Application Descriptions

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HVAC General Functional Blocks

HVAC HMI Functional Blocks

Summary

This Approved Standard is a part of the HVAC Application Interworking Standard for HVAC applications. This Chapter describes the HMI (Human Machine Interface) Functional Blocks.

Version 02.05.02 is WGI approved.

This document is part of the KNX Specifications v2.1.

Document updates

Version	Date	Modifications
v2.3 AS	2006.07.31	Publication of the Approved Standard.
v2.4 AS	2008.09.09	AN106 "Phasing out TP0" integrated. AN107 "Phasing out LT-R" integrated. AN108 "Phasing out LT-S" integrated. AN109 "Phasing out PL132" integrated. AN110 "Phasing out A-Mode" integrated.
V2.4 AS	2009.05.06	Editorial update in view of publication in the KNX Specifications v2.0.
V2.5 Draft	2013.10.07	• Parameters TempRoomSetpUserOffsetMin, TempRoomSetpUserOffsetMax, TempRoomSetpUserAbsMin and TempRoomSetpUserAbsMax added to FB UHRS. • Parameters AQSetpUserMax and AQSetpUserMin added to FB UAQSS. • Parameters HumRelSetpUserMax and HumRelSetpUserMin added to FB URHSS. • ~~TempRoomSetpUserOffsetEff, TempRoomSetpAbsEff, ComfortProlongEff added to FB UHD~~ • Editorial
V.2.5.01 Draft	2013.10.14	• Integration of feedback from WGI meeting • FB UFS: table “Interworking of devices with different number of steps” updated • Editorial
02.05.02	2013.10.29	• Editorial updates for the publication of KNX Specifications 2.1.

Copies with the same version number but a newer save date contain small corrections without impact on the content.

References

[01] Chapter 7/10/1 “HVAC Sensor Functional Blocks”
[02] Chapter 7/10/2 “HVAC HMI Functional Blocks”
[03] Chapter 7/10/3 “HVAC Actuator Functional Blocks”
[04] Chapter 7/10/4 “HVAC Common Functional Blocks”
[05] Chapter 7/10/5 “HVAC Scheduler Functional Blocks”
[06] Chapter 7/10/9 “Property Identifiers”
[07] Part 7/11 “Hot Water Heating - Introduction”
[08] Part 7/12 “Direct Electric Heating”
[09] Part 7/13 “Terminal Unit Functional Blocks”
[10] Part 7/14 “Ventilation & Air Conditioning and Cold Water”
[11] Part 10/1 “Logical Tag Extended”
[12] Chapter 3/7/2 “Datapoint Types”
[13] Chapter 7/10/10 HVAC Interface Object Type Identifier”

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Contents

1 Introduction

1.1 Scope

This document is part of the KNX HVAC Application Interworking Standard.
It contains the Specification of the Sensor Functional Blocks used for HVAC applications.

Other general purpose Functional Blocks used for HVAC applications such as 'HVAC HMI' [02], 'HVAC Actuators' [03], 'HVAC Common Functions' [04] and 'HVAC Schedulers' [05] are described in separate documents.

Functional Block specification for the applications 'Hot Water Heating' (HWH) [07], 'Direct Electric Heating' (DEH) [08], 'Terminal Units' (TU) [09] and 'Ventilation & Air Conditioning' (VAC) [10] are described in separate documents.

1.2 Objectives

This document includes the information necessary to build interoperable HVAC Sensor products using the KNX Bus. Runtime process interworking between HVAC control devices at the application level is the focus. Also data-interfaces for parameter setting, visualisation etc. are specified where appropriate (only state of the art datapoints generally used in all companies).

In addition, this document specifies the specific mechanisms for zoning and runtime process data distribution used in HVAC for an ‘easy installation’ system (LTE-HEE Mode [11]).

This is a technical specification with informative material provided as needed to convey key concepts. The approach taken here is a top-down view of interoperability. The HVAC system model is based on the decomposition of the distributed HVAC application by means of functional blocks, i.e. black-box description of functional blocks including data-interface and relationship to other functional blocks.

Every functional block may be part of a complex device (e.g. a heating controller) containing more than one functional block. Because of this modular approach, there is no attempt in this specification to describe or dictate the internal construction of a functional block or to describe specific device types.

This document only includes details of the transport protocol as needed to specify interoperability and easy installation mechanisms. The document does not specifically cover implementation aspects, but guidelines are included where appropriate.

This part of the KNX HVAC specification is mainly but not completely independent of the underlying protocol since specific mechanisms for “easy configuration” and runtime data distribution must be available on the network.

Completely protocol dependent parts of the HVAC Sensor Specification such as data encoding and Datapoint Types, object address tables, group address tables etc. are not part of this document.

1.3 Dependence on Configuration Modes

The main focus of this document is the specification of the **Basic Functional Blocks** and the **LTE specific parts**.

The document provides all necessary information needed:

- for a complete implementation of the Functional Blocks in LTE mode
- for the implementation of mandatory objects used for runtime interworking in standard mode (Basic Functional Block)

1.3.1 Runtime Interworking

Configuration Mode dependent (S-Mode, Ctrl-Mode, PB-Mode implementation of optional runtime interworking objects is not specified in this document, e.g. “easy channel” definitions.

The following table (example) shows the mode dependencies concerning runtime interworking

			STANDARD MODE	**EXTENDED MODE**	
		Basic FB	**S-Mode**	**Standard Mode Interface**	**HEE**
Inputs	Inp1	**NA**	NA	NA	M
	Inp2	**NA**	NA	NA	O
	Inp3	**(GO_b)**			O
Outputs	Outp1	**NA**	NA	NA	M
	- Outp1-1	**GO_b**	GO	GO	NA
	- Outp1-2	**GO_b**	GO	GO	NA
	Outp 2	**GO_b**	GO	GO	M

Inp1: is mandatory M in LTE Mode but the information is not available NA in the Basic FB and all other modes because the datapoint type (DPT) is today not available in standard mode and there are no products on the market with this functionality.

Inp2: is optional O in LTE Mode but the information is not available NA in the Basic FB and all other modes because the DPT is today not available in standard mode and there are no products on the market with this functionality.

Inp3: is optional O in LTE Mode and an optional Group Object in the Basic FB (GO_b). The datapoint is optionally supported as Group Object in the LTE Standard Mode Interface (GO).
For all other modes the implementation is not defined. This is indicated by an empty field.

Outp1: is mandatory M in LTE Mode and has a structured DPT or a DPT with extended features which is today not available in standard mode. In the Basic FB the information of Outp1 is split up into Outp1-1 and Outp1-2 (separate datapoints with standard DPT).
Outp1-1 and Outp1-2 are mandatory Group Objects GO in the Basic FB and are therefore mandatory in all modes.

Outp2: is mandatory in all modes.

1.3.2 Parameters and Diagnostic Data

LTE implementation:

- Parameters and Diagnostic Data of a Functional Block shall be implemented as Properties of the corresponding Interface Object which are accessed using individual addressing.
- These Properties are addressed via the standard Interface Object Type (IO Type) for this Functional Block. This IO Type is also used for datapoint addressing in the LTE runtime interworking model
- Standard DPT or HVAC specific DPT with extended features are used where appropriate.

Other modes:

- Parameters and Diagnostic Data can in principle be implemented as memory mapped datapoints or Group Objects or Properties of an Interface Object using individual addressing. This document does not lay down how to implement Parameters and Diagnostic Data in S-Mode, Ctrl-Mode and PB-Mode.
- In case of **Memory Mapped** datapoints the DPT may be manufacturer specific
- In case of **Group Objects** standard DPT shall be used instead of HVAC specific (extended) DPT. The description of these Group Objects shall be part of the mode-dependent specification (e.g. Channel definition).
- In case of **Properties**, the implementation of HVAC specific DPT with extended features may be a problem (depending on the available microcontroller ressources). The manufacturer has the choice:
  - ⇨ to use the LTE style Property implementation as specified in this document (with the DPT and IO Type for LTE implementations) **$\text{IO Type}^{\text{used}} = \text{IO Type}^{\text{HVAC-LTE}}$**
  - ⇨ to implement these Properties using standard DPT only.
    In this case, the same Property ID but a different IO Type shall be used since the DPT of a Property shall be unambiguous for each IO Type.
    Simple IOT mapping rule: $\text{IO Type}^{\text{used}} = \text{IO Type}^{\text{standardDPT}} = \text{IO Type}^{\text{HVAC-LTE}} + 10000\text{d}$
    (e.g. $\text{BUC}^{\text{HVAC-LTE}} = 128 \Rightarrow \text{BUC}^{\text{standardDPT}} = 10128$)
  - ⇨ It is allowed to implement in a device both Interface Object Types $\text{IO Type}^{\text{HVAC-LTE}}$ and $\text{IO Type}^{\text{standardDPT}}$. The implementation of parameters and diagnostic data of one given Functional Block shall however be complete. It is thus not allowed to implement part of the datapoints of a Functional Block in $\text{IO Type}^{\text{standardDPT}}$ and the remaining in $\text{IO Type}^{\text{HVAC-LTE.}}$

	Implementation of Parameter and Diagnostic Data			
	Property based		**Group Object**	**Memory mapped**
	LTE style	**Standard DPT**		
IO Type	$\text{IO Type}^{\text{HVAC-LTE}}$ e.g. BUC=128	$\text{IO Type}^{\text{HVAC-LTE}}$ + 10000 e.g. BUC=10128		
Property ID	Property ID x	Property ID x		
DPT	if standard DPT	=> same standard DPT	=> same standard DPT	company specific
	if HVAC-LTE specific***)** e.g. 205.100	=> mapped standard DPT, e.g. 9.001	=> mapped standard DPT, e.g. 9.001	

In this document only the **HVAC-LTE style** of Parameters and Diagnostic Data is specified for $\text{IO Type}^{\text{HVAC-LTE}}$.

In the FB datapoint overview those Parameters and Diagnostic Data with HVAC-LTE specific (extended) DPT are marked " ***)** "
The mapping of HVAC specific DPT to standard DPT is generic and described in the document **[12]**.

1.4 Glossary

This glossary only contains a few positions, which might be misunderstood.

Term	Description
Supervisor	Supervisor stands for building management station, programme unit or similar installations, which normally are computer based.

1.5 Abbreviations

Functional Blocks:

Sensors [01], HMI [02], Actuators [03], Common Controller Functions [04]

Abbreviation	[Doc]	Description
FSA	3	Fan Speed Actuator
OAQS	1	Outside Air Quality Sensor
ORHS	1	Outside Relative Humidity Sensor
OTS	1	Outside Temperature Sensor
RAQS	1	Room Air Quality Sensor
RRHS	1	Room Relative Humidity Sensor
RSMHD	4	Room Setpoint Manager HVAC Mode Driven
RSMTD	4	Room Setpoint Manager Temperature Driven
RTS	1	Room Temperature Sensor
RTSA	2	Room Temperature Setpoint Absolute Setting
UAQSS	2	User Air Quality Setpoint Setting
UCOS	2	User Change Over Setting
UEARTS	2	User Enable Alternative Room Temperature Setpoint
UFS	2	User Fan Speed Setting
UHD	2	User HVAC Display
UHRS	2	User HVAC Room Settings
UPS	2	User Presence Switch
URHSS	2	User Relative Humidity Setpoint Setting

Terminal Units (TU) [09]
as far as relevant in this document

Abbreviation	Description

General

Abbreviation	Description
cs	Company Specific
GO	Group Object mandatory
(GO)	Group Object optional
M	Mandatory
NA	Not Allowed / Not Applicable
O	Optional
S	Has to be implemented in Standard Mode, if implemented in LTE-HEE Mode

HEE	HVAC Easy Extension
HVAC	Heating Ventilation Air Conditioning
LTE	Logical Tag Extended
IR	LTE-Service InfoReport
W	LTE-Service Write
DEH	LTE-Service InfoReport
DHW	LTE-Service Write
TU	Terminal Unit
VAC	Ventilation and Air Conditioning

2 Formal Matters

2.1 Introduction to Functional Block

The functional blocks are described in a standard way as described below.

Every functional block may be part of a complex device (e.g. a controller) containing more than one functional block.

A functional block never can be split. Although not all inputs, outputs etc. are mandatory. The optional inputs, outputs do not have to be realised.

2.2 Description of Functional Block

2.2.1 Aims and objectives

This chapter shall give a overview of the functionality of the functional block, as well as eventually information about interworking with other functional blocks.

2.2.2 Functional specifications

This chapter gives detailed information about the Inputs, the Outputs, the Parameters, the Diagnostic Data, the Alarms and the Hardwired I/O's.

2.2.3 Constraints

Constraints for the use of the functional block as well as for the use of Inputs, Outputs, Parameters, Diagnostic Data, Alarms etc. are described here.

2.2.4 Functional Block diagram

On top of the functional block the name and it's abbreviation is marked.

Then the Inputs / Outputs are following.

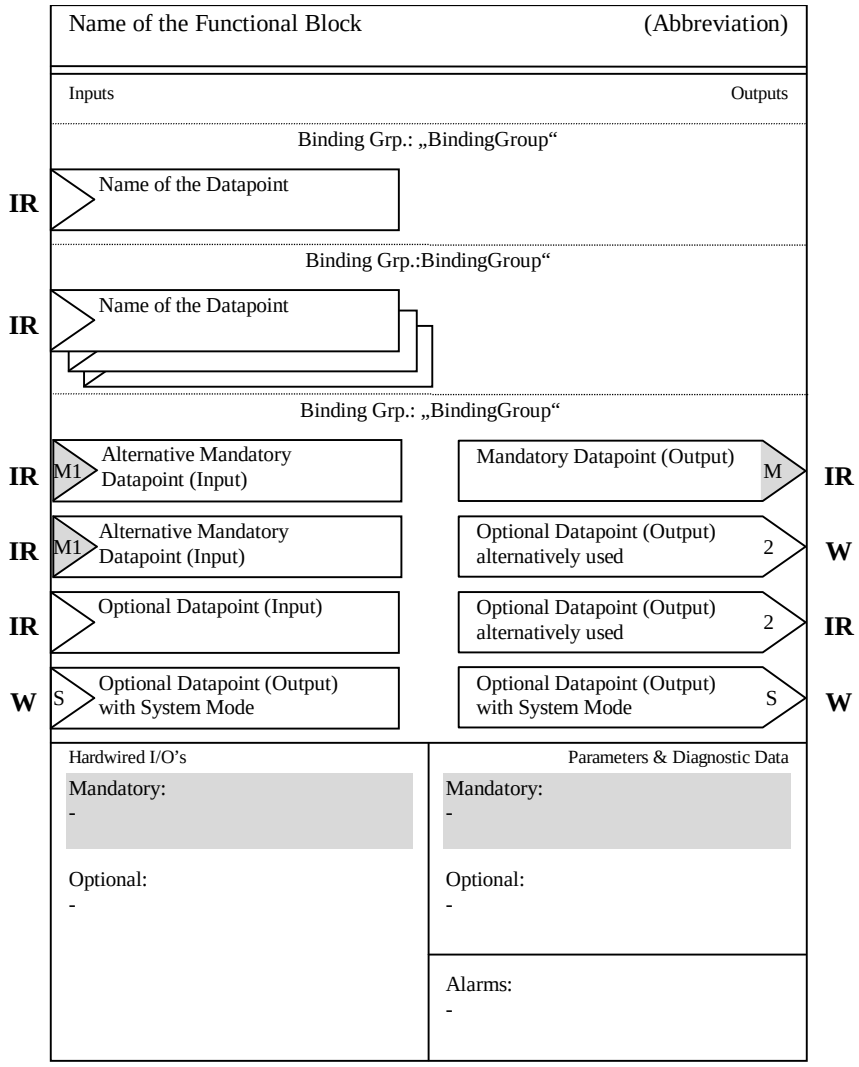
The Inputs / Outputs are grouped in Binding Groups, according to LTE (Logical Tag Extended).

Mandatory Inputs / Outputs have a grey arrow with the letter M.
They also have to be available in the System Mode.
Optional Inputs / Outputs have a white arrow.
Some of these Inputs / Outputs, in case of being implemented, also have to be available in the System Mode. These Inputs / Outputs have a white arrow with the letter S.

Some of the Inputs / Outputs only make sense in combination, others may be used either / or.
Such Inputs / Outputs are grouped with numbers.

At the bottom there are three fields:

On the left-hand side we find the Hardwired Inputs / Outputs, the mandatory ones in a grey field, the optional ones in a white field.
On the right-hand side there is a field for the Parameters and the Diagnostic Data used in the functional block (mandatory in grey, optional in white).
On the right-hand side at the bottom there is the field for the Alarms, generated in the functional block (for use in the functional block Alarm Source).


Name of the Functional Block
(Abbreviation)
Inputs
Outputs
Binding Grp.: „BindingGroup“
IR
Name of the Datapoint
Binding Grp.:BindingGroup“
IR
Name of the Datapoint
Binding Grp.: „BindingGroup“
IR
M1
Alternative Mandatory Datapoint (Input)
Mandatory Datapoint (Output)
M
IR
IR
M1
Alternative Mandatory Datapoint (Input)
Optional Datapoint (Output) alternatively used
2
W
IR
Optional Datapoint (Input)
Optional Datapoint (Output) alternatively used
2
IR
W
S
Optional Datapoint (Output) with System Mode
Optional Datapoint (Output) with System Mode
S
W
Hardwired I/O's
Parameters & Diagnostic Data
Mandatory:
-
Optional:
-
Mandatory:
-
Optional:
-
Alarms:
-

2.2.5 Datapoint Description

2.2.5.1 Overview

ID	Datapoints	Description / Remarks	Data Point Type	Additional Information
	Inputs			
	Name of the Data-Point	Descriptions, remarks if necessary	Name of the Datapoint Type and/or coding LTE: DPT_TempHVACAbs_Z $V_{16}Z_8$ S: DPT_Value_Temp F_{16}	
				M = mandatory, with system mode M1/M2 = alternative mandatory O = optional, system mode optional S = optional, but if implemented, then with system mode 1,2 the numbers represent alternative packages
				Unit of the Datapoint Value Default Value
				Range indications
	Outputs			
	Name of the Data-Point	see above	see above	see above
	Parameters			
	Name of the Parameter	see above	see above	see above
	Diagnostic Data			
	Name of the Diagnostic Data	see above	see above	see above

ID	Alarm	Description / Remarks	Error		Additional Information
			Code	Prio	
	Name of the Alarm	Descriptions, remarks if necessary	Code of the Alarm	Priority of the Alarm	Additional Information

Detailed Specification of the Datapoints

Detailed description of the Datapoints is given in a separate document [12].

Notations:

Symbol	Field
A	Character
$A_{[n]}$	Character String with Length n
B	Boolean / Bit set
C	Control
E	Exponent
F	Float (with ME)
M	Mantisse
N	eNumeration
S	Sign
U	Unsigned value
V	2's Complement signed value
Z_8	Standardised Status/Command $B_{(8)}$

Example:

Format:	3 octet; $V_{16}Z_8$ 3 MSB Temperature | 2 LSB Temperature | 1 Standard Status/Comm. VVVVVVVV | VVVVVVVV | ZZZZZZZZ V_{16} | Z_8
Encoding:	See below

Octets are transmitted from left to right, i.e. octet 1 is transmitted last.

Standard Status/Command Information

Some of the Datapoints are combined with Standard Status/Command Information.
For further information see [12].

