER | 88 | | | | | |
| Authorized va | ılue: 0 t | o 6 | | | | | |
| Default value: | : 0 | | | | | | |
| <u>unit</u> | | | | | | | |
| Data type: EN | IUMER | ATED | | | | | |
| Authorized va | lue: 30 | : Wh | | | | | |
| Default value: | : Wh (3 | 0) | | | | | |

17.1.27 UferCumulativeRateRegister8

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;18;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

End customer Management Electricity True True False

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | UferCumulativeRateRegister8OBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

UferCumulativeRateRegister8

<u>UferCumulativeRateRegister8</u>

Summation of all UferRateRegister8.

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| į | Attribute description | | | | | | |
| | SEQUENCE // 2 | elements | | | | | |
| | {
Scaler | | | | | | |
| | unit | | | | | | |
| | } | | | | | | |
| | <u>Scaler</u> | | | | | | |
| | Scaler defined by En | ergy Registering | Channel 1 config | guration | | | |
| | - discrete values allo | wed are : 0, 3 an | d 6. | | | | |
| | Data type: INTEGER | 8 | | | | | |
| | Authorized value: 0 to | o 6 | | | | | |
| | Default value: 0 | | | | | | |
| | <u>unit</u> | | | | | | |
| | Data type: ENUMER. | ATED | | | | | |
| | Authorized value: 30 | : Wh | | | | | |
| | Default value: Wh (30 | 0) | | | | | |

17.1.28 UferCumulativeTotalRegister

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|------------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;10;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | UferCumulativeTotalRegisterOBISCode |
| A2. value | UNSIGNED32 | See below |
| A3. scaler_unit | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | | |
|---|------------------------------------|--------------------|--------------|--------------|--------------------|----------|--|--|
| Get | Get | Get | Get | Get | - | Get | | |
| Attribute description UferCumulativeTotalRegister | | | | | | | | |
| <u>UferCumulativeTota</u> | <u>UferCumulativeTotalRegister</u> | | | | | | | |
| Summation of all UferTotalRegister. | | | | | | | | |
| Data type: UNSIGNED32 | | | | | | | | |

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | _ |
|---|--|---------------------|--------------------|----------|-----|--------------------|-----|
| ı | Get | Get | Get | Get | Get | - | Get |
| , | Attribute description | | | | | | |
| | SEQUENCE // 2 | elements | | | | | |
| | { | | | | | | |
| | Scaler
unit | | | | | | |
| | } | | | | | | |
| | Scaler | | | | | | |
| | Scaler defined by En - discrete values allow | | | guration | | | |
| | Data type: INTEGER | 18 | | | | | |
| | Authorized value: 0 to | o 6 | | | | | |
| | Default value: 0 | | | | | | |
| | <u>unit</u> | | | | | | |
| | Data type: ENUMER | ATED | | | | | |
| | Authorized value: 30 | : Wh | | | | | |
| | Default value: Wh (30 | 0) | | | | | |

17.1.29 UferDmcrParameters

A new COSEM object "UFERDMCRParameters" has to be written in the meter to program UFER/DMCR configuration parameters.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID
compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|-------------------|
| 0;0;144;0;1;255 | 1 | 0 | 3 | 0 | True | False | False |

Logical devices:

| • | | | |
|------------|-------------|--------------|--|
| Management | Electricity | End customer | |
| Truo | True | False | |

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|----------------------------|
| A1. logical_name | OCTETSTRING | UferDmcrParametersOBISCode |
| A2. value | SEQUENCE | See below |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get/Set | Get | Get | Get | Get/Set | - | Get |

Attribute description

PowerFactorThreshold

It defines if the UFER/DMCR calculation algorithm is validated or not, and if validated, the limit power factor (decimal part).

Allowed values are:

- 0 : algorithm is inhibited (default value)
- 80 .. 99 : algorithm is validated (in that case default value : 92) and power factor value is : 0,80 to 0,99

Data type: UNSIGNED8

Authorized value: 0 to 99

Default value: 0

EOILimit

It defines the amount of Global EOI that represents the maximum period for a UFER Period:

UFER interval = EOILimit * Demand integration period.

This limit has its value configured to have an UFER interval of 1 hour of time representing the sum of multiples EOI.

Data type: UNSIGNED8
Authorized value: 1 to 60

Default value: 4

CapacitivePeriodStartTime

CapacitivePeriodStartTime: // hour; minut; Allowed values are from (0;0) up to (23;45),

with minut field multiple of 15.

Default values for all capacitive periods and for all seasons: 0;0;

Data type: OCTETSTRING

Authorized value: Decoded as Decimal (Size = 2)

Default value: 0;0;

CapacitivePeriodEndTime

```
CapacitivePeriodEndTime: // hour; minut;
Allowed values are from (0;0) up to (24;0),
with minut field multiple of 15.

Default values for first season and for first capacitive period: 6;0;
Default values for first season and for second capacitive period: 0;0;
Default values for all other seasons (for 2 capacitive periods): 0;0;
Data type: OCTETSTRING
Authorized value: Decoded as Decimal (Size = 2)
Default value: 0;0;
```

17.1.30 UferDmcrRateParameters

A new COSEM object "UFERDMCRRateParameters" has to be written in the meter to program DMCR Excess demand threshold parameters.

