

# Examples for DLMS/COSEM information exchange

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## 1 SNRM/UA frame exchange with HDLC parameter negotiation

Sent frame:

7EA00A00020023219318717E

Comments:

7E// HDLC frame opening flag  
A00A// frame type and length  
0002// destination address (server) upper HDLC address 0x0001  
0023// destination address (server) lower HDLC address 0x0011  
21// source address (client) 0x01  
93// frame type SNRM (Set Normal Response Mode)  
// information field with HDLC parameters not present, defaults are proposed  
1871// Frame check sequence  
7E// HDLC frame closing flag

Received frame:

7EA023210002002373F6C58180140502008006020080070400000001080400000001CE6A7E

Comments:

7E// HDLC frame opening flag  
A023// frame type and length  
21// destination address (client) 0x01  
0002// source address (server) upper HDLC address 0x0001  
0023// source address (server) lower HDLC address 0x0011  
73// frame type UA (Unnumbered acknowledge)  
F6C5// Header check sequence  
818014//format identifier / group identifier / group length  
05020080//parameter identifier/length/value - maximum information field length transmit  
06020080//parameter identifier/length /value - maximum information field length receive  
070400000001//parameter identifier/length/value - window size transmit  
080400000001//parameter identifier/length/value - window size receive  
CE6A // Frame check sequence  
7E // HDLC frame closing flag

## 2 AARQ/AARE exchange

Sent frame: SNRM

7EA00A00020023219318717E

Received frame: UA

7EA023210002002373F6C58180140502008006020080070400000001080400000001CE6A7E

Sent frame: AARQ

7EA02E0002002321107ECBE6E600601DA109060760857405080101BE10040E01000000065F1F040000301DFFFFD4C57E

Comments:

7E// opening flag  
A02E// frame type and length  
0002002321// destination and source addresses  
10// frame type I frame  
7ECB// Header check sequence  
E6E600// LLC bytes  
601D// AARQ tag and length  
A109060760857405080101//Application context name tag, length and encoded value  
// This application association is established with lowest level security, so authentication components are not present  
BE10// tag and length for AARQ user field  
040E// encoding the choice for user-information (OCTET STRING, universal) and length  
01// tag for xDLMS-Initiate request  
00// usage field for dedicated-key component - not used  
00// usage field for the response allowed component - not used  
00// usage field of the proposed-quality-of-service component - not used  
06// proposed dlms version number 6  
5F1F// tag for conformance block  
04// length of the conformance block  
00// encoding the number of unused bits in the bit string  
00301D//conformance block  
FFFF// client-max-receive-pdu-size  
D4C5// HDLC frame check sequence  
7E// closing flag

Received frame:

7EA03A2100020023309941E6E7006129A109060760857405080101A203020100A305A103020100BE10040E0800065F1F040000301D190000070C527E

Comments:

7EA03A2100020023309941//HDLC frame header  
E6E700// LLC bytes  
6129//AARE tag and length  
A109060760857405080101//Application context name tag, length and encoded value  
A203// tag and length of the result component  
02//encoding the choice for result (INTEGER, universal)  
0100// length and value of result (accepted)  
A305// tag and length for the result-source-diagnostic component  
A103// tag and length of the acse-service-user choice  
02// encoding the choice for result-source-diagnostic (INTEGER, universal)  
0100// length and value of result-souce-diagnostic

BE10//tag and length for AARE user-field  
040E// encoding the choice for user-information (OCTET STRING,  
universal) and length  
08// tag for xDLMS-Initiate.request  
00// usage field of the negotiated-quality-of-service component  
06// negotiated dlms version number 6  
5F1F// tag for conformance block  
04// length of the conformance block  
00// encoding the number of unused bits in the bit string  
00301D//negotiated conformance block  
1900// server-max-receive-pdu-size  
0007// VAA name (0x0007 for LN referencing)  
0C52// HDLC frame check sequence  
7E// closing flag

### 3 Reading and setting the clock

Sent frame:

7EA0199575546835E6E600C0018100080000010000FF01000DFD7E

Comments:

7EA0199575546835// HDLC header  
E6E600// LLC bytes  
C001// GET.request.normal  
81// invoke-id and priority  
0008// interface class 8, clock  
0000010000FF// logical name, OBIS code of the clock  
0100// asking for 1<sup>st</sup> attribute, logical name  
0DFD7E// HDLC frame closing

Received frame:

7EA018759574E9E8E6E700C401810009060000010000FFFD497E

Comments:

7EA018759574E9E8E6E700  
C401//GET.response.normal  
81// invoke-id and priority  
00// Get-Data-Result choice data  
0906// octet string (6)  
0000010000FF// logical name, OBIS code of the clock  
FD497E// HDLC closing

Sent frame:

7EA0199575767837E6E600C0018100080000010000FF020065D77E

Comments:

7EA0199575767837E6E600  
C0018100080000010000FF0200// GET.request normal, 2<sup>nd</sup> attribute, time  
65D77E