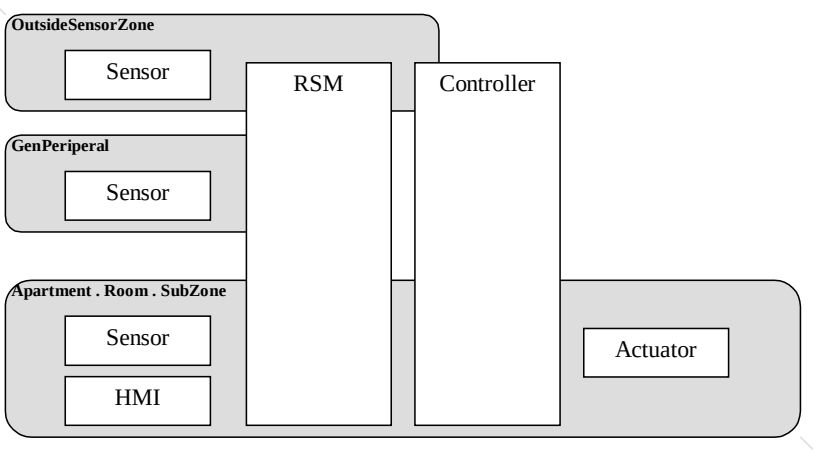
3 HMI Functional Blocks

3.1 Introduction to HMI Functional Blocks

This document contains the HMI functional blocks.

The blocks are deliberately kept small in order to keep transparency.

It is possible to combine more than one functional block in a device.



3.2 User HVAC Room Settings (UHRS)

3.2.1 Aims and objectives

The functional block ‘User HVAC Room Settings’ provides the system with the following settings:
- absolute user temperature setpoint (°C)
- relative user temperature setpoint (K)
- comfort prolongation
- comfort pushbutton
- HVAC mode

The selection out of these functions is company specific (cs).

This functional block is used e.g. in a ‘Room Device’ or in a more complex device which has one or some of these functions. It may be combined with the functional block 'User HVAC Display' which indicates the corresponding information.

3.2.2 Functional specifications

The distribution of the setpoint information in the system is event-driven (COV-condition, change of value) and in addition repeated periodically.

The 'User HVAC Room Settings' supports the LTE zoning "Apartment . Room . SubZone".

Outputs

- TempRoomSetpUserAbs — This is the absolute room temperature setpoint [°C] given by the HMI.
- TempRoomSetpUserOffset — This is the room temperature setpoint offset [K] given by the HMI.

  Normally only one of the two user setpoint functions is realised in a device.
- ComfortProlongUser — This trigger information creates an additional period of comfort in the room setpoint manager (see Functional specification of the room setpoint manager [04])
- ComfortPushbutton — This trigger information changes the HVAC mode in the room setpoint manager (see Functional specification of the room setpoint manager [04])
- HVACModeUser — This information defines the HVAC mode selected by the user.
  AUTO, Comfort, Standby, Economy, Build. Protection.
  AUTO stands for no mode required, this means the mode of the setpoint manager is valid.
  (see Functional specification of the room setpoint manager [04])

Binding Group (LTE)

- Apartment . Room . SubZone — no special features

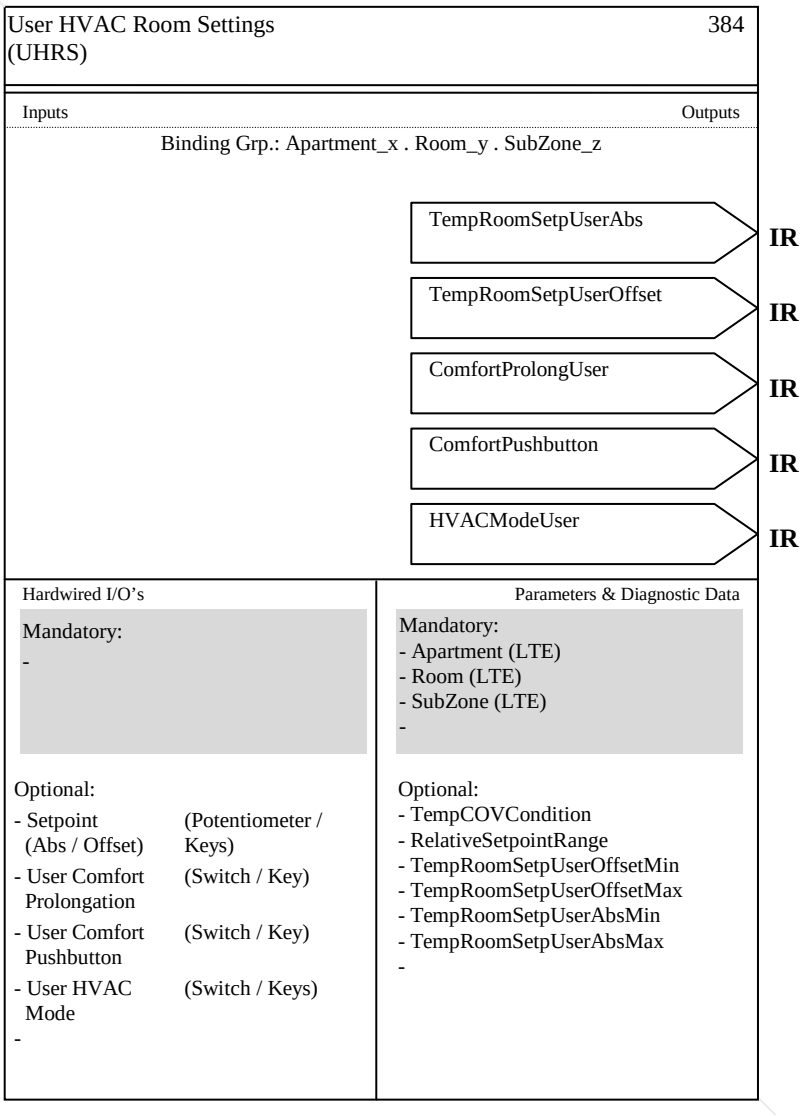
Parameters

- TempCOVCondition — This parameter defines at what change of the setpoint value the information is transmitted due to COV. This COV condition is valid for TempRoomSetpUserAbs and for TempRoomSetpUserOffset.
- RelativeSetpointRange — This parameter is used in connection with the offset function to define the range within which the setpoint may be adapted. The parameter pair TempRoomSetpUserOffsetMin / TempRoomSetpUserOffsetMax may alternatively (exclusive) be used instead of parameter RelativeSetpointRange.
- TempRoomSetpUserOffsetMin — This parameter is used in connection with the offset function to define the negative range the relative setpoint may be adapted within.
- TempRoomSetpUserOffsetMax — This parameter is used in connection with the offset function to define the positive range the relative setpoint may be adapted within.
- TempRoomSetpUserAbsMin — This parameter is used in connection with the absolute function to define the lower limit of the range the absolute setpoint may be adapted within.
- TempRoomSetpUserAbsMax — This parameter is used in connection with the absolute function to define the upper limit of the range the absolute setpoint may be adapted within.

3.2.3 Constraints

None.

3.2.4 Functional Block diagram



3.2.5 Datapoint Description

Overview

Datapoints	Description / Remarks	Data Point Type	Additional Info
Outputs			
Temp Room Setp User Abs	One temperature value, normally for comfort with: - COV and RepPer - Z_8 not supported to FB Room Setpoint Manager	LTE: 205.100 DPT_TempHVACAbs_Z $V_{16}Z_8$ S: 9.001 DPT_Value_Temp F_{16}	LTE: O [1)] S: (GO) °C
Temp Room Setp User Offset	One temperature shift value, normally for comfort with: - COV and RepPer - Z_8 not supported to FB Room Setpoint Manager	LTE: 205.101 DPT_TempHVACRel_Z $V_{16}Z_8$ S: 9.002 DPT_Value_Tempd F_{16}	LTE: O [1)] S: (GO) K
Comfort Prolong User	Comfort prolongation trigger with: - COV and NO RepPer to FB Room Setpoint Manager see Functional specifications in room setpoint manager	LTE: 1.017 DPT_Trigger B_1 S: 1.017 DPT_Trigger B_1	LTE: O [1)] S: (GO) 1 = Trigger (0 not used)
Comfort Pushbutton	Comfort pushbutton trigger with: - COV and NO RepPer to FB Room Setpoint Manager see Functional specifications in room setpoint manager	LTE: 1.017 DPT_Trigger B_1 S: 1.017 DPT_Trigger B_1	LTE: O [1)] S: (GO) 1 = Trigger (0 not used)
HVAC Mode User	User HVAC Mode with: - COV and RepPer - Z_8 not supported to FB Room Setpoint Manager	LTE: 201.100 DPT_HVACMode_Z N_8Z_8 S: 20.102 DPT_HVACMode N_8	LTE: O [1)] S: (GO) 0 = AUTO 1 = Comfort 2 = Standby 3 = Economy 4 = Building.Prot.
Parameters			
Apartment	LTE zoning number for Apartment	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Room	LTE zoning number for Room	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
SubZone	LTE zoning number for SubZone	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Temp COV Condition	Value for COV condition - Z_8 not supported	205.101 [2)] DPT_TempHVACRel_Z $V_{16}Z_8$	O 0.2 K
Relative Setpoint Range	Value for the range in which the offset may be used (e.g. +/-3K)	205.101 [2)] DPT_TempHVACRel_Z $V_{16}Z_8$	O cs

Datapoints	Description / Remarks	Data Point Type	Additional Info
TempRoom SetpUser OffsetMin	Value for the negative range the relative setpoint may be adapted within. (e.g. -3K)	205.101 [2] DPT_TempHVACRel_Z $V_{16}Z_8$	O cs
TempRoom SetpUser OffsetMax	Value for the positive range the relative setpoint may be adapted within. (e.g. +3K)	205.101 [2] DPT_TempHVACRel_Z $V_{16}Z_8$	O cs
TempRoom SetpUser AbsMin	Value for the lower limit of he range the absolute setpoint may be adapted within. (e.g. 18°C)	205.100 [2] DPT_TempHVACAbs_Z $V_{16}Z_8$	O cs
TempRoom SetpUser AbsMin	Value for the upper limit of the range the absolute setpoint may be adapted within. (e.g. 24°C)	205.100 [2] DPT_TempHVACAbs_Z $V_{16}Z_8$	O cs

[1] at least one of these functions has to be implemented (cs)

[2] Implementation of Properties using standard DPT see chapter 1.3.2

UHRS Runtime Interworking - Dependence on Configuration Modes

			STANDARD MODE	EXTENDED MODE	
		Basic FB	S-Mode	Standard Mode Interface	HEE
Inputs					
Outputs	TempRoomSetpUserAbs	**(GO)$_b$**		(GO)	**O**
	TempRoomSetpUserOffset	**(GO)$_b$**		(GO)	**O**
	ComfortProlongUser	**(GO)$_b$**		(GO)	**O**
	ComfortPushbutton	**(GO)$_b$**		(GO)	**O**
	HVACModeUser	**(GO)$_b$**		(GO)	**O**

UHRS LTE specific Properties

		Support
Parameter	Apartment	**M**
	Room	**M**
	SubZone	**M**

UHRS Standard Properties of Interface Objects (or memory mapped DP)

		Support
Parameter	TempCOVCondition	**O**
	RelativeSetpointRange	**O**
	TempRoomSetpUserOffsetMin	**O**
	TempRoomSetpUserOffsetMax	**O**
	TempRoomSetpUserAbsMin	**O**
	TempRoomSetpUserAbsMax	**O**

3.2.6 Detailed Specification of the Datapoints

3.2.6.1 Output TempRoomSetpUserAbs

Standard Mode:

DP Name:	TempRoomSetpUserAbs			Abbr.:	---			Mandatory	☐		
FB Name:	UHRS							Can be internal	☐		
Description											
This information is sent to the room setpoint manager.											
Datapoint Type											
DPT_Name:	DPT_Value_Temp										
DPT Format:	F_{16}					DPT_ID:	9.001				
Field	Description					Supp.	Range		Unit	Default	
							Full		°C	cs	
Access Type											
♦ Output											
this → M	☒	this → 1	☐								
Spontaneous	☒	COV:	☒	Delta-Value:	0.2	MinRepTime:	0 s [1]				
		Cyclic	☐ [2]	Period:	--- [2]						
Request	☒										
Communication Type											
♦ Group Object Datapoint							Mandatory:	☒			
Default Group Address:	---										
Dynamics											
Power down:	Save:	☐									
Power up:	Value:	No initialisation:	☐	Default value:	☐						
		Saved value:	☐	Actual value:	☒						
	Transmit on bus:	☒			☐						
Exception Handling											

Special Features											
[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.											
[2] Heartbeat allowed (recommended value 15 min); not recommended, if more than 1 UHRS is linked to the same consumer, since a heartbeat causes problems if these UHRS are not synchronized (→ toggling of the TempRoomSetpUserAbs at the consumer).											

LTE-HEE Mode:

FB: **UHRS**	**LTE Server Output Name:** **TempRoomSetpUserAbs**	Mandatory ☐ Optional ☒

Description:

This information is sent to the room setpoint manager.

DPT:	Name	DPT_TempHVACAbs_Z	DPT ID	205.100	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Range	Unit	COV	Default
Temperature	Actual temperature value		Full Range	°C	0.2	cs
STATUS - all bits	Not supported	NA				

Communication:

Binding Group:

Class		Type	Default
Geographical	☒	Apartment . Room . SubZone	1.1.1
Application Specific	☐		
Peripheral	☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	384 (UHRS)	Property ID:	51		
LTE-Services (event):	COV ☒	MinRepTime:	0 [1]	sec	Heartbeat:	--- [2] min
InfoReport ☒	Output per default communicating ☐		Binding Group Wildcard allowed ☒			
	Tx Prio:	High ☐	Normal ☒	Low ☐		
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐	Act Value ☒	Default Value ☐			
Property-Service (individual access):	Read only ☐	Read/Write ☒				

Exception Handling: Save at Powerdown ☐

Special Features:

[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

[2] Heartbeat allowed (recommended value 15 min); not recommended, if more than 1 UHRS work in the same zone, since a heartbeat causes problems if these UHRS are not synchronized (→ toggling of the TempRoomSetpUserAbs at the consumer).

3.2.6.2 Output TempRoomSetpUserOffset

Standard Mode:

DP Name:	TempRoomSetpUserOffset			Abbr.:	---			Mandatory	☐		
FB Name:	UHRS							Can be internal	☐		
Description											
This information is sent to the room setpoint manager.											
Datapoint Type											
DPT_Name:	DPT_Value_Tempd										
DPT Format:	F_{16}					DPT_ID:	9.002				
Field	Description					Supp.	Range		Unit	Default	
							Full		K	cs	
Access Type											
♦ Output											
this → M	☒		this → 1	☐							
Spontaneous	☒	COV:	☒	Delta-Value:	0.2	MinRepTime:	0 s [1]				
		Cyclic	☐ [2]	Period:	--- [2]						
Request	☒										
Communication Type											
♦ Group Object Datapoint							Mandatory:	☒			
Default Group Address:	---										
Dynamics											
Power down:	Save:	☐									
Power up:	Value:	No initialisation:	☐	Default value:	☐						
		Saved value:	☐	Actual value:	☒						
	Transmit on bus:	☒			☐						
Exception Handling											

Special Features											
[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.											
[2] Heartbeat allowed (recommended value 15 min); not recommended, if more than 1 UHRS is linked to the same consumer, since a heartbeat causes problems if these UHRS are not synchronized (→ toggling of the TempRoomSetpUserOffset at the consumer).											

LTE-HEE Mode:

FB: **UHRS**	**LTE Server Output Name:** **TempRoomSetpUserOffset**	Mandatory ☐ Optional ☒

Description:

This information is sent to the room setpoint manager.

DPT:	Name	DPT_TempHVACRel_Z	DPT ID	205.101	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Range	Unit	COV	Default
Temperature	Actual temperature offset value		Full Range	K	0.2	cs
STATUS - all bits	Not supported	NA				

Communication:

Binding Group:

Class		Type	Default
Geographical	☒	Apartment . Toom . SubZone	1.1.1
Application Specific	☐		
Peripheral	☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	384 (UHRS)	Property ID:	52		
LTE-Services (event):	COV ☒	MinRepTime:	0 [1]	sec	Heartbeat:	--- [2] min
InfoReport ☒	Output per default communicating ☐		Binding Group Wildcard allowed ☒			
	Tx Prio:	High ☐	Normal ☒	Low ☐		
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐	Act Value ☒	Default Value ☐			
Property-Service (individual access):	Read only ☐	Read/Write ☒				

Exception Handling: Save at Powerdown ☐

Special Features:

[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

[2] Heartbeat allowed (recommended value 15 min); not recommended, if more than 1 UHRS work in the same zone, since a heartbeat causes problems if these UHRS are not synchronized (→ toggling of the TempRoomSetpUserOffset at the consumer).

3.2.6.3 Output ComfortProlongUser

Standard Mode:

DP Name:	ComfortProlongUser	Abbr.:	---	Mandatory	☐
FB Name:	UHRS			Can be internal	☐

Description

This output contains the trigger for comfort prolongation.

Datapoint Type

DPT_Name:	DPT_Trigger				
DPT Format:	B_1	DPT_ID:	1.017		
Field	Description	Supp.	Range	Unit	Default
				Bit	cs

Access Type

♦ Output

this → M	☒	this → 1	☐				
Spontaneous	☒	COV:	☒	Delta-Value:		MinRepTime:	10 s
		Cyclic	☐	Period:	NO		
Request	☒						

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☐
		Saved value:	☐	Actual value:	☒
	Transmit on bus:	☒			☐

Exception Handling

This output has NO heartbeat.

Special Features

LTE-HEE Mode:

FB: **UHRS**	**LTE Server Output Name:** **ComfortProlongUser**	Mandatory ☐ Optional ☒

Description:

This output contains the trigger for comfort prolongation.

DPT:	Name	DPT_Trigger	DPT ID	1.017	Datatype format	B_1

Field	Description	Sup.	Range	Unit	COV	Default
				Bit		cs

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment. Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	384 (UHRS)	Property ID:	53
LTE-Services (event):	COV ☒	MinRepTime: 10 sec	Heartbeat: NO min	
InfoReport ☒	Output per default communicating ☐		Binding Group Wildcard allowed ☒	
	Tx Prio:	High ☐	Normal ☒	Low ☐
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐	Act Value ☒	Default Value ☐	
Property-Service (individual access):	Read only ☐	Read/Write ☒		

Exception Handling: Save at Powerdown ☐

This output has NO heartbeat.

Special Features:

3.2.6.4 Output ComfortPushbutton

Standard Mode:

DP Name:	ComfortPushbutton	Abbr.:	---	Mandatory	☐
FB Name:	UHRS			Can be internal	☐

Description

This output contains the trigger for comfort demand.

Datapoint Type

DPT_Name:	DPT_Trigger				
DPT Format:	B_1	DPT_ID:	1.017		
Field	Description	Supp.	Range	Unit	Default
				bool	cs

Access Type

♦ Output

this → M	☒	this → 1	☐				
Spontaneous	☒	COV:	☒	Delta-Value:		MinRepTime:	10 s
		Cyclic	☐	Period:	NO		
Request	☒						

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☐
		Saved value:	☐	Actual value:	☒
	Transmit on bus:	☒			☐

Exception Handling

This output has NO heartbeat.

Special Features

LTE-HEE Mode:

FB: **UHRS**	**LTE Server Output Name:** **ComfortPushbutton**	Mandatory ☐ Optional ☒

Description:

This output contains the trigger for comfort demand.

DPT:	Name	DPT_Trigger	DPT ID	1.017	Datatype format	B_1

Field	Description	Sup.	Range	Unit	COV	Default
				bool		cs

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment. Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	384 (UHRS)	Property ID:	54
LTE-Services (event):	COV ☒	MinRepTime: 10 sec	Heartbeat: NO min	
InfoReport ☒	Output per default communicating ☐		Binding Group Wildcard allowed ☒	
	Tx Prio:	High ☐	Normal ☒	Low ☐
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐	Act Value ☒	Default Value ☐	
Property-Service (individual access):	Read only ☐	Read/Write ☒		

Exception Handling: Save at Powerdown ☐

This output has NO heartbeat.

Special Features:

3.2.6.5 Output HVACModeUser

Standard Mode:

DP Name:	HVACModeUser	Abbr.:	---	Mandatory	☐
FB Name:	UHRS			Can be internal	☐

Description

This Output contains value of the user defined HVAC mode.