Interface

| Logical name | Class Id | Class version | Absolute | Local Id | Configuration | Restrictive | MID | | | |
|-------------------------------|--|-----------------|--------------|-------------------------------|-----------------|-------------|------------|--|--|--|
| | | | number | | parameter | programming | compliance | | | |
| 0;0;144;0;2;255 | 1 | 0 | 1 | 0 | False | False | False | | | |
| Logical device | es : | | | | | | | | | |
| Management | Ele | ectricity | End customer | | | | | | | |
| True | | True | False | | | | | | | |
| Attributes / M | lethods | | | | | | | | | |
| Attribute (A) / Me | Attribute (A) / Method (M) Data type Content | | | | | | | | | |
| A1. logical_name
A2. value | | OCTETS
ARRAY | STRING | UferDmcrRatePara
See below | ametersOBISCode | | | | | |

■ Attribute 2: value

Access rights (clients)

| Electricity laboratory Get/Set | Electricity utility
Get/Set | Electricity reader
Get/Set | End customer
Get | Manufacturer
Get/Set | Resources upgrader - | Engineer
Get |
|--------------------------------|--------------------------------|-------------------------------|---------------------|-------------------------|----------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE OF (| // 8 elements | | | | | |
| DMCRExcessDeman | ndThreshold | | | | | |
| DMCRExcessDema | <u>indThreshold</u> | | | | | |
| It defines the thresh | old used for DMC | R excess deman | d. | | | |
| Default value : 6553 | 5 (no action) | | | | | |
| Data type: UNSIGN | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 6553 | 5 | | | | | |

17.1.31 UferInstantaneousRegister

The Cosem register object below carries the UFER Instantaneous register value.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;7;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|-----------------------|-------------|--------------|
| True | True | False |
| Attributes / Met | hods | |
| Attribute (A) / Metho | od (M) | Data type |
| A1. logical_name | | OCTETSTRING |
| A2. value | | UNSIGNED32 |
| A3. scaler_unit | | SEQUENCE |

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader - | Engineer
Get | |
|--|----------------------------|---------------------------|---------------------|---------------------|----------------------|-----------------|--|
| Attribute description | . | | | | | | |
| UferInstantaneousRegister UferInstantaneousRegister | | | | | | | |
| Data tyne: LINSIGN | | | | | | | |

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory | Electricity utility | Liectricity reader | End Customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------------------|---------------------|--------------------|-----------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler Unit } | elements | | | | | |
| <u>Scaler</u> | | | | | | |
| It is the scaler define | d by Energy Reg | istering Channel | 1 configuration | n. | | |
| Data type: INTEGER | 8 | | | | | |
| Authorized value: 0 to | o 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>Unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 30 | : Wh | | | | | |
| Default value: Wh (30 | 0) | | | | | |

17.1.32 UferRateRegister1

For each of the UFER rate registers (today the maximum is 8), a Cosem register is defined to allow access to register value.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;1;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| _ | | |
|------------|-------------|--------------|
| Management | Electricity | End customer |
| True | True | False |

Attributes / Methods

| At | tribute (A) / Method (M) | Data type | Content |
|----|--------------------------|-------------|---------------------------|
| Α´ | 1. logical_name | OCTETSTRING | UferRateRegister1OBISCode |
| A2 | 2. value | UNSIGNED32 | See below |
| ΑS | 3. scaler_unit | SEQUENCE | See below |

■ Attribute 2: value

Access rights (clients)

| • , , | | | | | | | |
|---------------------------|-----------------------|--------------------|--------------|--------------|--------------------|----------|--|
| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer | |
| Get | Get | Get | Get | Get | - | Get | |
| Attribute description | | | | | | | |
| Attribute description | | | | | | | |
| UferRateRegister1 | | | | | | | |
| UferRateRegister1 | | | | | | | |
| <u>Olematerregister i</u> | | | | | | | |
| Data type: UNSIGNE | Data type: UNSIGNED32 | | | | | | |
| But type. Official EBDE | | | | | | | |
| Authorized value: 0 to | o 999999999 | | | | | | |
| | | | | | | | |

■ Attribute 3: scaler_unit

Access rights (clients)

Default value: 0

| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|----------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Get | Gel | Get | Get | Get | <u>-</u> | Gel |
| Attribute description | | | | | | |
| SEQUENCE // 2 | elements | | | | | |
| {
Scaler | | | | | | |
| unit | | | | | | |
| } | | | | | | |
| Scaler | | | | | | |
| Scaler defined by Er | erav Reaisterina | Channel 1 confid | nuration | | | |
| • | | | garation | | | |
| Data type: INTEGER | 88 | | | | | |
| Authorized value: 0 t | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | ATED | | | | | |
| Authorized value: 30 | : Wh | | | | | |
| Default value: Wh (3 | 0) | | | | | |

17.1.33 UferRateRegister2

For each of the UFER rate registers (today the maximum is 8), a Cosem register is defined to allow access to register value.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;2;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | UferRateRegister2OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| IIferPatePegister? | | | | | | |

UferRateRegister2

<u>UferRateRegister2</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get | | | |
|-------------------------------|-------------------------|------------------------|---------------------|---------------------|--------------------|-----------------|--|--|--|
| Attribute description | CCI | CCI | OCI | | | OCI | | | |
| SEQUENCE // 2 { Scaler unit } | 2 elements | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | |
| Scaler defined by Er | nergy Registering | Channel 1 config | guration | | | | | | |
| Data type: INTEGER | R8 | | | | | | | | |
| Authorized value: 0 | to 6 | | | | | | | | |
| Default value: 0 | | | | | | | | | |
| <u>unit</u> | | | | | | | | | |
| Data type: ENUMER | Data type: ENUMERATED | | | | | | | | |
| Authorized value: 30 |): Wh | | | | | | | | |
| Default value: Wh (3 | 30) | | | | | | | | |

17.1.34 UferRateRegister3

For each of the UFER rate registers (today the maximum is 8), a Cosem register is defined to allow access to register value.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;3;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

End customer Management Electricity True True False

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | UferRateRegister3OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| A () 1 | | | | | | |
| Attribute description | | | | | | |
| UferRateRegister3 | | | | | | |
| | | | | | | |
| <u>UferRateRegister3</u> | | | | | | |
| Data to a LINGIONE | | | | | | |