Received frame:

7EA01E7595966F67E6E700C4018100090C07D20C04030A060BFF007800F3307E

Comments:

7EA01E7595966F67E6E700// HDLC header  
C401// GET.response.normal  
8100  
090C// octet string (12)  
07D2// year 2002  
0C// month December  
04// day 4th  
03// day of the week, Wednesday  
0A060B// time 10:06:12  
FF// hundredths not specified  
0078// deviation 120 minutes  
00// status OK  
F3307E

Sent frame:

7EA027957598B8DBE6E600C1018100080000010000FF0200090C07D20C04030A060BFF00780062FB7E

Comments:

7EA027957598B8DBE6E600  
C101// SET.normal request

81  
0008  
0000010000FF  
0200// set the 2nd attribute, time  
090C07D20C04030A060BFF007800// just SET the value read before  
62FB7E

Received frame:

7EA0107595B85101E6E700C501810036CF7E

Comments:

7EA0107595B85101E6E700  
C5018100// SET. response normal, success  
36CF7E

Sent frame:

7EA0199575BA183BE6E600C0018100080000010000FF0300BDCE7E

Comments:

7EA0199575BA183BE6E600  
C0018100080000010000FF0300// GET.request normal, 3d attribute,  
//time\_zone  
BDCE7E

Received frame:

7EA0137595DA8864E6E700C4018100100078563A7E

Comments:

7EA0137595DA8864E6E700  
C4018100// GET.response normal  
10// integer 16  
0078// 120 minutes  
563A7E

Sent frame:

7EA01C9575DC7F53E6E600C1018100080000010000FF030010007801177E

Comments:

7EA01C9575DC7F53E6E600  
C1018100080000010000FF// SET.request normal  
0300// third attribute  
100078 //integer 16, 120 minutes  
01177E

Received frame:

7EA0107595FC7105E6E700C501810036CF7E

Comments:

7EA0107595FC7105E6E700  
C5018100// SET.response normal, success  
36CF7E

Sent frame:

7EA0199575FE383FE6E600C0018100080000010000FF0400B5837E

Comments:

7EA0199575FE383FE6E600  
C0018100080000010000FF0400// GET.request normal, 4<sup>th</sup> attribute, status  
B5837E

Received frame:

7EA01275951E1BF8E6E700C40181001100AC5B7E

Comments:

7EA01275951E1BF8E6E700

C40181

001100// Data, unsigned8, OK

AC5B7E

Sent frame:

7EA0199575104831E6E600C0018100080000010000FF05006D9A7E

Comments:

7EA0199575104831E6E600

C0018100080000010000FF0500// GET.request normal, 5<sup>th</sup> attribute,

// daylight savings begin

6D9A7E

Received frame:

7EA01E75953053A7E6E700C4018100090CFF4F19F300700000000000F090A7E

Comments:

7EA01E75953053A7E6E700

C40181

00090C// data, octet string(12)

FFFFFFFFFFFFFFFF800000// insignificant value

090A7E

Sent frame:

7EA0199575325833E6E600C0018100080000010000FF060005B07E

Comments:

7EA0199575325833E6E600

C0018100080000010000FF0600// GET.request normal, 6<sup>th</sup> attribute,

// daylight\_savings\_end

05B07E

Received frame:

7EA01E75955247E7E6E700C4018100090CFF4F19F300700000000000F090A7E

Comments:

7EA01E75955247E7E6E700

C40181

00090C// data, octet string (12)

FFFFFFFFFFFFFFFF800000// insignificant value

090A7E

Sent frame:

7EA0199575546835E6E600C0018100080000010000FF0700DDA97E

Comments:

7EA0199575546835E6E600

C0018100080000010000FF0700// GET.request normal, 7<sup>th</sup> attribute,

//daylight savings deviation

DDA97E

Received frame:

7EA0127595744734E6E700C40181000F002D547E

Comment:  
7EA0127595744734E6E700  
C40181  
000F00//data, integer8, 0  
2D547E

Sent frame:  
7EA0199575767837E6E600C0018100080000010000FF0800152A7E

Comments:  
7EA0199575767837E6E600  
C0018100080000010000FF0800// GET.request normal, 8<sup>th</sup> attribute,  
//daylight\_savings\_enabled  
152A7E

Received frame:  
7EA0127595965BF0E6E700C401810003008DFD7E

Comments:  
7EA0127595965BF0E6E700  
C40181  
000300// data, boolean, FALSE  
8DFD7E

Sent frame:  
7EA0199575980839E6E600C0018100080000010000FF0900CD337E

Comments:  
7EA0199575980839E6E600  
C0018100080000010000FF0900// GET.request normal, 9<sup>th</sup> attribute,  
//clock\_base  
CD337E

Received frame:  
7EA0127595B82738E6E700C401810016012D077E

Comments:  
7EA0127595B82738E6E700  
C40181  
001601// data, enumerated, 1, internal crystal  
2D077E