Datapoint Type

DPT_Name:	DPT_HVACMode				
DPT Format:	N_8	DPT_ID:	20.102		
Field	Description	Supp.	Range	Unit	Default
			0 ... 4	enum	cs

Access Type

♦ Output

this → M	☒	this → 1	☐				
Spontaneous	☒	COV:	☒	Delta-Value:		MinRepTime:	0 s [1]
		Cyclic	☐	Period:	--- [2]		
Request	☒						

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☐
		Saved value:	☐	Actual value:	☒
	Transmit on bus:	☒			☐

Exception Handling

Special Features

[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

[2] Heartbeat not recommended, since a heartbeat causes problems if more than 1 UHRS is linked to the same consumer and if these UHRS are not synchronized (→ toggling of the HVACModeUser at the consumer).

LTE-HEE Mode:

FB: **UHRS**	**LTE Server Output Name:** **HVACModeUser**	Mandatory ☐ Optional ☒

Description:

This Output contains value of the user defined HVAC mode as well as a STATUS information. The output may be overridden by means of the COMMAND.

DPT:	Name	DPT_HVACMode_Z	DPT ID	201.100	Datatype format	N_8Z_8

Field	Description	Sup.	Range	Unit	COV	Default
HVACModeUser	User HVAC Mode (0...4)		0 ... 4	enum	yes	cs
STATUS - all bits	Not supported	NA				

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment. Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	384 (UHRS)	Property ID:	55	
LTE-Services (event): InfoReport ☒	COV ☒	MinRepTime:	0 [1] sec	Heartbeat:	--- [2] min
	Output per default communicating ☐		Binding Group Wildcard allowed ☒		
	Tx Prio:	High ☐	Normal ☒	Low ☐	
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐	Act Value ☒	Default Value ☐		
Property-Service (individual access):	Read only ☐	Read/Write ☒			

Exception Handling: Save at Powerdown ☐

Special Features:

[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

[2] Heartbeat not recommended, since a heartbeat causes problems if more than 1 UHRS work in the same zone and if these UHRS are not synchronized (→ toggling of the HVACModeUser at the consumer).

3.2.6.6 Parameter Apartment

FB: UHRS	Property Name (Server): Apartment	Mandatory ☒ Optional ☐

Description:

Number of the apartment zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the apartment zone		(0) 1...126		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	384 (UHRS)	Property ID:	101
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
If Apartment is 'OutOfService' Room and SubZone automatically are 'OutOfService'

3.2.6.7 Parameter Room

FB: UHRS	Property Name (Server): Room	Mandatory ☒ Optional ☐

Description:

Number of the room zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the room zone		(0) 1...63		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	384 (UHRS)	Property ID:	102
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.2.6.8 Parameter SubZone

FB: UHRS	Property Name (Server): SubZone	Mandatory ☒ Optional ☐

Description:

Number of the sub zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		(0) 1...15		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	384 (UHRS)	Property ID:	103
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.2.6.9 Parameter TempCOVCondition

FB: UHRS	Property Name (Server): TempCOVCondition	Mandatory ☐ Optional ☒

Description:

Delta temperature value for COV condition

DPT:	Name	DPT_TempHVACRel_Z	DPT ID	205.101	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Temperature	Temperature COV value		Full Range	K	0.2
STATUS				Bitset	
- all bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	384 (UHRS)	Property ID:	111
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

3.2.6.10 Parameter RelativeSetpointRange

FB: UHRS	Property Name (Server): RelativeSetpointRange	Mandatory ☐ Optional ☒

Description:

Range for the offset.

DPT:	Name	DPT_TempHVACRel_Z	DPT ID	205.101	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Temperature	Temperature offset range value		Full Range	K	3
STATUS - all bits	not supported, fixed to '0'	NA		Bitset	false
COMMAND - NormalWrite - all other commands	not supported	M NA	enum 0		cs

Communication:

DP Address: (in the server)	IO Type(ID):	384 (UHRS)	Property ID:	112
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

3.2.6.11 Parameter TempRoomSetpUserOffsetMin

FB: UHRS	Property Name (Server): TempRoomSetpUserOffsetMin	Mandatory ☐ Optional ☒

Description:

Negative range for the offset.

DPT:	Name	DPT_TempHVACRel_Z	DPT ID	205.101	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Temperature	Negative offset range		[1)..0]	K	-3.0
STATUS - all bits	not supported, fixed to '0'	NA		Bitset	false
COMMAND - NormalWrite - all other commands	not supported	M NA	enum 0		cs

Communication:

DP Address: (in the server)	IO Type(ID):	384 (UHRS)	Property ID:	113
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

1) Only negative values are meamingful; the range is implementation-specific.

3.2.6.12 Parameter TempRoomSetpUserOffsetMax

FB: UHRS	Property Name (Server): TempRoomSetpUserOffsetMax	Mandatory ☐ Optional ☒

Description:

Positive range for the offset.

DPT:	Name	DPT_TempHVACRel_Z	DPT ID	205.101	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Temperature	Positive offset range		[0..[1)]	K	3.0
STATUS - all bits	not supported, fixed to '0'	NA		Bitset	false
COMMAND - NormalWrite - all other commands	not supported	M NA	enum 0		cs

Communication:

DP Address:	IO Type(ID):	384 (UHRS)	Property ID:	114
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

[1)] Only positve values are meamingful; the range is implementation-specific.

3.2.6.13 Parameter TempRoomSetpUserAbsMin

FB: UHRS	Property Name (Server): TempRoomSetpUserAbsMin	Mandatory ☐ Optional ☒

Description:

Lower limit of the range for the absolute setpoint.

DPT:	Name	DPT_TempHVACAbs_Z	DPT ID	205.100	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Temperature	Lower limit of the setpoint range		Full	°C	cs
STATUS - all bits	not supported, fixed to '0'	NA		Bitset	false
COMMAND - NormalWrite - all other commands	not supported	M NA	enum 0		cs

Communication:

DP Address:	IO Type(ID):	384 (UHRS)	Property ID:	115
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

3.2.6.14 Parameter TempRoomSetpUserAbsMax

FB: UHRS	Property Name (Server): TempRoomSetpUserAbsMax	Mandatory ☐ Optional ☒

Description:

Upper limit of the range for the absolute setpoint.

DPT:	Name	DPT_TempHVACAbs_Z	DPT ID	205.100	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Temperature	Upper limit of the setpoint range		Full	°C	cs
STATUS - all bits	 not supported, fixed to '0'	 NA		Bitset 	 false
COMMAND - NormalWrite - all other commands	 not supported	 M NA	enum 0 	 	cs

Communication:

DP Address:	IO Type(ID):	384 (UHRS)	Property ID:	115
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

3.3 User HVAC Display (UHD)

3.3.1 Aims and objectives

The functional block ‘User HVAC Display’ is used to indicate the following information:
- room temperature
- effective setpoints from room setpoint manager
- active setpoint from controller
- effective HVAC mode from room setpoint manager
- effective user HVAC mode from room setpoint manager
- active HVAC mode from controller
- heat/cool mode from controller
- outside temperatures

The selection out of these functions is company specific (cs) and even may be extended. This is possible without any company specific definitions as there are only inputs which are described at their source.

This functional block is used e.g. in a ‘Room Device’ or in a more complex device which has one ore some of these functions. It may be combined with the functional block 'User HVAC Room Settings' which is used for the setting of the corresponding information.

3.3.2 Functional specifications

The 'User HVAC Mode Setting' supports the following LTE zoning:
"Apartment . Room . SubZone"
"OutsideSensorZone"

Inputs

• TempOutside	One ore more outside temperatures from outside sensor zones.
• TempRoom	Room temperature.
• TempRoomSetpHeatEff	Effective room temperature setpoint for heating evaluated by the room setpoint manager. (see FB room setpoint manager [04])
• TempRoomSetpCoolEff	Effective room temperature setpoint for cooling evaluated by the room setpoint manager. (see FB room setpoint manager [04])
• TempRoomSetpAct	This is the setpoint which is active in the controller.
• HVACModeEff	The HVAC mode demanded by the room setpoint manager (see FB room setpoint manager [04]).
• HVACModeUserEff	The effective HVAC mode user internal and Bus information (see FB room setpoint manager [04]).
• HVACModeAct	The HVAC mode, the controller is working in (see controllers [09]).
• HeatCoolMode	This information indicates whether the controller is in the heating or in the cooling mode (see controllers [09]).

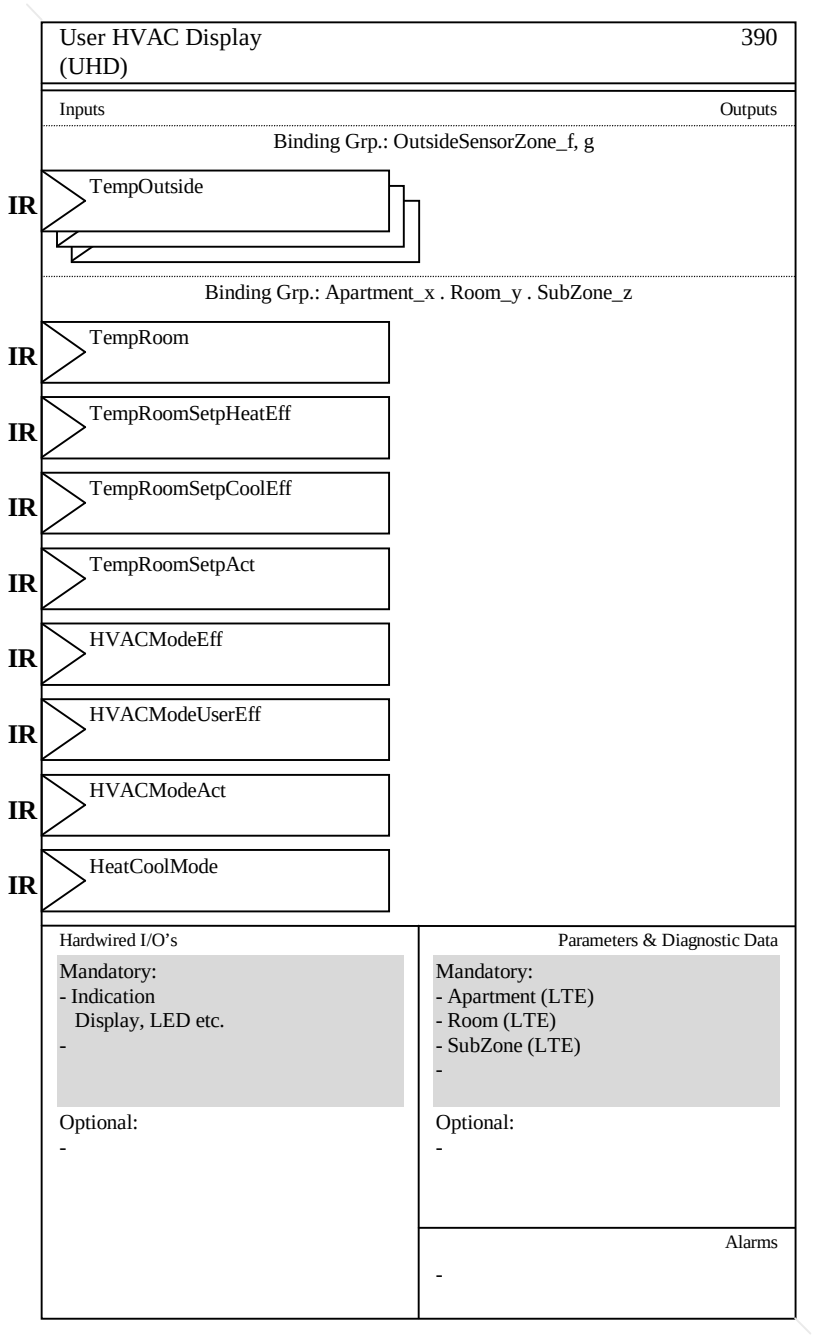
Binding Group (LTE)

• OutsideSensorZone	no special features
• Apartment . Room . SubZone	no special features

3.3.3 Constraints

None.

3.3.4 Functional Block diagram



3.3.5 Datapoint Description

Overview

Datapoints	Description / Remarks	Data Point Type	Additional Info
Inputs			
Temp Outside	Outside temperature actual value with: - COV and RepPer - Z_8 not supported from FB 'Outside Temperature Sensor'	LTE: 205.100 DPT_TempHVACAbs_Z $V_{16}Z_8$ S: 9.001 DPT_Value_Temp F_{16}	LTE: O [1)] S: (GO) °C
Temp Room	Room temperature actual value with: - COV and RepPer - Z_8 not supported from FB 'Room Temperature Sensor'	LTE: 205.100 DPT_TempHVACAbs_Z $V_{16}Z_8$ S: 9.001 DPT_Value_Temp F_{16}	LTE: O [1)] S: (GO) °C
Temp Room Setp Heat Eff	1 temperature value for heating for simple heating only applications with: - COV and RepPer - Z_8 not supported from FB 'Room Setpoint Manager HVAC Mode Driven' or 'Room Setpoint Manager Temperature Driven'	LTE: 205.100 DPT_TempHVACAbs_Z $V_{16}Z_8$ S: 9.001 DPT_Value_Temp F_{16}	LTE: O [1)] S: (GO) °C
Temp Room Setp Cool Eff	1 temperature value for cooling for simple cooling only applications with: - COV and RepPer - Z_8 not supported from FB 'Room Setpoint Manager HVAC Mode Driven' or 'Room Setpoint Manager Temperature Driven'	LTE: 205.100 DPT_TempHVACAbs_Z $V_{16}Z_8$ S: 9.001 DPT_Value_Temp F_{16}	LTE: O [1)] S: (GO) °C
Temp Room Setp Act	Active room temperature setpoint with: - COV and RepPer - Z_8 not supported from FB various controllers	LTE: 205.100 DPT_TempHVACAbs_Z $V_{16}Z_8$ S: 9.001 DPT_Value_Temp F_{16}	LTE: O [1)] S: (GO) °C
HVAC Mode Eff	Effective HVAC Mode with: - COV and RepPer - Z_8 not supported from FB Room Setpoint Manager HVAC Mode Driven	LTE: 201.100 DPT_HVACMode_Z N_8Z_8 S: 20.102 DPT_HVACMode N_8	LTE: O [1)] S: (GO) 0 = NA 1 = Comfort 2 = Standby 3 = Economy 4 = Building Protection
HVAC Mode User Eff	Effective user HVAC Mode with: - COV and RepPer - Z_8 not supported from FB Room Setpoint Manager HVAC Mode Driven	LTE: 201.100 DPT_HVACMode_Z N_8Z_8 S: 20.102 DPT_HVACMode	LTE: O [1)] S: (GO) 0 = Auto 1 = Comfort 2 = Standby 3 = Economy

Datapoints	Description / Remarks	Data Point Type	Additional Info
		N_8	4 = Building Protection
HVAC Mode Act	Active HVAC Mode with: - COV and RepPer - Z_8 not supported from FB various TU controllers	LTE: 201.100 DPT_HVACMode_Z N_8Z_8 S: 20.102 DPT_HVACMode N_8	LTE: O [1)] S: (GO) 0 = NA 1 = Comfort 2 = Standby 3 = Economy 4 = Building Protection
Heat Cool Mode	Status heating or cooling with: - Standard COV and RepPer from FB: various TU controllers	LTE: 1.100 DPT_Heat/Cool B_1 S: 1.100 DPT_Heat/Cool B_1	LTE: O [1)] S: (GO) 0 = cooling 1 = heating
Parameters			
Outside Sensor Zone	LTE zoning number for Outside Sensor Zone	202.002 DPT_UcountValue8_Z U_8Z_8	O 1
Apartment	LTE zoning number for Apartment	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Room	LTE zoning number for Room	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
SubZone	LTE zoning number for SubZone	202.002 DPT_UcountValue8_Z U_8Z_8	M 1

1) at least one of these functions has to be implemented (cs)

UHD Runtime Interworking - Dependence on Configuration Modes

			STANDARD MODE	EXTENDED MODE	
		Basic FB	S-Mode	Standard Mode Interface	HEE
Inputs	TempOutside	**(GO)$_b$**		(GO)	**O**
	TempRoom	**(GO)$_b$**		(GO)	**O**
	TempRoomSetpHeatEff	**(GO)$_b$**		(GO)	**O**
	TempRoomSetpCoolEff	**(GO)$_b$**		(GO)	**O**
	TempRoomSetpAct	**(GO)$_b$**		(GO)	**O**
	HVACModeEff	**(GO)$_b$**		(GO)	**O**
	HVACModeUserEff	**(GO)$_b$**		(GO)	**O**
	HVACModeAct	**(GO)$_b$**		(GO)	**O**
	HeatCoolMode	**(GO)$_b$**		(GO)	**O**

UHD LTE specific Properties

		Support
Parameter	OutsideSensorZone	**O**
	Apartment	**M**
	Room	**M**
	SubZone	**M**

UHD Standard Properties of Interface Objects (or memory mapped DP)

		Support
Parameter		

3.3.6 Detailed Specification of the Datapoints

3.3.6.1 Input TempOutside

Standard Mode:

DP Name:	TempOutside		Abbr.:	---		Mandatory	☐
FB Name:	UHD					Can be internal	☐
Description							
This information is provided by the functional block 'Outside Temperature Sensor'.							
Datapoint Type							
DPT_Name:	DPT_Value_Temp						
DPT Format:	F_{16}			DPT_ID:	9.001		
Field	Description			Supp.	Range	Unit	Default
					full	°C	cs
Access Type							
♦ Input							
N → this	☐	1 → this	☒				
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)		
Request	☐	Polling:	☐	Period:			
Communication Type							
♦ Group Object Datapoint					Mandatory:	☒	
Default Group Address:	---						
Dynamics							
Power down:	Save:	☐					
Power up:	Value:	No initialisation:	☐	Default value:	☒		
		Saved value:	☐		☐		
			☐	Read from bus:	☐		
Exception Handling							

Special Features							

LTE-HEE Mode:

FB: **UHD**	**LTE Client Input Name:** **TempOutside**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Outside Temperature Sensor'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_TempHVACAbs_Z	DPT ID	205.100	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Unit	Default
Temperature	Outside temperature value		°C.	cs
STATUS	Bitset			
Bit 0 - OutOfService	Sensor out of service	M	t/f	false
Bit 1 - Fault	Sensor value is corrupted	M	t/f	false
Bit 2 - Overridden	Sensor is temporarily overridden	O	t/f	false
Bit 3 - InAlarm	Sensor is in alarm	O	t/f	false
Bit 4 - AlarmUnAck	Acknowledgement of alarm	O	t/f	false
all other bits	reserved	NA		

Communication:

Binding Group:

Class	Type	Default
Geographical ☐		
Application Specific ☒	OutsideSensorZone	1
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	320 (OTS)	Property ID:	51
LTE-Service (event):	InfoReport Sniffer on Binding Group:	--		
InfoReport ☒	Timeout:	31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:	--		

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

3.3.6.2 Input TempRoom

Standard Mode:

DP Name:	TempRoom	Abbr.:	---	Mandatory	☐
FB Name:	UHD			Can be internal	☐

Description

This information is provided by the functional block 'Room Temperature Sensor'.

Datapoint Type

DPT_Name:	DPT_Value_Temp				
DPT Format:	F_{16}	DPT_ID:	9.001		
Field	Description	Supp.	Range	Unit	Default
			full	°C	cs

Access Type

♦ Input

N → this	☐	1 → this	☒			
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)	
Request	☐	Polling:	☐	Period:		

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UHD**	**LTE Client Input Name:** **TempRoom**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Room Temperature Sensor'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_TempHVACAbs_Z	DPT ID	205.100	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Unit	Default
Temperature	Room temperature value		°C.	cs
STATUS	Bitset			
Bit 0 - OutOfService	Sensor out of service	M	t/f	false
Bit 1 - Fault	Sensor value is corrupted	M	t/f	false
Bit 2 - Overridden	Sensor is temporarily overridden	O	t/f	false
Bit 3 - InAlarm	Sensor is in alarm	O	t/f	false
Bit 4 - AlarmUnAck	Acknowledgement of alarm	O	t/f	false
all other bits	reserved	NA		

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	321 (RTS)	Property ID:	51
LTE-Service (event):	InfoReport Sniffer on Binding Group:		--	
InfoReport ☒	Timeout:	31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:		--	

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

3.3.6.3 Input TempRoomSetpHeatEff

Standard Mode:

DP Name:	TempRoomSetpHeatEff	Abbr.:	---	Mandatory	☐
FB Name:	UHD			Can be internal	☐

Description

This information is provided by the functional block 'Room Setpoint Manager'.