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get | | | |
|-------------------------------|-------------------------|------------------------|---------------------|---------------------|--------------------|-----------------|--|--|--|
| Attribute description | CCI | CCI | OCI | | | OCI | | | |
| SEQUENCE // 2 { Scaler unit } | 2 elements | | | | | | | | |
| <u>Scaler</u> | | | | | | | | | |
| Scaler defined by Er | nergy Registering | Channel 1 config | guration | | | | | | |
| Data type: INTEGER | R8 | | | | | | | | |
| Authorized value: 0 | to 6 | | | | | | | | |
| Default value: 0 | | | | | | | | | |
| <u>unit</u> | | | | | | | | | |
| Data type: ENUMER | Data type: ENUMERATED | | | | | | | | |
| Authorized value: 30 |): Wh | | | | | | | | |
| Default value: Wh (3 | 30) | | | | | | | | |

17.1.35 UferRateRegister4

For each of the UFER rate registers (today the maximum is 8), a Cosem register is defined to allow access to register value.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;4;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | False |

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | UferRateRegister4OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|--------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| UferRateRegister4 | | | | | | |
| <u>UferRateRegister4</u> | | | | | | |

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|-------------------------------|-------------------------|------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | CCI | CCI | OCI | | | OCI |
| SEQUENCE // 2 { Scaler unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler defined by Er | nergy Registering | Channel 1 config | guration | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 |): Wh | | | | | |
| Default value: Wh (3 | 30) | | | | | |

17.1.36 UferRateRegister5

For each of the UFER rate registers (today the maximum is 8), a Cosem register is defined to allow access to register value.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;5;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

ManagementElectricityEnd customerTrueTrueFalse

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | UferRateRegister5OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| UferRateRegister5 | | | | | | |

<u>UferRateRegister5</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|--------------------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE //: { Scaler unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler defined by E | nergy Registering | Channel 1 config | guration | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 |): Wh | | | | | |
| Default value: Wh (3 | 30) | | | | | |

17.1.37 UferRateRegister6

For each of the UFER rate registers (today the maximum is 8), a Cosem register is defined to allow access to register value.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;6;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

| Management | Electricity | End customer | |
|------------|-------------|--------------|--|
| True | True | False | |

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | UferRateRegister6OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| UferRateRegister6 | | | | | | |

UferRateRegister6

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|-------------------------------|-------------------------|------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | CCI | CCI | OCI | | | OCI |
| SEQUENCE // 2 { Scaler unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler defined by Er | nergy Registering | Channel 1 config | guration | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 |): Wh | | | | | |
| Default value: Wh (3 | 30) | | | | | |

17.1.38 UferRateRegister7

For each of the UFER rate registers (today the maximum is 8), a Cosem register is defined to allow access to register value.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;7;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

End customer Management Electricity True True False

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | UferRateRegister7OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| | Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| | Get | Get | Get | Get | Get | - | Get |
| | | | | | | | |
| F | Attribute description | | | | | | |
| | UferRateRegister7 | | | | | | |

<u>UferRateRegister7</u>

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader
- | Engineer
Get |
|----------------------------|----------------------------|---------------------------|---------------------|---------------------|-------------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // : | 2 elements | | | | | |
| Scaler | | | | | | |
| unit
l | | | | | | |
| Scaler | | | | | | |
| Scaler defined by E | nerav Registering | Channel 1 confid | nuration | | | |
| Data type: INTEGER | | | , u. u. u. u. | | | |
| Authorized value: 0 | | | | | | |
| Default value: 0 | 10 0 | | | | | |
| | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 | D: Wh | | | | | |
| Default value: Wh (3 | 30) | | | | | |

17.1.39 UferRateRegister8

For each of the UFER rate registers (today the maximum is 8), a Cosem register is defined to allow access to register value.

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;8;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

End customer Management Electricity True True False

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | UferRateRegister8OBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |

Attribute description

UferRateRegister8

UferRateRegister8

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility Get | Electricity reader Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|-----------------------------|-------------------------|------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | 331 | JC 1 | JCI | 301 | | OCI |
| • | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler defined by Er | nergy Registering | Channel 1 config | guration | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: 0 t | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 | : Wh | | | | | |
| Default value: Wh (3 | 0) | | | | | |

17.1.40 UferTotalRegister

The Cosem register object below carries the UFER total register value..

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Configuration parameter | Restrictive programming | MID compliance |
|-----------------|----------|---------------|-----------------|----------|-------------------------|-------------------------|----------------|
| 1;0;180;0;0;255 | 3 | 0 | 1 | 0 | False | False | False |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 False

| Attribute (A) / Method (M) | Data type | Content | |
|----------------------------|-------------|---------------------------|--|
| A1. logical_name | OCTETSTRING | UferTotalRegisterOBISCode | |
| A2. value | UNSIGNED32 | See below | |
| A3. scaler_unit | SEQUENCE | See below | |

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|---------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| | | | | | | |
| Attribute description | | | | | | |
| UferTotalRegister | | | | | | |
| Life of the ID and at a m | | | | | | |
| <u>UferTotalRegister</u> | | | | | | |

Data type: UNSIGNED32

Authorized value: 0 to 999999999

Default value: 0

■ Attribute 3: scaler_unit

Access rights (clients)

| Electricity laboratory Get | Electricity utility
Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
|---------------------------------------|----------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Attribute description | | | | | | |
| SEQUENCE // 2 { Scaler unit } | 2 elements | | | | | |
| <u>Scaler</u> | | | | | | |
| Scaler defined by Er | nergy Registering | Channel 1 config | guration | | | |
| Data type: INTEGER | R8 | | | | | |
| Authorized value: 0 | to 6 | | | | | |
| Default value: 0 | | | | | | |
| <u>unit</u> | | | | | | |
| Data type: ENUMER | RATED | | | | | |
| Authorized value: 30 |): Wh | | | | | |
| Default value: Wh (3 | 60) | | | | | |

17.2 Cosem profiles

17.2.1 UferDmcrCompleteCurrentData

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;144;0;4;255 | 7 | 1 | 2 | 0 | ROM | 38 | 0 | 1 | 1 | 1 |

Logical devices:

 Management
 Electricity
 End customer

 True
 True
 True

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------------------|
| A1. logical_name | OCTETSTRING | UferDmcrCompleteCurrentDataOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |

```
Attribute description
SEQUENCE OF
                 // 1 elements
  SEQUENCE
                // 38 elements
    UferInstantaneousRegister (Att. Id: 0, Abs. Number: 1)
    DmcrInstantaneousRegister (Att. Id: 0, Abs. Number: 1)
    UferTotalRegister (Att. Id: 0, Abs. Number: 1)
    DmcrMaxGenTotalRegister (Att. Id: 0, Abs. Number: 1)
    UferCumulativeTotalRegister (Att. Id: 0, Abs. Number: 1)
    DmcrCumulativeTotalRegister (Att. Id: 0, Abs. Number: 2)
    UferRateRegister1 (Att. Id: 0, Abs. Number: 1)
    UferRateRegister2 (Att. Id: 0, Abs. Number: 1)
    UferRateRegister3 (Att. Id: 0, Abs. Number: 1)
    UferRateRegister4 (Att. Id: 0, Abs. Number: 1)
    UferRateRegister5 (Att. Id: 0, Abs. Number: 1)
    UferRateRegister6 (Att. Id: 0, Abs. Number: 1)
    UferRateRegister7 (Att. Id: 0, Abs. Number: 1)
    UferRateRegister8 (Att. Id: 0, Abs. Number: 1)
    DmcrMaxGenRateRegister1 (Att. Id: 0, Abs. Number: 1)
    DmcrMaxGenRateRegister2 (Att. Id: 0, Abs. Number: 1)
    DmcrMaxGenRateRegister3 (Att. Id: 0, Abs. Number: 1)
    DmcrMaxGenRateRegister4 (Att. Id: 0, Abs. Number: 1)
    DmcrMaxGenRateRegister5 (Att. Id: 0, Abs. Number: 1)
    DmcrMaxGenRateRegister6 (Att. Id: 0, Abs. Number: 1)
    DmcrMaxGenRateRegister7 (Att. Id: 0, Abs. Number: 1)
    DmcrMaxGenRateRegister8 (Att. Id: 0, Abs. Number: 1)
    UferCumulativeRateRegister1 (Att. Id: 0, Abs. Number: 1)
    UferCumulativeRateRegister2 (Att. Id: 0, Abs. Number: 1)
    UferCumulativeRateRegister3 (Att. Id: 0, Abs. Number: 1)
    UferCumulativeRateRegister4 (Att. Id: 0, Abs. Number: 1)
    UferCumulativeRateRegister5 (Att. Id: 0, Abs. Number: 1)
    UferCumulativeRateRegister6 (Att. Id: 0, Abs. Number: 1)
    UferCumulativeRateRegister7 (Att. Id: 0, Abs. Number: 1)
    UferCumulativeRateRegister8 (Att. Id: 0, Abs. Number: 1)
    DmcrCumulativeRateRegister1 (Att. Id: 0, Abs. Number: 2)
    DmcrCumulativeRateRegister2 (Att. Id: 0, Abs. Number: 2)
    DmcrCumulativeRateRegister3 (Att. Id: 0, Abs. Number: 2)
    DmcrCumulativeRateRegister4 (Att. Id: 0, Abs. Number: 2)
    DmcrCumulativeRateRegister5 (Att. Id: 0, Abs. Number: 2)
    DmcrCumulativeRateRegister6 (Att. Id: 0, Abs. Number: 2)
    DmcrCumulativeRateRegister7 (Att. Id: 0, Abs. Number: 2)
    DmcrCumulativeRateRegister8 (Att. Id: 0, Abs. Number: 2)
  }
}
```

■ Attribute 3: capture_objects

```
Here below, the details of each index in the array:
```

```
Index 1 (UferInstantaneousRegister): Obis_code = 1;0;180;7;0;255, Class_id = 3, Attribute_index = 0, Data index = 0
```

```
Index 2 (DmcrInstantaneousRegister): Obis_code = 1;0;181;7;0;255, Class_id = 3, Attribute_index = 0, Data index = 0
```

