

# **Application Description**

**Hot Water Heating** 

**Room Heating Control** 

# Summary:

This document is a part of the HVAC Application Interworking Standard for Hot Water Heating applications. This chapter describes the Functional Blocks for Room Heating Zone Control and Individual Room Control.

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# **Document updates**

Version	Date	Modifications
0.1	2001.07.24	BKY, document created from HWHFuncBlocV20 => document split-up into multiple chapters Functional block diagrams updated Complete revision of the document: HIRC, HZC all datapoint descriptions updated
0.2	2001.09.11	BKY: specification for HRDM, HDTACT and HDTRT added
0.3		BKY, editorial update, changes according to HWH22 meeting decisions; resolution of general TFI comments; changes are marked release for assessment in TFI
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0.5		BKY, wording in chapter 1.3 updated; resolution of TFI comments; various editorial corrections
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1.2	2006.01.09	BKY: inclusion of new attribute DHWLegioReq in DPT_TempFlowWaterDemAbs (210.100)
1.3	2009.06.17	Update in view of publication in the KNX Specifications v2.0.
01.03.01	2013.10.28	Editorial updates for the publication of KNX Specifications 2.1.

# References

[01]	Chapter 3/7/2	"Datapoint Types"
[02]	Chapter 7/10/1	"HVAC Sensor Functional Blocks"
[03]	Chapter 7/10/2	"HVAC HMI Functional Blocks"
[04]	Chapter 7/10/3	"HVAC Actuator Functional Blocks"
[05]	Chapter 7/10/4	"HVAC Common Functional Blocks"
[06]	Chapter 7/10/5	"HVAC Scheduler Functional Blocks"
[07]	Chapter 7/11/1	"Heat Production"
[80]	Chapter 7/11/2	"Heat Distribution"
[09]	Chapter 7/11/5	"Load Management"
[10]	Part 7/12	"Direct Electric Heating"
[11]	Part 7/13	"Terminal Unit Functional Blocks"
[12]	Part 7/14	"Ventilation & Air Conditioning and Cold Water"
[13]	Chapter 7/19/11	"Boiler Controller"
[14]	Part 10/1	"Logical Tag Extended"

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## 1 Introduction

# 1.1 Scope

This document is part of the KNX HVAC Application Interworking Standard. It contains the Specification of the Functional Blocks used for HVAC Hot Water Heating (HWH) applications – part Room Heating Control.

The target market is mainly (European) residential and small commercial buildings.

Functional Blocks specification for applications VAC [12], terminal units (TU) [11] and direct electric heating (DEH) [10] are described in separate documents.

General purpose Functional Blocks used for HVAC applications such as sensors, actuators, MMI and some common HVAC Functional Blocks are described in a separate document (HVAC Specification Functional Blocks, Sensors, MMI, Actuators, Common Controller Functions [02], [03], [04], [05] and [06]).

This document does not describe the general HVAC-HWH application field and application requirements to be covered. It does also not contain the description of typical application examples (scenarios) and application profiles.

# 1.2 Objectives

This document includes the information necessary to build interoperable HVAC HWH 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 [14]).

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 boiler & 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 HWH 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

Mode dependent (S, LT-R, LT-S, Ctrl, Pb, A) 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	EXTENDE MODE	
		Basic FB	S-Mode	Standard Mode Interface	LTE-Mode
Inputs	Inp1	NA	NA	NA	M
	Inp2	NA	NA	NA	О
	Inp3	(GO <sub>b</sub> )		(GO)	О
Outputs	Outp1	NA	NA	NA	M
	- Outp1-1	$GO_b$	GO	GO	NA
	- Outp1-2	GO <sub>b</sub>	GO	GO	NA
	Outp2	$GO_b$	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 <u>today</u> 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 <u>today</u> 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<sub>b</sub>). 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
- <u>Standard DPT or HVAC specific DPT with extended features</u> 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, LT-R, LT-S, Ctrl, Pb and A-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 resources). The manufacturer has the choice:
  - $\Rightarrow$  to use the LTE style Property implementation as specified in this document (with the DPT and IO Type for LTE implementations) IO Type<sup>used</sup> = IO Type<sup>HVAC-LTE</sup>
  - ⇒ 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: IO Type<sup>used</sup> = IO Type<sup>standardDPT</sup> = IO Type<sup>HVAC-LTE</sup> + 10000d (e.g. BUC<sup>HVAC-LTE</sup> = 128 => BUC<sup>standardDPT</sup> = 10128)
  - ⇒ It is allowed to implement in a device both Interface Object Types IO Type<sup>HVAC-LTE</sup> and IO Type<sup>standardDPT</sup>. 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 IO Type<sup>standardDPT</sup> and the remaining in IO Type<sup>HVACLTE</sup>.