Datapoint Type

DPT_Name:	DPT_Value_Temp				
DPT Format:	F_{16}	DPT_ID:	9.001		
Field	Description	Supp.	Range	Unit	Default
			full	°C	cs

Access Type

♦ Input

N → this	☐	1 → this	☒			
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)	
Request	☐	Polling:	☐	Period:		

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UHD**	**LTE Client Input Name:** **TempRoomSetpHeatEff**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Room Setpoint Manager'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_TempHVACAbs_Z	DPT ID	205.100	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Unit	Default
Temperature	Heating temperature setpoint value		°C.	cs
STATUS	Bitset			
Bit 0 - OutOfService	Sensor out of service	M	t/f	false
Bit 1 - Fault	Sensor value is corrupted	M	t/f	false
Bit 2 - Overridden	Sensor is temporarily overridden	O	t/f	false
Bit 3 - InAlarm	Sensor is in alarm	O	t/f	false
Bit 4 - AlarmUnAck	Acknowledgement of alarm	O	t/f	false
all other bits	reserved	NA		

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	100 (RSMHD) 101 (RSMTD)	Property ID:	55 51
LTE-Service (event):	InfoReport Sniffer on Binding Group:		--	
InfoReport ☒	Timeout:	31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:		--	

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

3.3.6.4 Input TempRoomSetpCoolEff

Standard Mode:

DP Name:	TempRoomSetpCoolEff	Abbr.:	---	Mandatory	☐
FB Name:	UHD			Can be internal	☐

Description

This information is provided by the functional block 'Room Setpoint Manager'.

Datapoint Type

DPT_Name:	DPT_Value_Temp				
DPT Format:	F_{16}	DPT_ID:	9.001		
Field	Description	Supp.	Range	Unit	Default
			full	°C	cs

Access Type

♦ Input

N → this	☐	1 → this	☒			
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)	
Request	☐	Polling:	☐	Period:		

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UHD**	**LTE Client Input Name:** **TempRoomSetpCoolEff**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Room Setpoint Manager'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_TempHVACAbs_Z	DPT ID	205.100	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Unit	Default
Temperature	Cooling temperature setpoint value		°C.	cs
STATUS	Bitset			
Bit 0 - OutOfService	Sensor out of service	M	t/f	false
Bit 0 - Fault	Sensor value is corrupted	M	t/f	false
Bit 0 - Overridden	Sensor is temporarily overridden	O	t/f	false
Bit 0 - InAlarm	Sensor is in alarm	O	t/f	false
Bit 0 - AlarmUnAck	Acknowledgement of alarm	O	t/f	false
all other bits	reserved	NA		

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	100 (RSMHD) 101 (RSMTD)	Property ID:	56 53
LTE-Service (event):	InfoReport Sniffer on Binding Group:		--	
InfoReport ☒	Timeout:	31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:		--	

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

3.3.6.5 Input TempRoomSetpAct

Standard Mode:

DP Name:	TempRoomSetpAct	Abbr.:	---	Mandatory	☐
FB Name:	UHD			Can be internal	☐

Description

This information is provided by various controller functional blocks.

Datapoint Type

DPT_Name:	DPT_Value_Temp				
DPT Format:	F_{16}	DPT_ID:	9.001		
Field	Description	Supp.	Range	Unit	Default
			full	°C	cs

Access Type

♦ Input

N → this	☐	1 → this	☒		
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)
Request	☐	Polling:	☐	Period:	

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UHD**	**LTE Client Input Name:** **TempRoomSetpAct**	Mandatory ☐ Optional ☒

Description:

This information is provided by various controller functional blocks.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_TempHVACAbs_Z	DPT ID	205.100	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Unit	Default
Temperature	Temperature setpoint value		°C.	cs
STATUS	Bitset			
Bit 0 - OutOfService	Sensor out of service	M	t/f	false
Bit 0 - Fault	Sensor value is corrupted	M	t/f	false
Bit 0 - Overridden	Sensor is temporarily overridden	O	t/f	false
Bit 0 - InAlarm	Sensor is in alarm	O	t/f	false
Bit 0 - AlarmUnAck	Acknowledgement of alarm	O	t/f	false
all other bits	reserved	NA		

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:

IO Type(ID):		Property ID:	
	258 (FCC) 259 (WHPC) 260 (SPUC) 257 (RCCRC) 256 (RRCTU) 261 (VAVCDA)		153
	160 (HZC) 167 (HIRC)		53
	240 (AHUC)		55

LTE-Service (event):	InfoReport Sniffer on Binding Group: --
InfoReport ☒	Timeout: 31 Min
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group: --

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

3.3.6.6 Input HVACModeEff

Standard Mode:

DP Name:	HVACModeEff	Abbr.:	---	Mandatory	☐
FB Name:	UHD			Can be internal	☐

Description

This information is provided by the functional block 'Room Setpoint Manager HVAC Mode Driven'.

Datapoint Type

DPT_Name:	DPT_HVACMode				
DPT Format:	N_8	DPT_ID:	20.102		
Field	Description	Supp.	Range	Unit	Default
HVAC Mode			1...4	enum.	cs
	0 = Auto	NA			
	1 = Comfort	M			
	2 = Standby	M			
	3 = Economy	M			
	4 = Building Protection	M			
	all other enumerations	NA			

Access Type

♦ Input

N → this	☐	1 → this	☒			
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)	
Request	☐	Polling:	☐	Period:		

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UHD**	**LTE Client Input Name:** **HVACModeEff**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Room Setpoint Manager HVAC Mode Driven'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_HVACMode_Z	DPT ID	201.100	Datatype format	N_8Z_8

Field	Description	Sup.	Unit	Default
HVACMode			1...4	cs
	0 = Auto	NA		
	1 = Comfort	M		
	2 = Standby	M		
	3 = Economy	M		
	4 = Building Protection	M		
	all other enumeration	NA		
STATUS	Bitset			
Bit 0 - OutOfService	Sensor out of service	M	t/f	false
Bit 0 - Fault	Sensor value is corrupted	M	t/f	false
Bit 0 - Overridden	Sensor is temporarily overridden	O	t/f	false
Bit 0 - InAlarm	Sensor is in alarm	O	t/f	false
Bit 0 - AlarmUnAck	Acknowledgement of alarm	O	t/f	false
all other bits	reserved	NA		

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID): 100 (RSMHD)	Property ID:	51
LTE-Service (event):	InfoReport Sniffer on Binding Group:	--	
InfoReport ☒	Timeout: 31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:	--	

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

3.3.6.7 Input HVACModeUserEff

Standard Mode:

DP Name:	HVACModeUserEff	Abbr.:	---	Mandatory	☐
FB Name:	UHD			Can be internal	☐

Description

This information is provided by the functional block 'Room Setpoint Manager HVAC Mode Driven'.

Datapoint Type

DPT_Name:	DPT_HVACMode				
DPT Format:	N_8	DPT_ID:	20.102		
Field	Description	Supp.	Range	Unit	Default
HVAC Mode			1...4	enum.	cs
	0 = Auto	M			
	1 = Comfort	M			
	2 = Standby	M			
	3 = Economy	M			
	4 = Building Protection	M			
	all other enumerations	NA			

Access Type

♦ Input

N → this	☐	1 → this	☒		
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)
Request	☐	Polling:	☐	Period:	

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UHD**	**LTE Client Input Name:** **HVACModeUserEff**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Room Setpoint Manager HVAC Mode Driven'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_HVACMode_Z	DPT ID	201.100	Datatype format	N_8Z_8

Field	Description	Sup.	Unit	Default
HVACMode			1...4	cs
	0 = Auto	M		
	1 = Comfort	M		
	2 = Standby	M		
	3 = Economy	M		
	4 = Building Protection	M		
	all other enumeration	NA		
STATUS	Bitset			
Bit 0 - OutOfService	Sensor out of service	M	t/f	false
Bit 0 - Fault	Sensor value is corrupted	M	t/f	false
Bit 0 - Overridden	Sensor is temporarily overridden	O	t/f	false
Bit 0 - InAlarm	Sensor is in alarm	O	t/f	false
Bit 0 - AlarmUnAck	Acknowledgement of alarm	O	t/f	false
all other bits	reserved	NA		

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	100 (RSMHD)	Property ID:	57
LTE-Service (event): InfoReport ☒	InfoReport Sniffer on Binding Group:		--	
	Timeout:	31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:		--	

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

3.3.6.8 Input HVACModeAct

Standard Mode:

DP Name:	HVACModeAct	Abbr.:	---	Mandatory	☐
FB Name:	UHD			Can be internal	☐

Description

This information is provided by various controller functional blocks.

Datapoint Type

DPT_Name:	DPT_HVACMode		
DPT Format:	N_8	DPT_ID:	20.102

Field	Description	Supp.	Range	Unit	Default
HVAC Mode			1...4	enum.	cs
	0 = Auto	NA			
	1 = Comfort	M			
	2 = Standby	M			
	3 = Economy	M			
	4 = Building Protection	M			
	all other enumerations	NA			

Access Type

♦ Input

N → this	☐	1 → this	☒			
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)	
Request	☐	Polling:	☐	Period:		

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UHD**	**LTE Client Input Name:** **HVACModeAct**	Mandatory ☐ Optional ☒

Description:

This information is provided by various controller functional blocks.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_HVACMode_Z	DPT ID	201.100	Datatype format	N_8Z_8

Field	Description	Sup.	Unit	Default
HVACMode			1...4	cs
	0 = Auto	NA		
	1 = Comfort	M		
	2 = Standby	M		
	3 = Economy	M		
	4 = Building Protection	M		
	all other enumeration	NA		
STATUS	Bitset			
Bit 0 - OutOfService	Sensor out of service	M	t/f	false
Bit 0 - Fault	Sensor value is corrupted	M	t/f	false
Bit 0 - Overridden	Sensor is temporarily overridden	O	t/f	false
Bit 0 - InAlarm	Sensor is in alarm	O	t/f	false
Bit 0 - AlarmUnAck	Acknowledgement of alarm	O	t/f	false
all other bits	reserved	NA		

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:

IO Type(ID):		Property ID:	
	258 (FCC) 259 (WHPC) 260 (SPUC) 257 (RCCRC) 256 (RRCTU) 261 (VAVCDA)		152
	160 (HZC)		52
	167 (HIRC) 224 (CZC) 240 (AHUC)		54

LTE-Service (event):	InfoReport Sniffer on Binding Group:	--
InfoReport ☒	Timeout: 31 Min	
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:	--

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

3.3.6.9 Input HeatCoolMode

Standard Mode:

DP Name:	HeatCoolMode	Abbr.:	---	Mandatory	☐
FB Name:	UHD			Can be internal	☐

Description

This information is provided by various controller functional blocks.

Datapoint Type

DPT_Name:	DPT_Hheat/Cool		
DPT Format:	B_1	DPT_ID:	1.100

Field	Description	Supp.	Range	Unit	Default
Heat/Cool Mode			0 / 1	Bit	cs
	0 = cooling	M			
	1 = heating	M			

Access Type

♦ Input

N → this	☐	1 → this	☒			
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)	
Request	☐	Polling:	☐	Period:		

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB:	**UHD**	**LTE Client Input Name:**	**HeatCoolMode**				Mandatory ☐ Optional ☒	
Description:								
This information is provided by various controller functional blocks.								
DPT:	Name	DPT_Heat/Cool	DPT ID	1.100	Datatype format	B_1		
Field		Description				Sup.	Unit	Default
HeatCoolMode		0 = cooling 1 = heating				M M	Bit	cs
Communication:								
Binding Group:								
Class		Type			Default			
Geographical ☒		Apartment . Room . SubZone			1.1.1			
Application Specific ☐								
Peripheral ☐		Broadcast ☐	Configurable ☐					
DP Address:		IO Type(ID):	258 (FCC) 259 (WHPC) 260 (SPUC) 257 (RCCRC) 261 (VAVCDA)		Property ID:	151		
LTE-Service (event):		InfoReport Sniffer on Binding Group:			--			
InfoReport ☒		Timeout:	31 Min					
LTE-Service (polling): Read – Response ☐		Read Wildcard / Resp Sniffer on Binding Group:			--			
Value after Power-up:		Default Value ☒				Stored Value ☐		
Exception Handling:						Save at Powerdown ☐		

Special Features:								

3.3.6.10 Parameter Apartment

FB: UHD	Property Name (Server): Apartment	Mandatory ☒ Optional ☐

Description:

Number of the apartment zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the apartment zone		(0) 1...126		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	390 (UHD)	Property ID:	101
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
If Apartment is 'OutOfService' Room and SubZone automatically are 'OutOfService'

3.3.6.11 Parameter Room

FB: UHD	Property Name (Server): Room	Mandatory ☒ Optional ☐

Description:

Number of the room zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the room zone		(0) 1...63		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	390 (UHD)	Property ID:	102
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.3.6.12 Parameter SubZone

FB: UHD	Property Name (Server): SubZone	Mandatory ☒ Optional ☐

Description:

Number of the sub zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		(0) 1...15		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	390 (UHD)	Property ID:	103
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.3.6.13 Parameter OutsideSensorZone

FB: UHD	Property Name (Server): OutsideSensorZone	Mandatory ☐ Optional ☒

Description:

Number of the outside sensor zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the Outside Sensor Zone		(0) 1...31		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	390 (UHD)	Property ID:	104
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

The device is not LTE communicating in this zone if zone is 'OutOfService'.

3.4 User Presence Switch (UPS)

3.4.1 Aims and objectives

The functional block ‘User Presence Switch’ provides the system with the presence information manually entered at a HMI device.
(see also 'Presence Detector' (PRD) [01])

This functional block is used e.g. in a ‘HMI Device’ or in a more complex device which has the corresponding setting functionality.

3.4.2 Functional specification

The information is transmitted spontaneously at each change.

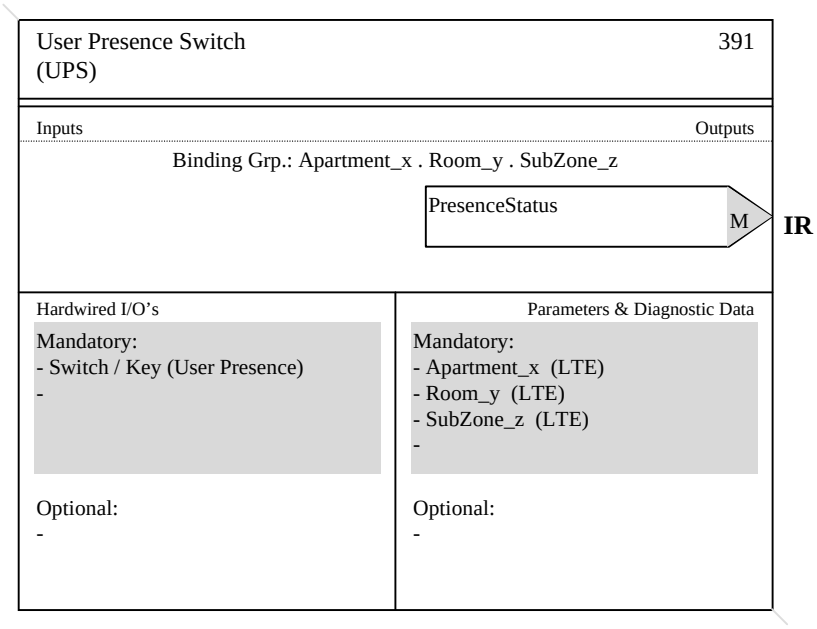
Outputs

- PresenceStatus — This output provides a manually set presence status to the system.

3.4.3 Constraints

None.

3.4.4 Functional Block diagram



3.4.5 Datapoints description

Overview

Datapoints	Description / Remarks	Data Point Type	Additional Info
Outputs			
Presence Status	Presence status with: - COV and RepPer to FB Room Setpoint Manager and various controllers	LTE: 1.018 DPT_Occupancy B_1 S: 1.018 DPT_Occupancy B_1	LTE: M S: GO 0 = not occupied 1 = occupied
Parameters			
Apartment	LTE zoning number for Apartment	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Room	LTE zoning number for Room	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
SubZone	LTE zoning number for SubZone	202.002 DPT_UcountValue8_Z U_8Z_8	M 1

UPS Runtime Interworking - Dependence on Configuration Modes

			STANDARD MODE	EXTENDED MODE	
		Basic FB	**S-Mode**	**Standard Mode Interface**	**HEE**
Inputs					
Outputs	PresenceStatus	**GO_b**	GO	GO	**M**

UPS LTE specific Properties

		Support
Parameter	Apartment_x	**M**
	Room_y	**M**
	SubZone_z	**M**

UPS Standard Properties of Interface Objects (or memory mapped DP)

		Support
Parameter		

3.4.6 Detailed Specification of the Datapoints

3.4.6.1 Output PresenceStatus

Standard Mode:

DP Name:	PresenceStatus			Abbr.:	---			Mandatory	☒		
FB Name:	UPS							Can be internal	☐		
Description											
This output is delivered to the room setpoint manager.											
Datapoint Type											
DPT_Name:	DPT_Occupancy										
DPT Format:	B_1					DPT_ID:	1.018				
Field	Description					Supp.	Range		Unit	Default	
							bool			cs	
Access Type											
♦ Output											
this → M	☒		this → 1	☐							
Spontaneous	☒	COV:	☒	Delta-Value:	---	MinRepTime:	0 s [1]				
		Cyclic	☐	Period:	15 min (recommended value)						
Request	☒										
Communication Type											
♦ Group Object Datapoint								Mandatory:	☒		
Default Group Address:	---										
Dynamics											
Power down:	Save:	☐									
Power up:	Value:	No initialisation:	☐			Default value:	☐				
		Saved value:	☐			Actual value:	☒				
	Transmit on bus:	☒					☐				
Exception Handling											

Special Features											
[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.											

LTE-HEE Mode:

FB: **UPS**	**LTE Server Output Name:** **PresenceStatus**	Mandatory ☒ Optional ☐

Description:

This output is delivered to the room setpoint manager.

DPT:	Name	DPT_Occupancy	DPT ID	1.018	Datatype format	B_1

Field	Description	Sup.	Range	Unit	COV	Default
			bool		yes	cs

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment. Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID): 391 (UPS)		Property ID: 51	
LTE-Services (event): InfoReport ☒	COV ☒	MinRepTime: 0 [1] sec	Heartbeat: 15 min	
	Output per default communicating ☐		Binding Group Wildcard allowed ☒	
	Tx Prio:	High ☐	Normal ☒	Low ☐
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐	Act Value ☒	Default Value ☐	
Property-Service (individual access):	Read only ☐	Read/Write ☒		

Exception Handling: Save at Powerdown ☐

Special Features:

[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

3.4.6.2 Parameter Apartment

FB: UPS	Property Name (Server): Apartment	Mandatory ☒ Optional ☐

Description:

Number of the apartment zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the apartment zone		(0) 1...126		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	391 (UPS)	Property ID:	101
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
If Apartment is 'OutOfService' Room and SubZone automatically are 'OutOfService'

3.4.6.3 Parameter Room

FB: UPS	Property Name (Server): Room	Mandatory ☒ Optional ☐

Description:

Number of the room zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the room zone		(0) 1...63		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	391 (UPS)	Property ID:	102
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.4.6.4 Parameter SubZone

FB: UPS	Property Name (Server): SubZone	Mandatory ☐ Optional ☒

Description:

Number of the sub zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		(0) 1...15		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	391 (UPS)	Property ID:	103
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.5 User Fan Speed Setting (UFS)

3.5.1 Aims and objectives

The functional block ‘User Fan Speed Setting’ acquires the user fan speed and provides it to the system.