Index 3 (UferTotalRegister): Obis_code = 1;0;180;0;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0

```
Index 4 (DmcrMaxGenTotalRegister): Obis code = 1;0;181;0;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 5 (UferCumulativeTotalRegister): Obis code = 1:0:180:0:10:255, Class id = 3, Attribute index = 0,
Data index = 0
Index 6 (DmcrCumulativeTotalRegister): Obis code = 1;0;181;0;10;255, Class id = 4, Attribute index = 0,
Data index = 0
Index 7 (UferRateRegister1): Obis code = 1;0;180;0;1;255, Class id = 3, Attribute index = 0, Data index =
Index 8 (UferRateRegister2): Obis code = 1;0;180;0;2;255, Class id = 3, Attribute index = 0, Data index =
Index 9 (UferRateRegister3): Obis code = 1;0;180;0;3;255, Class id = 3, Attribute index = 0, Data index =
Index 10 (UferRateRegister4): Obis code = 1;0;180;0;4;255, Class id = 3, Attribute index = 0, Data index =
Index 11 (UferRateRegister5): Obis code = 1;0;180;0;5;255, Class id = 3, Attribute index = 0, Data index =
Index 12 (UferRateRegister6): Obis code = 1;0;180;0;6;255, Class id = 3, Attribute index = 0, Data index =
Index 13 (UferRateRegister7): Obis code = 1;0;180;0;7;255, Class id = 3, Attribute index = 0, Data index =
Index 14 (UferRateRegister8): Obis code = 1;0;180;0;8;255, Class id = 3, Attribute index = 0, Data index =
Index 15 (DmcrMaxGenRateRegister1): Obis code = 1;0;181;0;1;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 16 (DmcrMaxGenRateRegister2): Obis code = 1;0;181;0;2;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 17 (DmcrMaxGenRateRegister3): Obis code = 1;0;181;0;3;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 18 (DmcrMaxGenRateRegister4): Obis code = 1;0;181;0;4;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 19 (DmcrMaxGenRateRegister5): Obis code = 1;0;181;0;5;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 20 (DmcrMaxGenRateRegister6): Obis code = 1;0;181;0;6;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 21 (DmcrMaxGenRateRegister7): Obis code = 1;0;181;0;7;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 22 (DmcrMaxGenRateRegister8): Obis code = 1;0;181;0;8;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 23 (UferCumulativeRateRegister1): Obis code = 1;0;180;0;11;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 24 (UferCumulativeRateRegister2): Obis code = 1;0;180;0;12;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 25 (UferCumulativeRateRegister3): Obis code = 1;0;180;0;13;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 26 (UferCumulativeRateRegister4): Obis code = 1;0;180;0;14;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 27 (UferCumulativeRateRegister5): Obis code = 1;0;180;0;15;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 28 (UferCumulativeRateRegister6): Obis_code = 1;0;180;0;16;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 29 (UferCumulativeRateRegister7): Obis code = 1;0;180;0;17;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 30 (UferCumulativeRateRegister8): Obis code = 1;0;180;0;18;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 31 (DmcrCumulativeRateRegister1): Obis_code = 1;0;181;0;11;255, Class_id = 4, Attribute_index = 0,
Data index = 0
Index 32 (DmcrCumulativeRateRegister2): Obis_code = 1;0;181;0;12;255, Class_id = 4, Attribute_index = 0,
Data index = 0
```

```
Index 33 (DmcrCumulativeRateRegister3): Obis_code = 1;0;181;0;13;255, Class_id = 4, Attribute_index = 0, Data_index = 0
Index 34 (DmcrCumulativeRateRegister4): Obis_code = 1;0;181;0;14;255, Class_id = 4, Attribute_index = 0, Data_index = 0
Index 35 (DmcrCumulativeRateRegister5): Obis_code = 1;0;181;0;15;255, Class_id = 4, Attribute_index = 0, Data_index = 0
Index 36 (DmcrCumulativeRateRegister6): Obis_code = 1;0;181;0;16;255, Class_id = 4, Attribute_index = 0, Data_index = 0
Index 37 (DmcrCumulativeRateRegister7): Obis_code = 1;0;181;0;17;255, Class_id = 4, Attribute_index = 0, Data_index = 0
Index 38 (DmcrCumulativeRateRegister8): Obis_code = 1;0;181;0;18;255, Class_id = 4, Attribute_index = 0, Data_index = 0
Index 38 (DmcrCumulativeRateRegister8): Obis_code = 1;0;181;0;18;255, Class_id = 4, Attribute_index = 0, Data_index = 0
Access rights (clients)
```

| Electricity laboratory | Electricity utility | Electricity reader | | | Resources upgrader | |
|------------------------|---------------------|--------------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| ~ | // 38 elements | | | | | |
| { SEQUENCE // | / 4 elements | | | | | |
| { | | | | | | |
| Class_id
Obis_code | | | | | | |
| Attribute_ind | dex | | | | | |
| Data_index | | | | | | |
| } | | | | | | |
| | | | | | | |
| <u>Class_id</u> | | | | | | |
| Data type: UNSIGNI | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTETS | TRING | | | | | |
| Authorized value: De | ecoded as Decima | al (Size = 6) | | | | |
| Default value: 0;0;0; | 0;0;0; | | | | | |
| Attribute_index | | | | | | |
| Data type: INTEGER | ₹8 | | | | | |
| Authorized value: -1 | 28 to 127 | | | | | |
| Default value: 0 | | | | | | |
| Data_index | | | | | | |
| Data type: UNSIGNI | ED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |

17.2.2 UferDmcrCompleteEOBData

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;2;3;255 | 7 | 1 | 1 | 7fff | ROM | 36 | 0 | 18 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|---------------------------------|
| A1. logical_name | OCTETSTRING | UferDmcrCompleteEOBDataOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|--|--------------------|--------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| SEQUENCE OF | // 18 elements | | | | | |
| { | | | | | | |
| SEQUENCE | // 36 elements | | | | | |
| { | | | | | | |
| UferTotalReg | gister (Att. Id: | 0, Abs. Number | er: 1) | | | |
| | otalRegister (Att | • | • | | | |
| | iveTotalRegister | | | | | |
| | iveTotalRegister | | | : 2) | | |
| | ister1 (Att. Id: | | | | | |
| | ister2 (Att. Id: | | | | | |
| _ | ister3 (Att. Id: ister4 (Att. Id: | | | | | |
| | ister5 (Att. Id: | | | | | |
| | ister6 (Att. Id: | | | | | |
| _ | ister7 (Att. Id: | | | | | |
| | ister8 (Att. Id: | | | | | |
| _ | ateRegister1 (Att | | | | | |
| DmcrMaxGenRa | ateRegister2 (Att | . Id: 0, Abs | . Number: 1) | | | |
| DmcrMaxGenRa | ateRegister3 (Att | . Id: 0, Abs | . Number: 1) | | | |
| | ateRegister4 (Att | | | | | |
| | ateRegister5 (Att | | | | | |
| | ateRegister6 (Att | | | | | |
| | ateRegister7 (Att | | | | | |
| | ateRegister8 (Att | · · | | . 1) | | |
| | iveRateRegister1 | | | | | |
| | <pre>iveRateRegister2 iveRateRegister3</pre> | | | | | |
| | iveRateRegister4 | | | | | |
| | iveRateRegister5 | | | | | |
| | iveRateRegister6 | | | | | |
| | iveRateRegister7 | | | | | |
| UferCumulat | iveRateRegister8 | (Att. Id: 0, | Abs. Number | : 1) | | |
| DmcrCumulat | iveRateRegister1 | (Att. Id: 0, | Abs. Number | : 2) | | |
| | iveRateRegister2 | | | | | |
| | iveRateRegister3 | | | | | |
| | iveRateRegister4 | | | | | |
| | iveRateRegister5 | | | | | |
| | iveRateRegister6 | | | | | |
| DmcrCumulat | iveRateRegister7 | | | • 2) | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (UferTotalRegister): Obis_code = 1;0;180;0;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Index 2 (DmcrMaxGenTotalRegister): Obis_code = 1;0;181;0;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0