	Implementation of Parameter and Diagnostic Data					
	Proper	Property based Group Object Me				
	HVAC-LTE style	Standard DPT				
IO Type	IO Type <sup>HVAC-LTE</sup> e.g. BUC=128	IO Type <sup>HVAC-LTE</sup> + 10000 e.g. BUC=10128				
Property ID	Property ID x	=> same Property ID x				
	if standard DPT	=> same standard DPT	=> same standard DPT	company specific		
DPT	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 IO Type 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 [01] – HVAC Datapoint Types; Supplement 11 (TFI 18)

#### 1.4 Abbreviations

#### **Functional Blocks:**

## **Hot Water Heating (HWH)**

	=
Abbreviation	Description
BUC	Burner Controller
BOC	Boiler Controller
HPM	Heat Production Manager
BST	Buffer Storage Tank
HFDM	Heating Flow Demand Manager
FTC	Flow Temperature Controller
HPM	Heat Production Manager
HZC	Heating Zone Controller
HIRC	Heating Individual Room Controller
HRDM	Heating Room Demand Manager
HDTACT	Heat Demand Transformer Actuator Position
HDTRT	Heat Demand Transformer Room Temperature
HDAUX	Auxiliary Heat Demand
DIHILO	D II . W G 11

DHWC Domestic Hot Water Controller DHWS Domestic Hot Water Scheduler

DHWCPS Domestic Hot Water Circulation Pump Scheduler

SDHWC Solar Domestic Hot Water Controller DHWSM Domestic Hot Water Setpoint Manager

DHWCPC Domestic Hot Water Circulation Pump Controller

UDHWSET DHW User Settings

#### **Ventilation, Air Conditioning and Cold Water (VAC)**

# Abbreviation Description

AHUC Air Handling Unit Controller

CC Chiller Control

CDAUX Auxiliary Cooling Demand

CDAUXPER Auxiliary Cooling Demand Precent

CDTAHU Cooling Demand Transformer Air Handling Unit

CFDM Cooling Flow Demand Manager CPM Cold Water Production Manager

CRC Re-Cooling Controller CZC Cooling Zone Controller

HDAUXPER Auxiliary Heating Demand Precent

HDTAHU Heating Demand Transformer Air Handling Unit

SATC Supply Air Temperature Controller

#### Terminal Units (TU) [10]

Abbreviation	Description
ACDTTU	Air Cooler Energy Demand Transformer Terminal Unit
AHDTTU	Air Heater Energy Demand Transformer Terminal Unit
CCDTTU	Chilled Ceiling Energy Demand Transformer Terminal Unit
FCC	Fan Coil Unit Controller
RCC	Radiator and Chilled Ceiling Control

Radiator Heating Energy Demand Transformer Terminal Unit **RHDTTU** 

**SPUC** Split Unit Control

Variable Air Volume Control **VAVC** 

**VDTTU** Ventilation Demand Transformer Terminal Unit

Water Heat Pump Control WHPC

## Sensor, MMI, Actuators - Common Controller Functions [02], [03], [04], [05] and [06]

#### **Abbreviation Description CFWTS** Condensor Flow Temperature Sensor Condensor Retrun Water Temperature Sensor **CRNWTS DPS** Dew Point Status Sensor Flow Water Temperature Sensor **FWTS HVAC** Valve HVA Outside Air Damper OAD Outside Relative Humidity Sensor **ORHS OAOS** Outside Air Quality Sensor OTS Outside Air Temperature Sensor Presence Detector PRD Room Relative Humidity Sensor **RRHS** Room Air Quality Sensor **RAOS RNARHS** Return Air Relative Humidity Sensor Return Air Quality Sensor **RNAOS** Return Air Temperature Sensor **RNATS RNWTS** Return Water Temperature Sensor