This functional block is used e.g. in a ‘HMI Device’ or in a more complex device which has the user fan speed setting functionality.
This functional block enables the user to modify the fan speed e.g. to improve the acoustic comfort (reducing speed).

Setting is possible e.g. by means of a rotary switch or keys.
E.g. the choice is ‘AUTOMATIC’, 0, 1, 2, 3.

For feedback purposes an indication is possible. It is also possible to realise an only indication device.

In the Easy Mode it supports the following Binding Groups:
"Apartment; Room; SubZone"
"General Peripheral Tag"

3.5.2 Functional specifications

The speed is given in %. For step switching, the 100% are divided by the number of steps. 100 steps means continuous fan speed. 0% is OFF, +100% is full speed.

The information is transmitted spontaneously at each change.

Optional features in LTE Mode:
- Faults in the functional block may be detected and reported.
- The value may temporary be overridden by means of a tool for service purposes.
  The ‘Overridden’ condition must be reported.
- The HMI may be set / reset out of service by means of a tool for service purposes.

Inputs

• FanSpeed	This percent value originates from the actuator and can be converted to the step or directly be indicated.
• FanStep	This input is used if an actuators directly sends the step information.

Outputs

• FanSpeedUser	This value is delivered to the controller in order to manually override the fan speed, or to release the control of the fan to the controller (AUTOMATIC). In S-Mode the information Automatic / Manually is transmitted separately.
• FanManual	S-Mode information for Automatic / Manually.

Binding Groups (LTE)

• Apartment . Room . SubZone GenPeripheral	This HMI can be used in different applications. For this reason different binding possibilities are offered. It is even possible to have more than one binding group active. The binding groups that shall not be active have to be set to out of service. Not all possibilities have to be realised. See Detailed Specification of the Datapoints 3.5.6.

Parameters

- NumberOfSteps

  This parameter defines the number of steps of the HMI.
  100% is divided by the number of steps. e.g. for 3 steps:
  Step 0 = 0% (with DPT_Scaling: 00h)
  Step 1 = 33% (with DPT_Scaling: 85h = 33.33%)
  Step 2 = 67% (with DPT_Scaling: AAh = 66.67%) [1]
  Step 3 = 100% (with DPT_Scaling: FFh)
  This parameter is optional. This means that the number of steps may be fix defined for a device.

- FanSpeedMin

  Minimum fan speed limit for variable speed fan.

- FanSpeedMax

  Maximum fan speed limit for variable speed fan.

3.5.3 Constraints

None.

[1] 67% is rounded for DPTs encoding percent values with 1% resolution, e.g. DPT_Percent_U8 or DPT_RelValue_Z. For DPT_Scaling, nearest encoding of 67% would be 67.06% (=ABh), resulting in interpretation, by a 3-speed-receiver, as speed 3 instead of speed 2, see next page.

Interworking of devices with different number of steps

With the encoding as shown below, interworking of devices with different number of steps is possible [2]. Fan off is defined by value 0. A sender shall send a value near the higher limit of the step range, in order to stimulate highest speed according step ranges on receiver's side. Steps in between shall be interpreted to the best.

Sender (e.g. HMI) **Receiver (Controller)**

Single-Speed Single-Speed

%-value [3]	DPT_Scaling (5.001)	
	decimal	%
0	**0**	0.00
100	**255**	100.00

Speed
Off
I

%-value	DPT_Scaling (5.001)	
	decimal	%
0	**0**	0.00
1 - 100	**1 - 255**	0.39 - 100.00

2-Speed 2-Speed

%-value	DPT_Scaling	
	decimal	%
0	**0**	0.00
50	**128**	50.20
100	**255**	100.00

Speed
Off
I
II

%-value	DPT_Scaling	
	decimal	%
0	**0**	0.00
1 - 50	**1 - 128**	0.39 - 50.20
51 -100	**129 - 255**	50.59 - 100.00

3-Speed 3-Speed

%-value	DPT_Scaling	
	decimal	%
0	**0**	0.00
33	**85**	33.33
67 [4]	**170**	66.67
100	**255**	100.00

Speed
Off
I
II
III

%-value	DPT_Scaling	
	decimal	%
0	**0**	0.00
1 - 33	**1 - 85**	0.39 - 33.33
34 - 67	**86 - 170**	33.73- 66.67
68 -100	**171 - 255**	67.06 - 100.00

4-Speed 4-Speed

%-value	DPT_Scaling	
	decimal	%
0	**0**	0.00
25	**64**	25.10
50	**128**	50.20
75	**192**	75.29
100	**255**	100.00

Speed
Off
I
II
III
IV

%-value	DPT_Scaling	
	decimal	%
0	**0**	0.00
1-25	**1 - 64**	0.39 - 25.10
26 - 50	**65 - 128**	25.49 - 50.20
51 -75	**129 - 192**	50.59 - 75.29
76 -100	**193 - 255**	75.69 - 100.00

5-Speed 5-Speed

%-value	DPT_Scaling	
	decimal	%
0	**0**	0.00
20	**51**	20.00
40	**102**	40.00
60	**153**	60.00
80	**204**	80.00
100	**255**	100.00

Speed
Off
I
II
III
IV
V

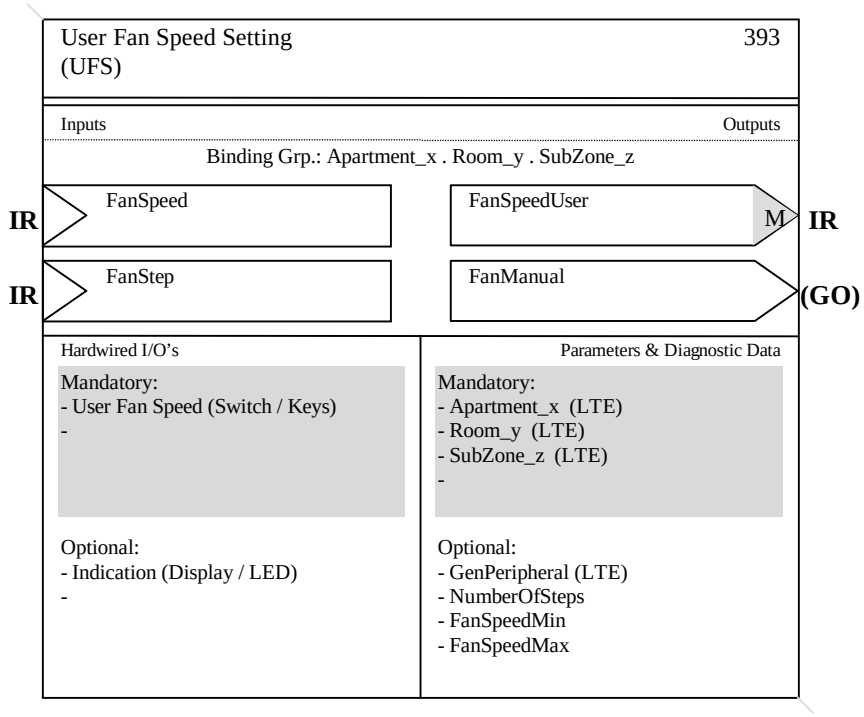
%-value	DPT_Scaling	
	decimal	%
0	**0**	0.00
1 - 20	**1 - 51**	0.39 - 20.00
21 - 40	**52 - 102**	20.39 - 40.00
41 - 60	**103 - 153**	40.39 - 60.00
61 - 80	**154 - 204**	60.39 - 80.00
81 -100	**205 - 255**	80.39 - 100.00

[2] not recommended, due to user-unfriendliness

[3] representation without any position after decimal point, as %-values may be used with DPTs 202.001 or 5.004

[4] needs attention (special handling) when tranformed to DPT_Scaling, see footnote on previous page

3.5.4 Functional Block diagram



3.5.5 Datapoints description

Overview

Datapoints	Description / Remarks	Data Point Type	Additional Info
Inputs			
Fan Speed	Active fan speed with: - COV and RepPer - Z_8 not supported from FB 'Fan Speed Actuator'	LTE: 202.001 DPT_RelValue_Z U_8Z_8 S: 5.001 DPT_Scaling U_8	LTE: O S: (GO) %
Fan Step	Active fan step with: - COV and RepPer - Z_8 not supported from FB 'Fan Speed Actuator'	LTE: 202.002 DPT_UcountValue8_Z U_8Z_8 S: 5.010 DPT_Value_1_Ucount U_8	LTE: O S: (GO) count
Outputs			
Fan Speed User	User fan speed with: - COV and RepPer - Z_8 STATUS and - Z_8 COMMAND supported to FB various controller	LTE: 202.001 DPT_RelValue_Z U_8Z_8 S: 5.001 DPT_Scaling U_8	LTE: M S: GO %
Fan Manual	HMI enable information with: - COV and RepPer to S-Mode	LTE: NA S: 1.003 DPT_Enable B_1	LTE: NA S: (GO) 0 = HMI disabled => Auto 1 = HMI enabled => Manual
Datapoints	**Description / Remarks**	**Data Point Type**	**Additional Info**
Parameters			
Apartment	LTE zoning number for Apartment	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Room	LTE zoning number for Room	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
SubZone	LTE zoning number for SubZone	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Gen Peripheral	LTE zoning number for general peripheral	203.012 DPT_UcountValue16_Z $U_{16}Z_8$	O 1
Number Of Steps	Number of steps of the HMI	5.010 DPT_Value_1_Ucount U_8	O cs
Fan Speed Min	Min value for variable fan speed	202.001 [1)] DPT_RelValue_Z U_8Z_8	O cs %
Fan Speed Max	Max value for variable fan speed	202.001 [1)] DPT_RelValue_Z U_8Z_8	O cs %

[1)] Implementation of Properties using standard DPT see chapter 1.3.2

UFS Runtime Interworking - Dependence on Configuration Modes

			STANDARD MODE	EXTENDED MODE	
		Basic FB	S-Mode	Standard Mode Interface	HEE
Inputs	FanSpeed	**(GO_b)**		(GO)	**O**
	FanStep	**(GO_b)**		(GO)	**O**
Outputs	FanSpeedUser	**GO_b**	GO	GO	**M**
	FanManual	**(GO_b)**		(GO)	**NA**

UFS LTE specific Properties

		Support
Parameter	Apartment	**M**
	Room	**M**
	SubZone	**M**
	GenPeripheral	**O**

UFS Standard Properties of Interface Objects (or memory mapped DP)

		Support
Parameter	NumberOfSteps	**O**
	FanSpeedMin	**O**
	FanSpeedMax	**O**

3.5.6 Detailed Specification of the Datapoints

3.5.6.1 Input: FanSpeed

Standard Mode:

DP Name:	FanSpeed	Abbr.:	---	Mandatory	☐
FB Name:	UFS			Can be internal	☐

Description

This input is provided by the fan speed actuator and indicates the fan speed.

Datapoint Type

DPT_Name:	DPT_Scaling				
DPT Format:	U_8	DPT_ID:	5.001		
Field	Description	Supp.	Range	Unit	Default
			0..100 *)	%	cs

Access Type

♦ Input

N → this	☐	1 → this	☒		
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)
Request	☐	Polling:	☐	Period:	

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

*) The coding of the actuator setpoint value is: 0% → 0 100% → 255

LTE-HEE Mode:

FB: **UFS**	**LTE Client Input Name:**	**FanSpeed**				Mandatory ☐ Optional ☒
Description:						
This input is provided by the fan speed actuator and indicates the fan speed.						
DPT: Name	DPT_RelValue_Z	DPT ID	202.001	Datatype format	U_8Z_8	

Field	Description	Sup.	Unit	Default
Value	Fan speed value		%.	cs
STATUS - all bits	Not supported	NA		

Communication:				
Binding Group:				
Class	Type		Default	
Geographical ☒	Apartment . Room . SubZone		1.1.1 [1)]	
Application Specific ☐				
Peripheral ☒	Broadcast ☐	Configurable ☒	1 [1)]	
DP Address:	IO Type(ID): 372 (FSA)		Property ID: 55	
LTE-Service (event):	InfoReport Sniffer on Binding Group:		--	
InfoReport ☒	Timeout: 31 Min			
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:		--	
Value after Power-up:	Default Value ☒		Stored Value ☐	
Exception Handling:			Save at Powerdown ☐	

[1)] This binding feature is optional

Special Features:

[1)] This HMI-Input can be used in different applications. The binding groups that shall not be active have to be set to out of service. Not all possibilities have to be realised.

3.5.6.2 Input: FanStep

Standard Mode:

DP Name:	FanStep	Abbr.:	---	Mandatory	☐
FB Name:	UFS			Can be internal	☐

Description

This input is provided by the fan speed actuator and indicates the fan step.

Datapoint Type

DPT_Name:	DPT_Value_1_Ucount				
DPT Format:	U_8	DPT_ID:	5.010		
Field	Description	Supp.	Range	Unit	Default
			full	count	cs

Access Type

♦ Input

N → this	☐	1 → this	☒				
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)		
Request	☐	Polling:	☐	Period:			

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UFS**	**LTE Client Input Name:** **FanStep**	Mandatory ☐ Optional ☒

Description:

This input is provided by the fan speed actuator and indicates the fan step.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Unit	Default
Value	Fan step	M	Count	cs
STATUS - all bits	Not supported	NA		

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1 [1]
Application Specific ☐		
Peripheral ☒	Broadcast ☐ Configurable ☒	1 [1]

DP Address:	IO Type(ID):	372 (FSA)	Property ID:	56
LTE-Service (event): InfoReport ☒	InfoReport Sniffer on Binding Group:		--	
	Timeout:	31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:		--	

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

[1] This binding feature is optional

Special Features:

[1] This HMI-Input can be used in different applications. The binding groups that shall not be active have to be set to out of service. Not all possibilities have to be realised.

3.5.6.3 Output: FanSpeedUser

Standard Mode:

DP Name:	FanSpeedUser			Abbr.:	---			Mandatory	☒		
FB Name:	UFS							Can be internal	☐		
Description											
This Output contains the value for the fan speed.											
Datapoint Type											
DPT_Name:	DPT_Scaling										
DPT Format:	U_8					DPT_ID:	5.001				
Field	Description					Supp.	Range		Unit	Default	
							0...100 *)		%	cs	
Access Type											
♦ Output											
this → M	☒	this → 1	☐								
Spontaneous	☒	COV:	☒	Delta-Value:	2	MinRepTime:	0 s 1)				
		Cyclic	☐	Period:	--- 2)						
Request	☒										
Communication Type											
♦ Group Object Datapoint							Mandatory:	☒			
Default Group Address:	---										
Dynamics											
Power down:	Save:	☐									
Power up:	Value:	No initialisation:	☐	Default value:	☐						
		Saved value:	☐	Actual value:	☒						
	Transmit on bus:	☒			☐						
Exception Handling											

Special Features											

*) The coding of the actuator setpoint value is: 0% → 0 100% → 255

1) The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

2) See controller FB, no Heartbeat due to compatibility with existing EIB products.

LTE-HEE Mode:

FB: **UFS**	**LTE Server Output Name:** **FanSpeedUser**	Mandatory ☒ Optional ☐

Description:

This Output contains the value for the fan speed.

DPT:	Name	DPT_RelValue_Z	DPT ID	202.001	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	COV	Default
Value	Fan speed value		Full Range	%	1	cs
STATUS	For LTE-Service InfoReport and Property-Service Response only			Bitset		
Bit 0 - OutOfService	HMI value is out of service => AUTOMATIC	O	true/false		Y	false
Bit 1 - Fault	HMI value is corrupted	O	true/false		Y	false
Bit 2 - Overridden	HMI is temporarily overridden	O	true/false		Y	false
Bit 3 - InAlarm	HMI is in alarm	O	true/false		Y	false
Bit 4 - AlarmUnAck	Acknowledgement of alarm	O	true/false		Y	false
all other bits	reserved	NA				

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment. Room . SubZone	1.1.1 [3]
Application Specific ☐		
Peripheral ☒	Broadcast ☐ Configurable ☒	1 [3]

DP Address:	IO Type(ID): 393 (UFS)	Property ID: 51		
LTE-Services (event):	COV ☒	MinRepTime: 0 [2] sec	Heartbeat: 15 min	
InfoReport ☒	Output per default communicating ☐	Binding Group Wildcard allowed ☒		
	Tx Prio: High ☐	Normal ☒	Low ☐	
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐	Act Value ☒	Default Value ☐	
Property-Service (individual access):	Read only ☐	Read/Write ☒		

Exception Handling: Save at Powerdown ☐

[1] This binding feature is optional

Special Features:

[2] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

[3] This HMI output can be used in different applications. The binding groups that shall not be active have to be set to out of service. Not all possibilities have to be realised.

3.5.6.4 Output FanManual

LTE-HEE Mode: NA

Standard Mode:

DP Name:	FanManual	Abbr.:	---	Mandatory	☐
FB Name:	UFS			Can be internal	☐

Description

This Output contains the 'AUTOMATIC' information for the user fan speed.

Datapoint Type

DPT_Name:	DPT_Enable				
DPT Format:	B_1	DPT_ID:	1.003		
Field	Description	Supp.	Range	Unit	Default
Bit	0 = disabled ➔ AUTOMATIC 1 = enabled ➔ manual = HMI value is valid		0 / 1	Bit	cs

Access Type

♦ Output

this → M	☒	this → 1	☐				
Spontaneous	☒	COV:	☒	Delta-Value:	2	MinRepTime:	0 s [1]
		Cyclic	☐	Period:	--- [2]		
Request	☒						

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☐
		Saved value:	☐	Actual value:	☒
	Transmit on bus:	☒			☐

Exception Handling

Special Features

[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

[2] See controller FB, no Heartbeat due to compatibility with existing EIB products.

3.5.6.5 Parameter: Apartment

FB: UFS	Property Name (Server): Apartment	Mandatory ☒ Optional ☐

Description:

Number of the apartment zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the apartment zone		(0) 1...126		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	393 (UFS)	Property ID:	101
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
If Apartment is 'OutOfService' Room and SubZone automatically are 'OutOfService'

3.5.6.6 Parameter: Room

FB: UFS	Property Name (Server): Room	Mandatory ☒ Optional ☐

Description:

Number of the room zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the room zone		(0) 1...63		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	393 (UFS)	Property ID:	102
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.5.6.7 Parameter SubZone

FB: UFS	Property Name (Server): SubZone	Mandatory ☒ Optional ☐

Description:

Number of the sub zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		(0) 1...15		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	393 (UFS)	Property ID:	103
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.5.6.8 GenPeripheral (Parameter)

FB: UFS	Property Name (Server): GenPeripheral	Mandatory ☐ Optional ☒

Description:

Number of the general peripheral tag.

DPT:	Name	DPT_UcountValue16_Z	DPT ID	203.012	Datatype format	$U_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Zone	Number of general peripheral tag		full		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false	Bit 0	false
- all other bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- SetOSV & ResetOSV	Set zone inactive / active	O	3 / 4		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	393 (UFS)	Property ID:	104
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

The device is not LTE communicating in this zone if it is 'OutOfService'

3.5.6.9 Parameter NumberOfSteps

FB: UFS	Property Name (Server): NumberOfSteps	Mandatory ☐ Optional ☒

Description:

Setting of the number of steps used.