DmcrCumulativeRateRegister8 (Att. Id: 0, Abs. Number: 2)

```
Index 3 (UferCumulativeTotalRegister): Obis code = 1;0;180;0;10;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 4 (DmcrCumulativeTotalRegister): Obis code = 1:0:181:0:10:255, Class id = 4, Attribute index = 0,
Data index = 0
Index 5 (UferRateRegister1): Obis code = 1;0;180;0;1;255, Class id = 3, Attribute index = 0, Data index =
Index 6 (UferRateRegister2): Obis code = 1;0;180;0;2;255, Class id = 3, Attribute index = 0, Data index =
Index 7 (UferRateRegister3): Obis code = 1;0;180;0;3;255, Class id = 3, Attribute index = 0, Data index =
Index 8 (UferRateRegister4): Obis code = 1;0;180;0;4;255, Class id = 3, Attribute index = 0, Data index =
Index 9 (UferRateRegister5): Obis code = 1;0;180;0;5;255, Class id = 3, Attribute index = 0, Data index =
Index 10 (UferRateRegister6): Obis code = 1;0;180;0;6;255, Class id = 3, Attribute index = 0, Data index =
Index 11 (UferRateRegister7): Obis code = 1;0;180;0;7;255, Class id = 3, Attribute index = 0, Data index =
Index 12 (UferRateRegister8): Obis code = 1;0;180;0;8;255, Class id = 3, Attribute index = 0, Data index =
Index 13 (DmcrMaxGenRateRegister1): Obis code = 1;0;181;0;1;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 14 (DmcrMaxGenRateRegister2): Obis code = 1;0;181;0;2;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 15 (DmcrMaxGenRateRegister3): Obis code = 1;0;181;0;3;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 16 (DmcrMaxGenRateRegister4): Obis code = 1;0;181;0;4;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 17 (DmcrMaxGenRateRegister5): Obis code = 1;0;181;0;5;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 18 (DmcrMaxGenRateRegister6): Obis code = 1;0;181;0;6;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 19 (DmcrMaxGenRateRegister7): Obis code = 1;0;181;0;7;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 20 (DmcrMaxGenRateRegister8): Obis code = 1;0;181;0;8;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 21 (UferCumulativeRateRegister1): Obis code = 1;0;180;0;11;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 22 (UferCumulativeRateRegister2): Obis code = 1;0;180;0;12;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 23 (UferCumulativeRateRegister3): Obis code = 1;0;180;0;13;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 24 (UferCumulativeRateRegister4): Obis code = 1;0;180;0;14;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 25 (UferCumulativeRateRegister5): Obis code = 1;0;180;0;15;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 26 (UferCumulativeRateRegister6): Obis code = 1;0;180;0;16;255, Class id = 3, Attribute index = 0,
Data_index = 0
Index 27 (UferCumulativeRateRegister7): Obis_code = 1;0;180;0;17;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 28 (UferCumulativeRateRegister8): Obis code = 1;0;180;0;18;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 29 (DmcrCumulativeRateRegister1): Obis code = 1;0;181;0;11;255, Class id = 4, Attribute index = 0,
Data index = 0
Index 30 (DmcrCumulativeRateRegister2): Obis_code = 1;0;181;0;12;255, Class_id = 4, Attribute_index = 0,
Data index = 0
Index 31 (DmcrCumulativeRateRegister3): Obis_code = 1;0;181;0;13;255, Class_id = 4, Attribute_index = 0,
Data index = 0
```

```
Index 32 (DmcrCumulativeRateRegister4): Obis code = 1;0;181;0;14;255, Class id = 4, Attribute index = 0,
Data index = 0
Index 33 (DmcrCumulativeRateRegister5): Obis_code = 1;0;181;0;15;255, Class_id = 4, Attribute_index = 0,
Data index = 0
Index 34 (DmcrCumulativeRateRegister6): Obis_code = 1;0;181;0;16;255, Class_id = 4, Attribute_index = 0,
Data index = 0
Index 35 (DmcrCumulativeRateRegister7): Obis_code = 1;0;181;0;17;255, Class_id = 4, Attribute_index = 0,
Data index = 0
Index 36 (DmcrCumulativeRateRegister8): Obis code = 1;0;181;0;18;255, Class id = 4, Attribute index = 0,
Data index = 0
Acces rights (clients)
```

| Access rights (clients | s) | | | | | |
|-----------------------------------|-------------------------|---------------------------|---------------------|---------------------|--------------------|-----------------|
| Electricity laboratory Get | Electricity utility Get | Electricity reader
Get | End customer
Get | Manufacturer
Get | Resources upgrader | Engineer
Get |
| | Get | Gei | Get | Get | - | Gei |
| Attribute description SEQUENCE OF | // 36 elements | | | | | |
| { | // 36 elements | | | | | |
| SEQUENCE / { | / 4 elements | | | | | |
| Class_id | | | | | | |
| Obis_code
Attribute_in | ıdex | | | | | |
| Data_index | iden | | | | | |
| } | | | | | | |
| <u>Class id</u> | | | | | | |
| _ | IED40 | | | | | |
| Data type: UNSIGN | | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTETS | STRING | | | | | |
| Authorized value: D | ecoded as Decima | al (Size = 6) | | | | |
| Default value: 0;0;0 | ;0;0;0; | | | | | |
| Attribute_index | | | | | | |
| Data type: INTEGE | R8 | | | | | |
| Authorized value: -1 | 128 to 127 | | | | | |
| Default value: 0 | | | | | | |
| Data_index | | | | | | |
| Data type: UNSIGN | IED16 | | | | | |
| Authorized value: 0 | to 65535 | | | | | |
| Default value: 0 | | | | | | |
| | | | | | | |

17.2.3 UferDmcrCurrentData

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|-----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 0;0;144;0;3;255 | 7 | 1 | 2 | 0 | ROM | 20 | 0 | 1 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|-----------------------|-------------|--------------|
| True | True | True |
| Attributes / Met | hods | |
| Attribute (A) / Metho | od (M) | Data typ |
| A1. logical_name | | OCTETS |
| A2. buffer | | ARRAY |
| A3. capture_objects | 3 | ARRAY |

■ Attribute 2: buffer

Access rights (clients)

| Electricity laboratory | Electricity utility | Electricity reader | End customer | Manufacturer | Resources upgrader | Engineer |
|------------------------|---------------------|--------------------------------------|---------------|--------------|--------------------|----------|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | | | | | | |
| • | // 1 elements | | | | | |
| SEQUENCE OF | // I elements | | | | | |
| SEOUENCE | // 20 elements | | | | | |
| { SEGOENCE / | // ZU elements | | | | | |
| l
IIferInstanta | aneousRegister | (Att. Id: 0, Ak | os Number: | 1) | | |
| | _ | (Att. Id: 0, Ak | | | | |
| | _ | : 0, Abs. Numbe | | - / | | |
| • | • | tt. Id: 0, Abs. | , |) | | |
| UferRateReg | isterl (Att. Id | : 0, Abs. Numbe | er: 1) | | | |
| UferRateReg | ister2 (Att. Id | : 0, Abs. Numbe | er: 1) | | | |
| UferRateReg | ister3 (Att. Id | : 0, Abs. Numbe | er: 1) | | | |
| UferRateReg | ister4 (Att. Id | : 0, Abs. Numbe | er: 1) | | | |
| | , | : 0, Abs. Numbe | , | | | |
| | | : 0, Abs. Numbe | | | | |
| | | : 0, Abs. Numbe | | | | |
| _ | , | : 0, Abs. Numbe | , | | | |
| | • | tt. Id: 0, Abs. | | | | |
| | | tt. Id: 0, Abs. | | | | |
| | | tt. Id: 0, Abs. | | | | |
| | | tt. Id: 0, Abs.
tt. Id: 0, Abs. | | | | |
| | | att. Id: 0, Abs.
Att. Id: 0, Abs. | | | | |
| | | att. Id: 0, Abs. | | | | |
| | | tt. Id: 0, Abs. | | | | |
| } | 2001.09100010 (1 | 14. 0, 1100 | T. aniber - I | | | |
| } | | | | | | |
| , | | | | | | |

```
■ Attribute 3: capture_objects
Here below, the details of each index in the array:
Index 1 (UferInstantaneousRegister): Obis_code = 1;0;180;7;0;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 2 (DmcrInstantaneousRegister): Obis_code = 1;0;181;7;0;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 3 (UferTotalRegister): Obis code = 1;0;180;0;0;255, Class id = 3, Attribute index = 0, Data index = 0
Index 4 (DmcrMaxGenTotalRegister): Obis code = 1;0;181;0;0;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 5 (UferRateRegister1): Obis code = 1;0;180;0;1;255, Class id = 3, Attribute index = 0, Data index =
Index 6 (UferRateRegister2): Obis_code = 1;0;180;0;2;255, Class_id = 3, Attribute_index = 0, Data_index =
Index 7 (UferRateRegister3): Obis_code = 1;0;180;0;3;255, Class_id = 3, Attribute_index = 0, Data_index =
Index 8 (UferRateRegister4): Obis code = 1;0;180;0;4;255, Class id = 3, Attribute index = 0, Data index =
Index 9 (UferRateRegister5): Obis code = 1;0;180;0;5;255, Class id = 3, Attribute index = 0, Data index =
Index 10 (UferRateRegister6): Obis code = 1;0;180;0;6;255, Class id = 3, Attribute index = 0, Data index =
```

```
0
Index 11 (UferRateRegister7): Obis code = 1;0;180;0;7;255, Class id = 3, Attribute index = 0, Data index =
Index 12 (UferRateRegister8): Obis code = 1;0;180;0;8;255, Class id = 3, Attribute index = 0, Data index =
Index 13 (DmcrMaxGenRateRegister1): Obis code = 1;0;181;0;1;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 14 (DmcrMaxGenRateRegister2): Obis code = 1;0;181;0;2;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 15 (DmcrMaxGenRateRegister3): Obis code = 1;0;181;0;3;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 16 (DmcrMaxGenRateRegister4): Obis code = 1;0;181;0;4;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 17 (DmcrMaxGenRateRegister5): Obis code = 1;0;181;0;5;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 18 (DmcrMaxGenRateRegister6): Obis code = 1;0;181;0;6;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 19 (DmcrMaxGenRateRegister7): Obis code = 1;0;181;0;7;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 20 (DmcrMaxGenRateRegister8): Obis_code = 1;0;181;0;8;255, Class_id = 3, Attribute_index = 0,
Data index = 0
```

Access rights (clients)

```
Electricity laboratory
                       Electricity utility
                                        Electricity reader
                                                        End customer Manufacturer Resources upgrader Engineer
        Get
                           Get
                                             Get
                                                            Get
                                                                        Get
                                                                                                     Get
Attribute description
 SEQUENCE OF
                    // 20 elements
   SEQUENCE
                   // 4 elements
     Class_id
     Obis_code
     Attribute_index
     Data_index
 }
 Class id
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
 Default value: 0
 Obis_code
 Data type: OCTETSTRING
 Authorized value: Decoded as Decimal (Size = 6)
 Default value: 0;0;0;0;0;0;0;
 Attribute index
 Data type: INTEGER8
 Authorized value: -128 to 127
 Default value: 0
 Data index
 Data type: UNSIGNED16
 Authorized value: 0 to 65535
```

Default value: 0

17.2.4 UferDmcrEOBData

Interface

| Logical name | Class Id | Class version | Absolute number | Local Id | Object table | Max object | Periode | Entries | Min Ent. | Max Ent. |
|----------------|----------|---------------|-----------------|----------|--------------|------------|---------|---------|----------|----------|
| 1;1;98;2;2;255 | 7 | 1 | 2 | 7fff | ROM | 18 | 0 | 18 | 1 | 1 |