DPT:	Name	DPT_Value_1_Ucount	DPT ID	5.010	Datatype format	U_8

Field	Description	Sup.	Range	Unit	Default
Number	Number of steps		Full	count	cs

Communication:

DP Address: (in the server)	IO Type(ID):	393 (UFS)	Property ID:	111
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

3.5.6.10 Parameter FanSpeedMin

FB: UFS	Property Name (Server): FanSpeedMin	Mandatory ☐ Optional ☒

Description:

Minimum fan speed value for variable fans speed

DPT:	Name	DPT_RelValue_Z	DPT ID	202.001	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Value	Fan speed in percent		Full	%	cs
STATUS - all bits	not supported, fixed to '0'	NA		Bitset	false
COMMAND - NormalWrite - all other commands	not supported	M NA	enum 0		cs

Communication:

DP Address: (in the server)	IO Type(ID):	393 (UFS)	Property ID:	112
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

3.5.6.11 Parameter FanSpeedMax

FB: UFS	Property Name (Server): FanSpeedMax	Mandatory ☐ Optional ☒

Description:

Maximum fan speed value for variable fans speed

DPT:	Name	DPT_RelValue_Z	DPT ID	202.001	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Value	Fan speed in percent		Full	%	cs
STATUS - all bits	 not supported, fixed to '0'	 NA		Bitset	 false
COMMAND - NormalWrite - all other commands	 not supported	 M NA	enum 0		cs

Communication:

DP Address:	IO Type(ID):	393 (UFS)	Property ID:	113
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

3.6 User Air Quality Setpoint Setting (UAQSS)

3.6.1 Aims and objectives

The functional block ‘User Air Quality Setpoint Setting’ provides the system with the air quality setpoint information manually entered at a HMI device.

This functional block is used e.g. in a ‘HMI Device’ or in a more complex device which has the corresponding setting functionality.

For feedback purposes an indication is possible. It is also possible to realise an only indication device.

3.6.2 Functional specification

The distribution of the user air quality setpoint in the system is event-driven (COV-condition, change of value) and in addition repeated periodically.

In the LTE-Mode the functional block 'User Air Quality Setpoint Setting' supports the following LTE zoning:
"Apartment . Room . SubZone",
"General Peripheral Tag"
and Outside Sensor Zone (if outside AQ is used)

Inputs

• AQOutside	This value is for indication and is delivered by the 'Outside AQ Sensor'.
• AQRoom	This value is for indication and is delivered by the 'Room AQ Sensor'.
• AQReturnAir	This value is for indication and is delivered by the 'Return AQ Sensor'.

Outputs

• AQSetpUser	This output delivers the user AQ setpoint to the system.

Binding Group (LTE)

• Apartment . Room . SubZone GenPeripheral	This HMI can be used in different applications. For this reason different binding possibilities are offered. It is even possible to have more than one binding group active. The binding groups that shall not be active have to be set out of service. Not all possibilities have to be realised.
• OutsideSensorZone	no special features

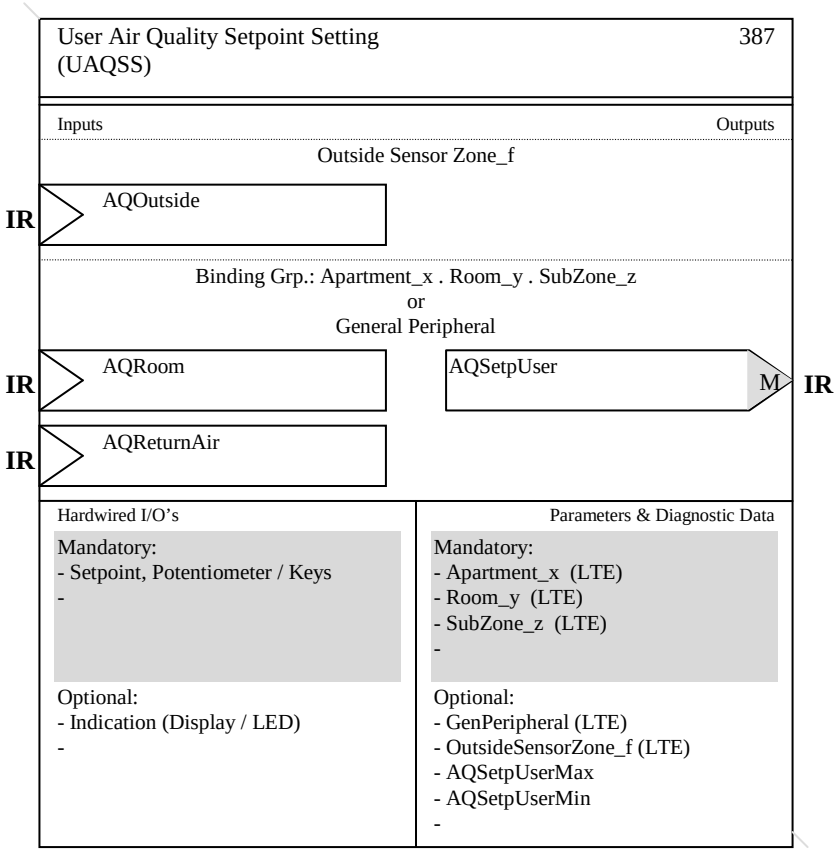
Parameters

• AQSetpUserMax	This parameter defines the lower limit of the range the setpoint may be adapted within.
• AQSetpUserMin	This parameter defines the upper lower limit of the range the setpoint may be adapted within.

3.6.3 Constraints

None.

3.6.4 Functional Block diagram



3.6.5 Datapoints description

Overview

Datapoints	Description / Remarks	Data Point Type	Additional Info
Inputs			
AQ Outside	Outside air quality actual value with: - COV and RepPer - Z_8 STATUS supported from FB 'Outside Air Quality Sensor'	LTE: 203.100 DPT_HVACAirQual_Z $U_{16}Z_8$ S: 9.008 DPT_Value_AirQuality F_{16}	LTE: O S: (GO) ppm
AQ Room	Room air quality actual value with: - COV and RepPer - Z_8 STATUS supported from FB 'Room Air Quality Sensor'	LTE: 203.100 DPT_HVACAirQual_Z $U_{16}Z_8$ S: 9.008 DPT_Value_AirQuality F_{16}	LTE: O S: (GO) ppm
AQ Return Air	Return air quality actual value with: - COV and RepPer - Z_8 STATUS supported from FB 'Retrun Air Quality Sensor'	LTE: 203.100 DPT_HVACAirQual_Z $U_{16}Z_8$ S: 9.008 DPT_Value_AirQuality F_{16}	LTE: O S: (GO) ppm
Outputs			
AQ Setp User	User air quality setpoint with: - COV and RepPer - Z_8 not supported to FB Setpoint Manager AQ	LTE: 203.100 DPT_HVACAirQual_Z $U_{16}Z_8$ S: 9.008 DPT_Value_AirQuality F_{16}	LTE: M S: GO ppm
Parameters			
Apartment	LTE zoning number for Apartment	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Room	LTE zoning number for Room	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
SubZone	LTE zoning number for SubZone	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Gen Peripheral	LTE zoning number for general peripheral	203.012 DPT_UcountValue16_Z $U_{16}Z_8$	O 1
Outside Sensor Zone	LTE zoning number for outside sensor zone	202.002 DPT_UcountValue8_Z $U_{16}Z_8$	O 1
AQSetpUserMax	Value for the upper limit of he range the absolute setpoint may be adapted within.	203.100 DPT_HVACAirQual_Z $U_{16}Z_8$	O cs
AQSetpUserMax	Value for the lower limit of he range the absolute setpoint may be adapted within.	203.100 DPT_HVACAirQual_Z $U_{16}Z_8$	O cs

UAQSS Runtime Interworking - Dependence on Configuration Modes

			STANDARD MODE	EXTENDED MODE	
		Basic FB	**S-Mode**	**Standard Mode Interface**	**HEE**
Inputs	AQOutside	**(GO_b)**		(GO)	**O**
	AQRoom	**(GO_b)**		(GO)	**O**
	AQReturnAir	**(GO_b)**		(GO)	**O**
Outputs	AQSetpUser	**GO_b**	GO	GO	**M**

UAQSS LTE specific Properties

		Support
Parameter	Apartment_x	**M**
	Room_y	**M**
	SubZone_z	**M**
	GenPeripheral	**O**
	OutsideSensorZone	**O**

UAQSS Standard Properties of Interface Objects (or memory mapped DP)

		Support
Parameter	AQSetpUserMax	**O**
	AQSetpUserMin	**O**

3.6.6 Detailed Specification of the Datapoints

3.6.6.1 Input AQOutside

Standard Mode:

DP Name:	AQOutside	Abbr.:	---	Mandatory	☐
FB Name:	UAQSS			Can be internal	☐

Description
This information is provided by the functional block 'Outside AQ Sensor'.

Datapoint Type					
DPT_Name:	DPT_Value_AirQuality				
DPT Format:	F_{16}	DPT_ID:	9.008		
Field	Description	Supp.	Range	Unit	Default
			full	ppm	cs

Access Type							
♦ Input							
	N → this	☐	1 → this	☒			
	Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)	
	Request	☐	Polling:	☐	Period:		

Communication Type			
♦ Group Object Datapoint		Mandatory:	☒
	Default Group Address:	---	

Dynamics						
	Power down:	Save:	☐			
	Power up:	Value:	No initialisation:	☐	Default value:	☒
			Saved value:	☐		☐
				☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UAQSS**	**LTE Client Input Name:** **AQOutside**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Outside AQ Sensor'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_HVACAirQual_Z	DPT ID	203.100	Datatype format	$U_{16}Z_8$

Field	Description	Sup.	Unit	Default
AirQuality	Outside AQ value		ppm	cs
STATUS	Bitset			
- OutOfService	Sensor out of service	M	t/f	false
- Fault	Sensor value is corrupted	M	t/f	false
- Overridden	Sensor is temporarily overridden	O	t/f	false
- InAlarm	Sensor is in alarm	O	t/f	false
- AlarmUnAck	Acknowledgement of alarm	O	t/f	false

Communication:

Binding Group:

Class	Type	Default
Geographical ☐		
Application Specific ☒	OutsideSensorZone	1
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	330 (OAQS)	Property ID:	51
LTE-Service (event): InfoReport ☒	InfoReport Sniffer on Binding Group:			--
	Timeout:	31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:			--

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

3.6.6.2 Input AQRoom

Standard Mode:

DP Name:	AQRoom	Abbr.:	---	Mandatory	☐
FB Name:	UAQSS			Can be internal	☐

Description
This information is provided by the functional block 'Room AQ Sensor'.

Datapoint Type					
DPT_Name:	DPT_Value_AirQuality				
DPT Format:	F_{16}	DPT_ID:	9.008		
Field	Description	Supp.	Range	Unit	Default
			full	ppm	cs

Access Type					
♦ Input					
N → this	☐	1 → this	☒		
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)
Request	☐	Polling:	☐	Period:	

Communication Type			
♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics						
Power down:	Save:	☐				
Power up:	Value:	No initialisation:	☐	Default value:	☒	
		Saved value:	☐		☐	
			☐	Read from bus:	☐	

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UAQSS**	**LTE Client Input Name:** **AQRoom**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Room AQ Sensor'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_HVACAirQual_Z	DPT ID	203.100	Datatype format	$U_{16}Z_8$

Field	Description	Sup.	Unit	Default
Air Quality	Room AQ value		ppm	cs
STATUS	Bitset			
- OutOfService	Sensor out of service	M	t/f	false
- Fault	Sensor value is corrupted	M	t/f	false
- Overridden	Sensor is temporarily overridden	O	t/f	false
- InAlarm	Sensor is in alarm	O	t/f	false
- AlarmUnAck	Acknowledgement of alarm	O	t/f	false

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1 [1]
Application Specific ☐		
Peripheral ☒	Broadcast ☐ Configurable ☒	1 [1]

DP Address:	IO Type(ID):	331 (RAQS)	Property ID:	51
LTE-Service (event): InfoReport ☒	InfoReport Sniffer on Binding Group:			--
	Timeout:	31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:			--

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

[1] This HMI input can be used in different applications The binding group that shall not be active have to be set to out of service. Not all possibilities have to be realised.

3.6.6.3 Input AQReturnAir

Standard Mode:

DP Name:	AQReturnAir	Abbr.:	---	Mandatory	☐
FB Name:	UAQSS			Can be internal	☐

Description
This information is provided by the functional block 'Return AQ Sensor'.

Datapoint Type					
DPT_Name:	DPT_Value_AirQuality				
DPT Format:	F_{16}	DPT_ID:	9.008		
Field	Description	Supp.	Range	Unit	Default
			full	ppm	cs

Access Type							
♦ Input							
	N → this	☐	1 → this	☒			
	Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)	
	Request	☐	Polling:	☐	Period:		

Communication Type			
♦ Group Object Datapoint		Mandatory:	☒
	Default Group Address:	---	

Dynamics						
	Power down:	Save:	☐			
	Power up:	Value:	No initialisation:	☐	Default value:	☒
			Saved value:	☐		☐
				☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UAQSS**	**LTE Client Input Name:** **AQReturnAir**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Return AQ Sensor'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_HVACAirQual_Z	DPT ID	203.100	Datatype format	$U_{16}Z_8$

Field	Description	Sup.	Unit	Default
Air Quality	Return AQ value		ppm	cs
STATUS	Bitset			
- OutOfService	Sensor out of service	M	t/f	false
- Fault	Sensor value is corrupted	M	t/f	false
- Overridden	Sensor is temporarily overridden	O	t/f	false
- InAlarm	Sensor is in alarm	O	t/f	false
- AlarmUnAck	Acknowledgement of alarm	O	t/f	false

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1 [1]
Application Specific ☐		
Peripheral ☒	Broadcast ☐ Configurable ☒	1 [1]

DP Address:	IO Type(ID):	333 (RNAQS)	Property ID:	51
LTE-Service (event): InfoReport ☒	InfoReport Sniffer on Binding Group:	--		
	Timeout:	31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:	--		

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

[1] This HMI input can be used in different applications The binding group that shall not be active have to be set to out of service. Not all possibilities have to be realised.

3.6.6.4 Output AQSetpUser

Standard Mode:

DP Name:	AQSetpUser			Abbr.:	---			Mandatory	☐		
FB Name:	UAQSS							Can be internal	☐		
Description											
This information is sent to the setpoint manager air quality.											
Datapoint Type											
DPT_Name:	DPT_Value_AirQuality										
DPT Format:	F_{16}					DPT_ID:	9.008				
Field	Description					Supp.	Range		Unit	Default	
							Full		ppm	cs	
Access Type											
♦ Output											
this → M	☒	this → 1	☐								
Spontaneous	☒	COV:	☒	Delta-Value:	0.2	MinRepTime:	0 s [1]				
		Cyclic	☒	Period:	15min (recommended value)						
Request	☒										
Communication Type											
♦ Group Object Datapoint							Mandatory:	☒			
Default Group Address:	---										
Dynamics											
Power down:	Save:	☐									
Power up:	Value:	No initialisation:	☐	Default value:	☐						
		Saved value:	☐	Actual value:	☒						
	Transmit on bus:	☒			☐						
Exception Handling											

Special Features											
[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.											

LTE-HEE Mode:

FB: **UAQSS**	**LTE Server Output Name:** **AQSetpUser**	Mandatory ☐ Optional ☒

Description:

This information is sent to the setpoint manager air quality.

DPT:	Name	DPT_HVACAirQual_Z	DPT ID	203.100	Datatype format	$U_{16}Z_8$

Field	Description	Sup.	Range	Unit	COV	Default
Air Quality	Actual AQ value		Full Range	ppm	10	cs
STATUS - all bits	Not supported	NA				

Communication:

Binding Group:

Class		Type	Default
Geographical	☒	Apartment . Room . SubZone	1.1.1 [2]
Application Specific	☐		
Peripheral	☒	Broadcast ☐ Configurable ☒	1 [2]

DP Address:	IO Type(ID):	387 (UAQSS)	Property ID:	51	
LTE-Services (event): InfoReport ☒	COV ☒	MinRepTime: 0 [1] sec	Heartbeat: 15 min		
	Output per default communicating ☐		Binding Group Wildcard allowed ☒		
	Tx Prio:	High ☐	Normal ☒	Low ☐	
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐	Act Value ☒	Default Value ☐		
Property-Service (individual access):	Read only ☐	Read/Write ☒			

Exception Handling: Save at Powerdown ☐

Special Features:

[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

[2] This HMI output can be used in different applications The binding group that shall not be active have to be set to out of service. Not all possibilities have to be realised.

3.6.6.5 Parameter Apartment

FB: UAQSS	Property Name (Server): Apartment	Mandatory ☒ Optional ☐

Description:

Number of the apartment zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the apartment zone		(0) 1...126		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	387 (UAQSS)	Property ID:	101
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
If Apartment is 'OutOfService' Room and SubZone automatically are 'OutOfService'

3.6.6.6 Parameter Room

FB: UAQSS	Property Name (Server): Room	Mandatory ☒ Optional ☐

Description:

Number of the room zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the room zone		(0) 1...63		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	387 (UAQSS)	Property ID:	102
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.6.6.7 Parameter SubZone

FB: UAQSS	Property Name (Server): SubZone	Mandatory ☒ Optional ☐

Description:

Number of the sub zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		(0) 1...15		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	387 (UAQSS)	Property ID:	103
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.6.6.8 Parameter GenPeripheral

FB: UAQSS	Property Name (Server): GenPeripheral	Mandatory ☐ Optional ☒

Description:

Number of the general peripheral tag.

DPT:	Name	DPT_UcountValue16_Z	DPT ID	203.012	Datatype format	$U_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		full		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	387 (UAQSS)	Property ID:	104
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'

3.6.6.9 Parameter OutsideSensorZone

FB: UAQSS	Property Name (Server): OutsideSensorZone	Mandatory ☐ Optional ☒

Description:

Number of the outside sensor zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the Outside Sensor Zone		(0) 1...31		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	387 (UAQSS)	Property ID:	105
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

The device is not LTE communicating in this zone if zone is 'OutOfService'.

3.6.6.10 Parameter AQSetpUserMax

FB: UAQSS	Property Name (Server): AQSetpUserMax	Mandatory ☐ Optional ☒

Description:

Upper limit of the range for the setpoint.

DPT:	Name	DPT_HVACAirQual_Z	DPT ID	203.100	Datatype format	$U_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Temperature	Upper limit of the setpoint range		Full	ppm	cs
STATUS				Bitset	
- all bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	387 (UAQSS)	Property ID:	111
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

3.6.6.11 Parameter AQSetpUserMin

FB:	UAQSS	Property Name (Server):	AQSetpUserMin	Mandatory ☐ Optional ☒

Description:

Lower limit of the range for the setpoint.

DPT:	Name	DPT_HVACAirQual_Z	DPT ID	203.100	Datatype format	$U_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Temperature	Lower limit of the setpoint range		Full	ppm	cs
STATUS				Bitset	
- all bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	387 (UAQSS)	Property ID:	112
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

3.7 User Relative Humidity Setpoint Setting (URHSS)

3.7.1 Aims and objectives

The functional block ‘User Relative Humidity Setpoint Setting’ provides the system with the relative humidity setpoint information manually entered at a HMI device.

This functional block is used e.g. in a ‘HMI Device’ or in a more complex device which has the corresponding setting functionality.

For feedback purposes an indication is possible. It is also possible to realise an only indication device.

3.7.2 Functional specification

The distribution of the user relative humidity setpoint in the system is event-driven (COV-condition, change of value) and in addition repeated periodically.

In the LTE-Mode the functional block 'User Relative Humidity Setpoint Setting' supports the following LTE zoning:
"Apartment . Room . SubZone",
"General Peripheral Tag"
and Outside Sensor Zone (if outside relative humidity is used)

Inputs

• HumRelOutside	This value is for indication and is delivered by the 'Outside Relative Humidity Sensor'.
• HumRelRoom	This value is for indication and is delivered by the 'Room Relative Humidity Sensor'.
• HumRelReturnAir	This value is for indication and is delivered by the 'Return Air Relative Humidity Sensor'.

Outputs

• HumRelSetpUser	This output delivers the user relative humidity setpoint to the system.