Logical devices:

| Management | Electricity | End customer |
|------------|-------------|--------------|
| True | True | True |

Attributes / Methods

| Attribute (A) / Method (M) | Data type | Content |
|----------------------------|-------------|-------------------------|
| A1. logical_name | OCTETSTRING | UferDmcrEOBDataOBISCode |
| A2. buffer | ARRAY | See below |
| A3. capture_objects | ARRAY | See below |

■ Attribute 2: buffer

Access rights (clients)

| Electricity | | Electricity utility | Electricity reader | End custome | Manufacturer | Resources upgrader | Engineer |
|--------------|-----------|---|--------------------|-------------|--------------|--------------------|----------|
| Ge | et | Get | Get | Get | Get | - | Get |
| Attribute de | ecrintion | | | | | | |
| | • | , | | | | | |
| SEQUENCE | : OF' / | // 18 element | S | | | | |
| { | | , 10] . | | | | | |
| SEQUEN | ICE // | 18 elements | 3 | | | | |
| { | | | | | | | |
| | _ | • | Id: 0, Abs. Numb | • | | | |
| | | _ | Att. Id: 0, Abs | | .) | | |
| | _ | • | Id: 0, Abs. Numb | • | | | |
| | _ | | Id: 0, Abs. Numb | | | | |
| | _ | • | Id: 0, Abs. Numb | • | | | |
| | _ | • | Id: 0, Abs. Numb | • | | | |
| | _ | | Id: 0, Abs. Numb | | | | |
| | _ | | Id: 0, Abs. Numb | | | | |
| | _ | • | Id: 0, Abs. Numb | • | | | |
| | _ | | Id: 0, Abs. Numb | | | | |
| | | _ | Att. Id: 0, Abs | | • | | |
| | | _ | Att. Id: 0, Abs | | | | |
| | | _ | Att. Id: 0, Abs | | | | |
| | | | Att. Id: 0, Abs | | • | | |
| | | | Att. Id: 0, Abs | | • | | |
| | | _ | Att. Id: 0, Abs | | | | |
| | | _ | (Att. Id: 0, Abs | | | | |
| Dmcr | MaxGenRat | eRegister8 | Att. Id: 0, Abs | . Number: 1 | .) | | |
| } | | | | | | | |
| } | | | | | | | |

■ Attribute 3: capture_objects

Here below, the details of each index in the array:

Index 1 (UferTotalRegister): Obis_code = 1;0;180;0;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0 Index 2 (DmcrMaxGenTotalRegister): Obis_code = 1;0;181;0;0;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 3 (UferRateRegister1): Obis_code = 1;0;180;0;1;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 4 (UferRateRegister2): Obis_code = 1;0;180;0;2;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 5 (UferRateRegister3): Obis_code = 1;0;180;0;3;255, Class_id = 3, Attribute_index = 0, Data_index = 0

Index 6 (UferRateRegister4): Obis_code = 1;0;180;0;4;255, Class_id = 3, Attribute_index = 0, Data_index =

```
Index 7 (UferRateRegister5): Obis code = 1;0;180;0;5;255, Class id = 3, Attribute index = 0, Data index =
Index 8 (UferRateRegister6): Obis code = 1;0;180;0;6;255, Class id = 3, Attribute index = 0, Data index =
Index 9 (UferRateRegister7): Obis_code = 1;0;180;0;7;255, Class_id = 3, Attribute_index = 0, Data_index =
Index 10 (UferRateRegister8): Obis_code = 1;0;180;0;8;255, Class_id = 3, Attribute_index = 0, Data_index =
Index 11 (DmcrMaxGenRateRegister1): Obis_code = 1;0;181;0;1;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 12 (DmcrMaxGenRateRegister2): Obis code = 1;0;181;0;2;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 13 (DmcrMaxGenRateRegister3): Obis code = 1;0;181;0;3;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 14 (DmcrMaxGenRateRegister4): Obis_code = 1;0;181;0;4;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 15 (DmcrMaxGenRateRegister5): Obis_code = 1;0;181;0;5;255, Class_id = 3, Attribute_index = 0,
Data index = 0
Index 16 (DmcrMaxGenRateRegister6): Obis code = 1;0;181;0;6;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 17 (DmcrMaxGenRateRegister7): Obis code = 1;0;181;0;7;255, Class id = 3, Attribute index = 0,
Data index = 0
Index 18 (DmcrMaxGenRateRegister8): Obis code = 1;0;181;0;8;255, Class id = 3, Attribute index = 0,
Data index = 0
```

Access rights (clients)

| Electricity laboratory | | | | | Resources upgrader | |
|---------------------------|-------------------|---------------|-----|-----|--------------------|-----|
| Get | Get | Get | Get | Get | - | Get |
| Attribute description | n | | | | | |
| SEQUENCE OF | // 18 elements | | | | | |
| { | | | | | | |
| SEQUENCE
{ | // 4 elements | | | | | |
| Class_id | | | | | | |
| Obis_code | | | | | | |
| Attribute_i
Data_index | index | | | | | |
| } | | | | | | |
| } | | | | | | |
| Class_id | | | | | | |
| Data type: UNSIG | NED16 | | | | | |
| Authorized value: | 0 to 65535 | | | | | |
| Default value: 0 | | | | | | |
| Obis_code | | | | | | |
| Data type: OCTE | TSTRING | | | | | |
| Authorized value: | Decoded as Decima | al (Size = 6) | | | | |
| Default value: 0;0 | ;0;0;0;0; | | | | | |
| Attribute_index | | | | | | |
| Data type: INTEG | ER8 | | | | | |
| Authorized value: | -128 to 127 | | | | | |
| Default value: 0 | | | | | | |

Data_index

Data type: UNSIGNED16 Authorized value: 0 to 65535

Default value: 0