Binding Group (LTE)

• Apartment . Room . SubZone GenPeripheral	This HMI can be used in different applications. For this reason different binding possibilities are offered. It is even possible to have more than one binding group active. The binding groups that shall not be active have to be set out of service. Not all possibilities have to be realised.
• OutsideSensorZone	no special features

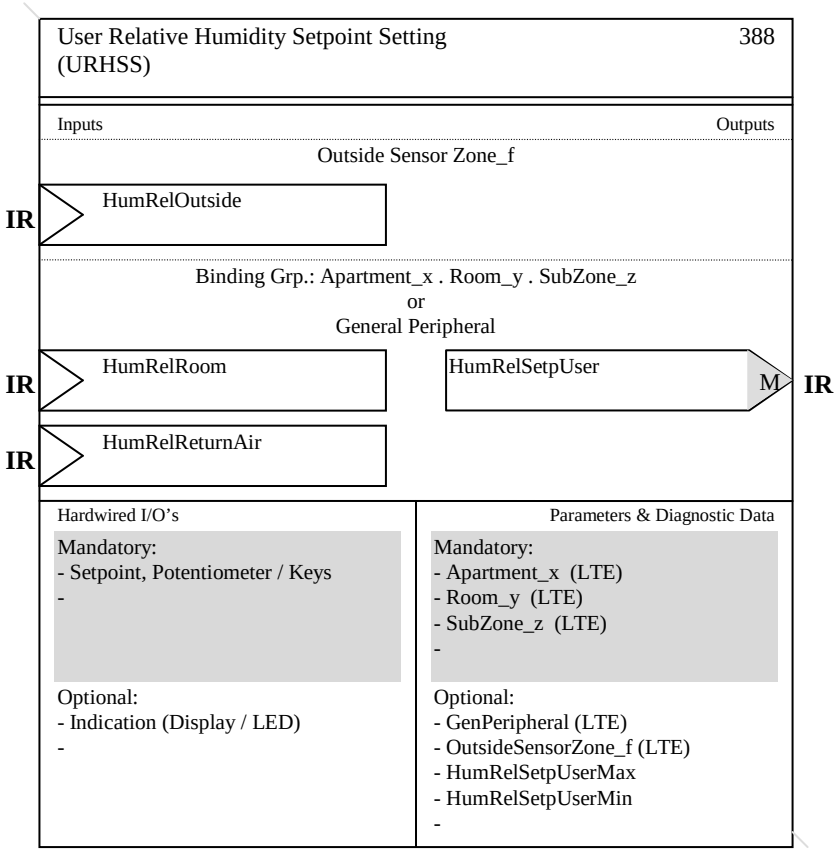
Parameters

• HumRelSetpUserMax	This parameter defines the lower limit of the range the setpoint may be adapted within.
• HumRelSetpUserMin	This parameter defines the upper lower limit of the range the setpoint may be adapted within.

3.7.3 Constraints

None.

3.7.4 Functional Block diagram



3.7.5 Datapoints description

Overview

Datapoints	Description / Remarks	Data Point Type	Additional Info
Inputs			
Hum Rel Outside	Outside relative humidity actual value with: - COV and RepPer - Z_8 STATUS supported from FB 'Outside Relative Humidity Sensor'	LTE: 202.001 DPT_RelValue_Z U_8Z_8 S: 9.007 DPT_Value_Humidity F_{16}	LTE: O S: (GO) %
Hum Rel Room	Room relative humidity actual value with: - COV and RepPer - Z_8 STATUS supported from FB 'Room Relative Humidity Sensor'	LTE: 202.001 DPT_RelValue_Z U_8Z_8 S: 9.007 DPT_Value_Humidity F_{16}	LTE: O S: (GO) %
Hum Rel Return Air	Return air relative humidity actual value with: - COV and RepPer - Z_8 STATUS supported from FB 'Return Air Relative Humidity Sensor'	LTE: 202.001 DPT_RelValue_Z U_8Z_8 S: 9.007 DPT_Value_Humidity F_{16}	LTE: O S: (GO) %

Datapoints	Description / Remarks	Data Point Type	Additional Info
Outputs			
Hum Rel Setp User	User relative humidity setpoint with: - COV and RepPer - Z_8 not supported to FB Setpoint Manager Relative Humidity	LTE: 202.001 DPT_RelValue_Z U_8Z_8 S: 9.007 DPT_Value_Humidity F_{16}	LTE: M S: GO %
Parameters			
Apartment	LTE zoning number for Apartment	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Room	LTE zoning number for Room	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
SubZone	LTE zoning number for SubZone	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Gen Peripheral	LTE zoning number for general peripheral	203.012 DPT_UcountValue16_Z $U_{16}Z_8$	O 1
Outside Sensor Zone	LTE zoning number for outside sensor zone	202.002 DPT_UcountValue8_Z $U_{16}Z_8$	O 1
HumRel SetpUserMax	Value for the upper limit of he range the absolute setpoint may be adapted within.	202.001 DPT_RelValue_Z U_8Z_8	O cs
HumRel SetpUserMax	Value for the lower limit of he range the absolute setpoint may be adapted within.	202.001 DPT_RelValue_Z U_8Z_8	O cs

URHSS Runtime Interworking - Dependence on Configuration Modes

			STANDARD MODE	EXTENDED MODE	
		Basic FB	**S-Mode**	**Standard Mode Interface**	**HEE**
Inputs	HumRelOutside	**(GO_b)**		(GO)	**O**
	HumRelRoom	**(GO_b)**		(GO)	**O**
	HumRelReturnAir	**(GO_b)**		(GO)	**O**
Outputs	HumRelSetpUser	**GO_b**	GO	GO	**M**

URHSS LTE specific Properties

		Support
Parameter	Apartment_x	**M**
	Room_y	**M**
	SubZone_z	**M**
	GenPeripheral	**O**
	OutsideSensorZone	**O**

URHSS Standard Properties of Interface Objects (or memory mapped DP)

		Support
Parameter	HumRelSetpUserMax	**O**
	HumRelSetpUserMin	**O**

3.7.6 Detailed Specification of the Datapoints

3.7.6.1 Input HumRelOutside

Standard Mode:

DP Name:	HumRelOutside	Abbr.:	---	Mandatory	☐
FB Name:	URHSS			Can be internal	☐
Description					
This information is provided by the functional block 'Outside Relative Humidity Sensor'.					
Datapoint Type					
DPT_Name:	DPT_Value_Humidity				
DPT Format:	F_{16}	DPT_ID:	9.007		
Field	Description	Supp.	Range	Unit	Default
			full	%	cs
Access Type					
♦ Input					
N → this	☐	1 → this	☒		
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)
Request	☐	Polling:	☐	Period:	
Communication Type					
♦ Group Object Datapoint				Mandatory:	☒
Default Group Address:	---				
Dynamics					
Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐
Exception Handling					

Special Features					

LTE-HEE Mode:

FB: **URHSS**	**LTE Client Input Name:** **HumRelOutside**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Outside Relative Humidity Sensor'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_RelValue_Z	DPT ID	202.001	Datatype format	U_8Z_8

Field	Description	Sup.	Unit	Default
Relative Humidity	Outside relative humidity value		%	cs
STATUS	Bitset			
- OutOfService	Sensor out of service	M	t/f	false
- Fault	Sensor value is corrupted	M	t/f	false
- Overridden	Sensor is temporarily overridden	O	t/f	false
- InAlarm	Sensor is in alarm	O	t/f	false
- AlarmUnAck	Acknowledgement of alarm	O	t/f	false

Communication:

Binding Group:

Class	Type	Default
Geographical ☐		
Application Specific ☒	OutsideSensorZone	1
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID): 336 (ORHS)	Property ID:	51
LTE-Service (event): InfoReport ☒	InfoReport Sniffer on Binding Group:		--
	Timeout: 31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:		--

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

3.7.6.2 Input HumRelRoom

Standard Mode:

DP Name:	HumRelRoom	Abbr.:	---	Mandatory	☐
FB Name:	URHSS			Can be internal	☐

Description

This information is provided by the functional block 'Room Relative Humidity Sensor'.

Datapoint Type

DPT_Name:	DPT_Value_Humidity				
DPT Format:	F_{16}	DPT_ID:	9.007		
Field	Description	Supp.	Range	Unit	Default
			full	%	cs

Access Type

♦ Input

N → this	☐	1 → this	☒			
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)	
Request	☐	Polling:	☐	Period:		

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **URHSS**	**LTE Client Input Name:** **HumRelRoom**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Room Relative Humidity Sensor'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_RelValue_Z	DPT ID	202.001	Datatype format	U_8Z_8

Field	Description	Sup.	Unit	Default
Relative Humidity	Room relative humidity value		%	cs
STATUS	Bitset			
- OutOfService	Sensor out of service	M	t/f	false
- Fault	Sensor value is corrupted	M	t/f	false
- Overridden	Sensor is temporarily overridden	O	t/f	false
- InAlarm	Sensor is in alarm	O	t/f	false
- AlarmUnAck	Acknowledgement of alarm	O	t/f	false

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1 [1)]
Application Specific ☐		
Peripheral ☒	Broadcast ☐ Configurable ☒	1 [1)]

DP Address:	IO Type(ID): 337 (RRHS)	Property ID:	51
LTE-Service (event): InfoReport ☒	InfoReport Sniffer on Binding Group:		--
	Timeout: 31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:		--

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

[1)] This HMI input can be used in different applications The binding group that shall not be active have to be set to out of service. Not all possibilities have to be realised.

3.7.6.3 Input HumRelReturnAir

Standard Mode:

DP Name:	HumRelReturnAir	Abbr.:	---	Mandatory	☐
FB Name:	URHSS			Can be internal	☐

Description

This information is provided by the functional block 'Return Air Relative Humidity Sensor'.

Datapoint Type

DPT_Name:	DPT_Value_Humidity				
DPT Format:	F_{16}	DPT_ID:	9.007		
Field	Description	Supp.	Range	Unit	Default
			full	%	cs

Access Type

♦ Input

N → this	☐	1 → this	☒			
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)	
Request	☐	Polling:	☐	Period:		

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **URHSS**	**LTE Client Input Name:** **HumRelReturnAir**	Mandatory ☐ Optional ☒

Description:

This information is provided by the functional block 'Return Air Relative Humidity Sensor'.
STATUS and COMMAND can be ignored.

DPT:	Name	DPT_RelValue_Z	DPT ID	202.001	Datatype format	U_8Z_8

Field	Description	Sup.	Unit	Default
Relative Humidity	Return air relative humidity value		%	cs
STATUS	Bitset			
- OutOfService	Sensor out of service	M	t/f	false
- Fault	Sensor value is corrupted	M	t/f	false
- Overridden	Sensor is temporarily overridden	O	t/f	false
- InAlarm	Sensor is in alarm	O	t/f	false
- AlarmUnAck	Acknowledgement of alarm	O	t/f	false

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1 [1)]
Application Specific ☐		
Peripheral ☒	Broadcast ☐ Configurable ☒	1 [1)]

DP Address:	IO Type(ID):	339 (RNARHS)	Property ID:	51
LTE-Service (event): InfoReport ☒	InfoReport Sniffer on Binding Group:		--	
	Timeout:	31 Min		
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group:		--	

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

[1)] This HMI input can be used in different applications The binding group that shall not be active have to be set to out of service. Not all possibilities have to be realised.

3.7.6.4 Output RelHumSetpUser

Standard Mode:

DP Name:	RelHumSetpUser			Abbr.:	---			Mandatory	☐		
FB Name:	URHSS							Can be internal	☐		
Description											
This information is sent to the setpoint manager relative humidity.											
Datapoint Type											
DPT_Name:	DPT_Value_Humidity										
DPT Format:	F_{16}					DPT_ID:	9.007				
Field	Description					Supp.	Range		Unit	Default	
							Full		%	cs	
Access Type											
♦ Output											
this → M	☒	this → 1	☐								
Spontaneous	☒	COV:	☒	Delta-Value:	0.2	MinRepTime:	0 s [1]				
		Cyclic	☒	Period:	15min (recommended value)						
Request	☒										
Communication Type											
♦ Group Object Datapoint								Mandatory:	☒		
Default Group Address:	---										
Dynamics											
Power down:	Save:	☐									
Power up:	Value:	No initialisation:	☐	Default value:	☐						
		Saved value:	☐	Actual value:	☒						
	Transmit on bus:	☒									
Exception Handling											

Special Features											
[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.											

LTE-HEE Mode:

FB: **URHSS**	**LTE Server Output Name:** **HumRelSetpUser**	Mandatory ☐ Optional ☒

Description:

This information is sent to the setpoint manager relative humidity.

DPT:	Name	DPT_RelValue_Z	DPT ID	202.001	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	COV	Default
Relative Humidity	Actual relative humidity value		Full Range	%	1	cs
STATUS - all bits	Not supported	NA				

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1 [2]
Application Specific ☐		
Peripheral ☒	Broadcast ☐ Configurable ☒	1 [2]

DP Address:	IO Type(ID): 388 (URHSS)	Property ID: 51		
LTE-Services (event):	COV ☒	MinRepTime: 0 [1] sec	Heartbeat: 15 min	
InfoReport ☒	Output per default communicating ☐	Binding Group Wildcard allowed ☒		
	Tx Prio: High ☐	Normal ☒	Low ☐	
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐	Act Value ☒	Default Value ☐	
Property-Service (individual access):	Read only ☐	Read/Write ☒		

Exception Handling: Save at Powerdown ☐

Special Features:

[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

[2] This HMI output can be used in different applications The binding group that shall not be active have to be set to out of service. Not all possibilities have to be realised.

3.7.6.5 Parameter Apartment

FB: URHSS	Property Name (Server): Apartment	Mandatory ☒ Optional ☐

Description:

Number of the apartment zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the apartment zone		(0) 1...126		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	388 (URHSS)	Property ID:	101
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
If Apartment is 'OutOfService' Room and SubZone automatically are 'OutOfService'

3.7.6.6 Parameter Room

FB: URHSS	Property Name (Server): Room	Mandatory ☒ Optional ☐

Description:

Number of the room zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the room zone		(0) 1...63		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	388 (URHSS)	Property ID:	102
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.7.6.7 Parameter SubZone

FB: URHSS	Property Name (Server): SubZone	Mandatory ☒ Optional ☐

Description:

Number of the sub zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		(0) 1...15		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	388 (URHSS)	Property ID:	103
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.7.6.8 Parameter GenPeripheral

FB: URHSS	Property Name (Server): GenPeripheral	Mandatory ☐ Optional ☒

Description:

Number of the general peripheral tag.

DPT:	Name	DPT_UcountValue16_Z	DPT ID	203.012	Datatype format	$U_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		full		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	388 (URHSS)	Property ID:	104
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'

3.7.6.9 Parameter OutsideSensorZone

FB: URHSS	Property Name (Server): OutsideSensorZone	Mandatory ☐ Optional ☒

Description:

Number of the outside sensor zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the Outside Sensor Zone		(0) 1...31		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	388 (URHSS)	Property ID:	105
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

The device is not LTE communicating in this zone if zone is 'OutOfService'.

3.7.6.10 Parameter HumRelSetpUserMax

FB: URHSS	Property Name (Server): HumRelSetpUserMax	Mandatory ☐ Optional ☒

Description:

Upper limit of the range for the setpoint.

DPT:	Name	DPT_RelValue_Z	DPT ID	202.001	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Temperature	Upper limit of the setpoint range		[0...100]	%	cs
STATUS				Bitset	
- all bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	388 (URHSS)	Property ID:	111
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

3.7.6.11 Parameter HumRelSetpUserMin

FB: URHSS	Property Name (Server): HumRelSetpUserMin	Mandatory ☐ Optional ☒

Description:

Lower limit of the range for the setpoint.

DPT:	Name	DPT_RelValue_Z	DPT ID	202.001	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Temperature	Lower limit of the setpoint range		[0...100]	%	cs
STATUS				Bitset	
- all bits	not supported, fixed to '0'	NA			false
COMMAND			enum		cs
- NormalWrite		M	0		
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	388 (URHSS)	Property ID:	112
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

3.8 User Enable Alternative Room Temperature Setpoint (UEARTS)

3.8.1 Aims and objectives

The functional block ‘User Enable Alternative Room Temperature Setpoint’ provides the system with the 'EnableTempRoomSetpAlt' information manually entered at a HMI device.

This functional block is used e.g. in a ‘HMI Device’ or in a more complex device which has the corresponding setting functionality.

For feedback purposes an indication is possible.
It is also possible to realise an only indication device.

see also functional block 'Room Setpoint Manager Temperature Driven' (RSMTD) [04]

3.8.2 Functional specification

The information is transmitted spontaneously at each change.

Inputs

- StatusTempRoomSetpEff — The status of the room temperature setpoint in temperature driven room setpoint manager.

Outputs

- EnableTempRoomSetpAlt — This output enables the alternative room setpoint temperature in a room setpoint manager temperature driven..

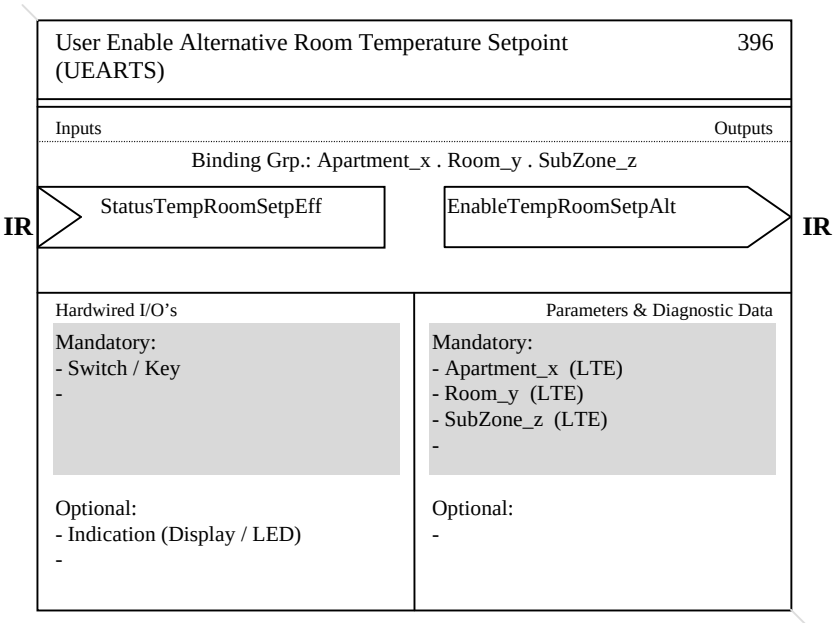
Binding Group (LTE)

- Apartment . Room . SubZone — no special features

3.8.3 Constraints

None.

3.8.4 Functional Block diagram



3.8.5 Datapoints description

Overview

Datapoints	Description / Remarks	Data Point Type	Additional Info
Inputs			
Status Temp Room Setp Eff	Status information for room temperature setpoint with - COV and RepPer from FB Room Setpoint Manager Temperature Driven	LTE: 20.113 DPT_StatusRoomSetp N_8 S: 20.113 DPT_StatusRoomSetp N_8	LTE: O S: (GO) 0 = normal setpoint 1 = alternative setpoint 2 = Building.Prot. setpoint
Outputs			
Enable Temp Room Setp Alt	Enable / disable of alternative room temperature setpoint to FB Room Setpoint Manager Temperature Driven	LTE: 1.003 DPT_Enable B_1 S: 1.003 DPT_Enable B_1	LTE: O S: (GO) 0 = disable 1 = enable
Parameters			
Apartment	LTE zoning number for Apartment	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Room	LTE zoning number for Room	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
SubZone	LTE zoning number for SubZone	202.002 DPT_UcountValue8_Z U_8Z_8	M 1

UEARTS Runtime Interworking - Dependence on Configuration Modes

			STANDARD MODE	**EXTENDED MODE**	
		Basic FB	S-Mode	Standard Mode Interface	**HEE**
Inputs	StatusTempRoomSetpEff	**(GO_b)**		(GO)	**O[1)]**
Outputs	EnableTempRoomSetpAlt	**(GO_b)**		(GO)	**O[1)]**

1) The device may be a setting only, a indication only or a combined device.

UEARTS LTE specific Properties

		Support
Parameter	Apartment_x	**M**
	Room_y	**M**
	SubZone_z	**M**

UEARTS Standard Properties of Interface Objects (or memory mapped DP)

		Support
Parameter		

3.8.6 Detailed Specification of the Datapoints

3.8.6.1 Input StatusTempRoomSetpEff

Standard Mode:

DP Name:	StatusTempRoomSetpEff	Abbr.:	---	Mandatory	☐
FB Name:	UEARTS			Can be internal	☐

Description

This input is provided by the room temperature setpoint manager and indicates the which setpoint is valid.

Datapoint Type

DPT_Name:	DPT_StatusRoomSetp		
DPT Format:	N_8	DPT_ID:	20.113

Field	Description	Supp.	Range	Unit	Default
Status			0-2	enum.	cs
	0 = normal setpoint	M	0		
	1 = alternative setpoint	M	1		
	2 = BuildingProtection setpoint	M	2		

Access Type

♦ Input

N → this	☐	1 → this	☒		
Spontaneous	☒	Cyclically:	☒	Time-out:	31 min (rec.)
Request	☐	Polling:	☐	Period:	

Communication Type

♦ Group Object Datapoint			Mandatory:	☒
Default Group Address:	---			

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☒
		Saved value:	☐		☐
			☐	Read from bus:	☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UEARTS**	**LTE Client Input Name:** **StatusTempRoomSetpEff**	Mandatory ☐ Optional ☒

Description:

This input is provided by the room temperature setpoint manager and indicates the which setpoint is valid.

DPT:	Name	DPT_StatusRoomSetp	DPT ID	20.113	Datatype format	N_8

Field	Description	Sup.	Unit	Default
Status	Actual HVAC Mode 0 = normal setpoint 1 = alternative setpoint 2 = BuildingProtection setpoint	 M M M	enum.	cs

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID): 101 (RSMTD)	Property ID: 55
LTE-Service (event): InfoReport ☒	InfoReport Sniffer on Binding Group: --	
	Timeout: 31 Min	
LTE-Service (polling): Read – Response ☐	Read Wildcard / Resp Sniffer on Binding Group: --	

Value after Power-up: Default Value ☒ Stored Value ☐

Exception Handling: Save at Powerdown ☐

Special Features:

3.8.6.2 Output EnableTempRoomSetpAlt

Standard Mode:

DP Name:	EnableTempRoomSetpAlt	Abbr.:	---	Mandatory	☐
FB Name:	UEARTS			Can be internal	☐

Description

This output enables / disables the alternative setpoint in the room setpoint manager.

Datapoint Type

DPT_Name:	DPT_Enable				
DPT Format:	B_1	DPT_ID:	1.003		
Field	Description	Supp.	Range	Unit	Default
	0 = disabled 1 = enabled		0/1	Bit	cs

Access Type

♦ Output

this → M	☒	this → 1	☐				
Spontaneous	☒	COV:	☒	Delta-Value:		MinRepTime:	10 s
		Cyclic	☒	Period:	15min (recommended value)		
Request	☒						

Communication Type

♦ Group Object Datapoint		Mandatory:	☒
Default Group Address:	---		

Dynamics

Power down:	Save:	☐			
Power up:	Value:	No initialisation:	☐	Default value:	☐
		Saved value:	☐	Actual value:	☒
	Transmit on bus:	☒			☐

Exception Handling

Special Features

LTE-HEE Mode:

FB: **UEARTS**	**LTE Server Output Name:** **EnableTempRoomSetpAlt**	Mandatory ☐ Optional ☒

Description:

This output enables / disables the alternative setpoint in the room setpoint manager.

DPT:	Name	DPT_Enable	DPT ID	1.003	Datatype format	B_1

Field	Description	Sup.	Range	Unit	COV	Default
	0 = disabled 1 = enabled		0 / 1	enum	yes	cs

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment. Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID):	396 (UEARTS)	Property ID:	51	
LTE-Services (event):	COV ☒	MinRepTime:	10 sec	Heartbeat:	15 min
InfoReport ☒	Output per default communicating ☐		Binding Group Wildcard allowed ☒		
	Tx Prio:	High ☐	Normal ☒	Low ☐	
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐		Act Value ☒	Default Value ☐	
Property-Service (individual access):	Read only ☐		Read/Write ☒		

Exception Handling: Save at Powerdown ☐

Special Features:

3.8.6.3 Parameter Apartment

FB: UEARTS	Property Name (Server): Apartment	Mandatory ☒ Optional ☐

Description:

Number of the apartment zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the apartment zone		(0) 1...126		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	396 (UEARTS)	Property ID:	101
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
If Apartment is 'OutOfService' Room and SubZone automatically are 'OutOfService'

3.8.6.4 Parameter Room

FB: UEARTS	Property Name (Server): Room	Mandatory ☒ Optional ☐

Description:

Number of the room zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the room zone		(0) 1...63		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	396 (UEARTS)	Property ID:	102
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.8.6.5 Parameter SubZone

FB:	UEARTS	Property Name (Server):	SubZone	Mandatory ☒ Optional ☐

Description:

Number of the sub zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		(0) 1...15		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	396 (UEARTS)	Property ID:	103
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.9 Room Temperature Setpoint Absolute Setting (RTSA)

3.9.1 Aims and objectives

The functional block ‘Room Temperature Setpoint Absolute Setting’ provides the system with the 'TempRoomSetpAbs' information manually entered at a HMI device.
This functional block is used together with the 'Room Setpoint Manager Temperature Driven' (RSMTD) [04].

This functional block is used e.g. in a ‘HMI Device’ or in a more complex device which has the corresponding setting functionality.

3.9.2 Functional specification

The distribution of the setpoint in the system is event-driven
(COV-condition, change of value) and in addition repeated periodically.

Outputs

- TempRoomSetpAbs — This output delivers the room temperature setpoint to the room setpoint manager temperature driven..

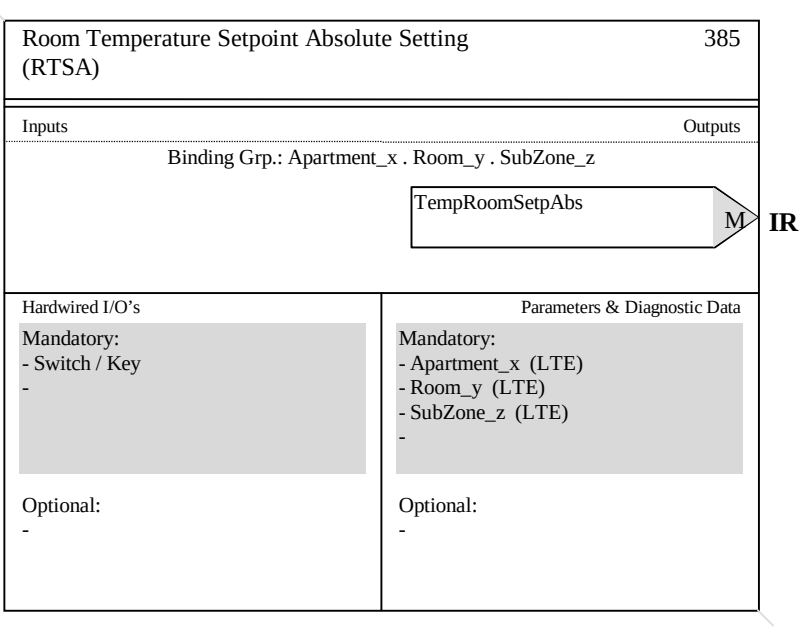
Binding Group (LTE)

- Apartment . Room . SubZone — no special features

3.9.3 Constraints

None.

3.9.4 Functional Block diagram



3.9.5 Datapoints description

Overview

Datapoints	Description / Remarks	Data Point Type	Additional Info
Outputs			
Temp Room Setp Abs	Present temperature setpoint with: - COV and RepPer - Z_8 not supported to FB 'Room Setpoint Manager Temperature Driven'	LTE: 205.100 DPT_TempHVACAbs_Z $V_{16}Z_8$ S: 9.001 DPT_Value_Temp F_{16}	LTE: M S: GO °C
Parameters			
Apartment	LTE zoning number for Apartment	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Room	LTE zoning number for Room	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
SubZone	LTE zoning number for SubZone	202.002 DPT_UcountValue8_Z U_8Z_8	M 1

RTSA Runtime Interworking - Dependence on Configuration Modes

			STANDARD MODE	EXTENDED MODE	
		Basic FB	**S-Mode**	**Standard Mode Interface**	**HEE**
Inputs					
Outputs	TempRoomSetpAbs	**GO_b**		GO	**M**

RTSA LTE specific Properties

		Support
Parameter	Apartment_x	**M**
	Room_y	**M**
	SubZone_z	**M**

RTSA Standard Properties of Interface Objects (or memory mapped DP)

		Support
Parameter		

3.9.6 Detailed Specification of the Datapoints

3.9.6.1 Output TempRoomSetpAbs

Standard Mode:

DP Name:	TempRoomSetpAbs			Abbr.:	---			Mandatory	☐		
FB Name:	RTSA							Can be internal	☐		
Description											
This information is sent to the room setpoint manager temperature driven.											
Datapoint Type											
DPT_Name:	DPT_Value_Temp										
DPT Format:	F_{16}					DPT_ID:	9.001				
Field	Description					Supp.	Range		Unit	Default	
							Full		°C	cs	
Access Type											
♦ Output											
this → M	☒	this → 1	☐								
Spontaneous	☒	COV:	☒	Delta-Value:	0.2	MinRepTime:	0 s [1]				
		Cyclic	☒	Period:	15min (recommended value)						
Request	☒										
Communication Type											
♦ Group Object Datapoint							Mandatory:	☒			
Default Group Address:	---										
Dynamics											
Power down:	Save:	☐									
Power up:	Value:	No initialisation:	☐	Default value:	☐						
		Saved value:	☐	Actual value:	☒						
	Transmit on bus:	☒			☐						
Exception Handling											

Special Features											
[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.											

LTE-HEE Mode:

FB: **RTSA**	**LTE Server Output Name:** **TempRoomSetpAbs**	Mandatory ☒ Optional ☐

Description:

This information is sent to the room setpoint manager temperature driven.

DPT:	Name	DPT_TempHVACAbs_Z	DPT ID	205.100	Datatype format	$V_{16}Z_8$

Field	Description	Sup.	Range	Unit	COV	Default
Temperature	Actual temperature value		Full Range	°C	0.2	cs
STATUS - all bits	not supported Not supported	NA NA				

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment . Room . SubZone	1.1.1
Application Specific ☐		
Peripheral ☐	Broadcast ☐ Configurable ☐	

DP Address:	IO Type(ID): 385 (RTSA)		Property ID: 51	
LTE-Services (event):	COV ☒	MinRepTime: 0 [1] sec	Heartbeat: 15 min	
InfoReport ☒	Output per default communicating ☐		Binding Group Wildcard allowed ☒	
	Tx Prio: High ☐	Normal ☒	Low ☐	
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐	Act Value ☒	Default Value ☐	
Property-Service (individual access):	Read only ☐	Read/Write ☒		

Exception Handling: Save at Powerdown ☐

Special Features:

[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

3.9.6.2 Parameter Apartment

FB: RTSA	Property Name (Server): Apartment	Mandatory ☒ Optional ☐

Description:

Number of the apartment zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the apartment zone		(0) 1...126		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	385 (RTSA)	Property ID:	101
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
If Apartment is 'OutOfService' Room and SubZone automatically are 'OutOfService'

3.9.6.3 Parameter Room

FB: RTSA	Property Name (Server): Room	Mandatory ☒ Optional ☐

Description:

Number of the room zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the room zone		(0) 1...63		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address: (in the server)	IO Type(ID):	385 (RTSA)	Property ID:	102
	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.9.6.4 Parameter SubZone

FB: RTSA	Property Name (Server): SubZone	Mandatory ☒ Optional ☐

Description:

Number of the sub zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		(0) 1...15		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	385 (RTSA)	Property ID:	103
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.10 User Change Over Setting (UCOS)

3.10.1 Aims and objectives

The functional block ‘User Change Over Settings’ provides the system with the manually defined 'UserChangeOverMode'.

This functional block is used e.g. in a ‘Operating Device’ or in a more complex device which has this function.

3.10.2 Functional specifications

The distribution of the change over information in the system is event-driven (COV-condition, change of value) and in addition repeated periodically.

The functional block 'User Change Over Settings' supports the following LTE zoning:
"Apartment . Room . SubZone"
"GenPeripheral"

Outputs

- UserChangeOverMode — This is the manually entered change over setting which is provided to the 'Water Change Over Status Sensor' or to the 'Air Change Over Status Sensor'

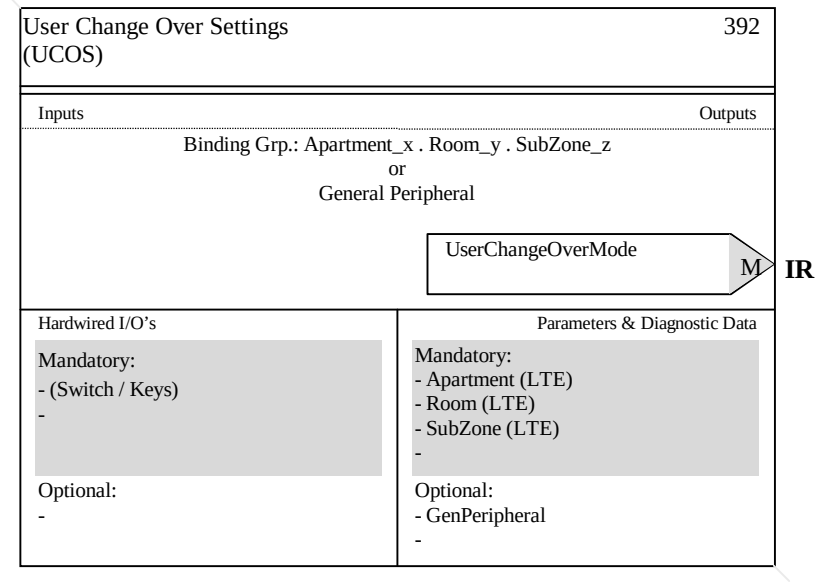
Binding Group (LTE)

- Apartment . Room . SubZone — no special features
- GenPeripheral — no special features

3.10.3 Constraints

None.

3.10.4 Functional Block diagram



3.10.5 Datapoint Description

Overview

Datapoints	Description / Remarks	Data Point Type	Additional Info
Outputs			
User Change Over Mode	One temperature value, normally for comfort with: - COV and RepPer to FB Room Setpoint Manager	LTE: 20.107 DPT_ChangeOverMode N_8 S: 20.107 DPT_ChangeOverMode N_8	LTE: M S: GO 0 = AUTO 1 = cooling 2 = heating
Parameters			
Apartment	LTE zoning number for Apartment	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Room	LTE zoning number for Room	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
SubZone	LTE zoning number for SubZone	202.002 DPT_UcountValue8_Z U_8Z_8	M 1
Gen Peripheral	LTE zoning number for general peripheral	203.012 DPT_UcountValue16_Z $U_{16}Z_8$	O 1

UCOS Runtime Interworking - Dependence on Configuration Modes

			STANDARD MODE	EXTENDED MODE	
		Basic FB	**S-Mode**	**Standard Mode Interface**	**HEE**
Inputs					
Outputs	UserChangeOverMode	**GO_b**	GO	GO	**M**

UCOS LTE specific Properties

		Support
Parameter	Apartment	**M**
	Room	**M**
	SubZone	**M**
	GenPeripheral	O

UCOS Standard Properties of Interface Objects (or memory mapped DP)

		Support
Parameter		

3.10.6 Detailed Specification of the Datapoints

3.10.6.1 Output UserChangeOverMode

Standard Mode:

DP Name:	UserChangeOverMode			Abbr.:	---			Mandatory	☒		
FB Name:	UCOS							Can be internal	☐		
Description											
This output contains the user defined change over mode.											
Datapoint Type											
DPT_Name:	DPT_ChangeOverMode										
DPT Format:	N_8					DPT_ID:	20.107				
Field	Description					Supp.	Range		Unit	Default	
							0 ... 2		enum	cs	
Access Type											
♦ Output											
this → M	☒		this → 1	☐							
Spontaneous	☒	COV:	☒	Delta-Value:		MinRepTime:	0 s [1)]				
		Cyclic	☒	Period:	15min (recommended value)						
Request	☒										
Communication Type											
♦ Group Object Datapoint							Mandatory:	☒			
Default Group Address:	---										
Dynamics											
Power down:	Save:	☐									
Power up:	Value:	No initialisation:	☐	Default value:	☐						
		Saved value:	☐	Actual value:	☒						
	Transmit on bus:	☒			☐						
Exception Handling											

Special Features											
[1)] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.											

LTE-HEE Mode:

FB: **UCOS**	**LTE Server Output Name:** **UserChangeOverMode**	Mandatory ☐ Optional ☒

Description:

This output contains the user defined change over mode.

DPT:	Name	DPT_ChangeOverMode	DPT ID	20.107	Datatype format	N_8

Field	Description	Sup.	Range	Unit	COV	Default
ChangeOverMode	User change over mode		0 ... 2	enum	yes	cs

Communication:

Binding Group:

Class	Type	Default
Geographical ☒	Apartment. Room . SubZone	1.1.1 [2]
Application Specific ☐		
Peripheral ☒	Broadcast ☐ Configurable ☒	1 [2]

DP Address:	IO Type(ID): 392 (UCOS)	Property ID: 51		
LTE-Services (event):	COV ☒	MinRepTime: 0 [1] sec	Heartbeat: 15 min	
InfoReport ☒	Output per default communicating ☐	Binding Group Wildcard allowed ☒		
	Tx Prio: High ☐	Normal ☒	Low ☐	
(LTE Read-Response polling of the output shall always be supported)	Transm after Power-up: Stored Value ☐	Act Value ☒	Default Value ☐	
Property-Service (individual access):	Read only ☐	Read/Write ☒		

Exception Handling: Save at Powerdown ☐

Special Features:

[1] The signal may be sent immediately if the COV is the result of a user interaction enabling fast feedback.

[2] This HMI output can be used in different applications. The binding groups that shall not be active have to be set to out of service. Not all possibilities have to be realised.

3.10.6.2 Parameter Apartment

FB: UCOS	Property Name (Server): Apartment	Mandatory ☒ Optional ☐

Description:

Number of the apartment zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the apartment zone		(0) 1...126		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	392 (UCOS)	Property ID:	101
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
If Apartment is 'OutOfService' Room and SubZone automatically are 'OutOfService'

3.10.6.3 Parameter Room

FB: UCOS	Property Name (Server): Room	Mandatory ☒ Optional ☐

Description:

Number of the room zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the room zone		(0) 1...63		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	392 (UCOS)	Property ID:	102
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.10.6.4 Parameter SubZone

FB: UCOS	Property Name (Server): SubZone	Mandatory ☒ Optional ☐

Description:

Number of the sub zone.

DPT:	Name	DPT_UcountValue8_Z	DPT ID	202.002	Datatype format	U_8Z_8

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		(0) 1...15		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	392 (UCOS)	Property ID:	103
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
TempRoomSetpUserAbs is not LTE communicating in this zone if it is 'OutOfService'
'OutOfService' is taken over from Apartment

3.10.6.5 Parameter GenPeripheral

FB: UCOS	Property Name (Server): GenPeripheral	Mandatory ☐ Optional ☒

Description:

Number of the general peripheral tag.

DPT:	Name	DPT_UcountValue16_Z	DPT ID	203.012	Datatype format	$U_{16}Z_8$

Field	Description	Sup.	Range	Unit	Default
Zone	Number of the SubZone		full		1
STATUS				Bitset	
- OutofService	zone active / inactive	O	true/false		false
- all other bits	not supported, fixed to '0'	NA		bool	false
COMMAND			enum		cs
- NormalWrite		M			
- SetOSV & ResetOSV	Set zone inactive / active	O			
- all other commands	not supported	NA			

Communication:

DP Address:	IO Type(ID):	392 (UCOS)	Property ID:	104
(in the server)	Start-Index:	1	N° of elements	1
Property access:	Read only ☐		Read/Write ☒	
Protection	Read level	-	Write level	-

Exception Handling: Value after Power-up: Stored Value ☒ Act Value ☐ Default Value ☐

Special Features:

Zone = 0 (wildcard): Sends to all listeners
The device is not LTE communicating in this zone if it is 'OutOfService'