Room Setpoint Manager HVAC-Mode Driven **RSMHD** Room Setpoint Manager Temperature Driven **RSMTD** 

Room Temperature Sensor RTS

Supply Air Relative Humidity Sensor **SARHS** 

Supply Air Quality Sensor **SAOS** Supply Air Temperature Sensor **SATS** 

Sun Intensity Sensor SIS

**SMAQ** Setpoint Manager Air Quality Setpoint Manager relative Humidity **SMRH UAQSS** Air Quality Setpoint Setting

**URHSS** Air Relative Humidity Setpoint Setting

**UHRS** User HVAC Room Setting User HVAC Display **UHD** 

Water Change over Status Sensor **WCOS** 

Window Switch WOS WSS Wind Speed Sensor

## General

Abbreviation	Description
cs	Company specific
NA	not allowed / not available
LTE	Logical Tag Extended Mode, see [14] Volume 10, LTE Specification
FB	Functional Block
DPT	Datapoint Type
IO	Interface Object
IR	LTE InfoReport Input / Output
IR/P	LTE InfoReport Input with Polling capability (LTE property client)
W	LTE Write Input / Output

# **2 Functional Blocks: Room Heating Control**

# 2.1 Aims and Objectives

## 2.1.1 Apartment heating control / zone control

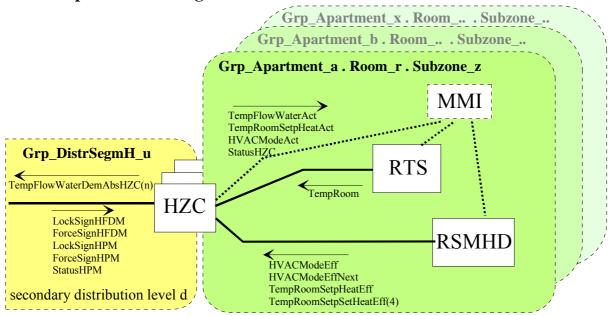


Figure 1 Heating Zone Control system (simplified)

Functional Blocks: HZC: Heating Zone Controller

RSMHD: Room Setpoint Manager HVAC Mode Driven

MMI: Man Machine Interface RTS: Roomtemperature Sensor

This section describes room temperature control for a heating zone. A zone is in residential buildings e.g. an entire apartment or a single family home. In non residential applications a zone could be a kindergarten, restaurant, shop etc. To simplify the description, the example of apartment control is described hereafter. In the LTE implementation the Geographical zone 'Apartment' is used to address Functional Blocks within the same heating zone.

The application model shall also support multiple heating circuits in the same Apartment:

- Example 1: an Apartment heating system may have one HZC for floor heating and one HZC for radiator heating.
- Example 2: an Apartment heating system may have one HZC for floor heating and multiple HIRC for individual room control with radiator heating.

In such mixed systems a duplication of HZC, RSMHD etc. occurs. Especially the handling of room setpoints, HVAC Modes, HVAC Schedules may be tricky (unambiguous linking of functional blocks)

#### LTE Zoning for the HZC: usage of Room Level 'R' and SubZone 'S'

In simple systems with only one heating circuit (one HZC) per Apartment, the support of the Room and Subzone tags is in principle not relevant.

In a first approach to the HZC model, the HZC was therefore only communicating in the LTE binding group A.\*.\* (wildcard on Room and Subzone). This solution would lead to zoning conflicts and ambiguous addressing in mixed HZC and HIRC systems within the same Apartment

A flexible mix of HZC and HIRC within one Apartment shall be possible. The HZC is therefore always communicating with explicit A.R.S zoning information (unambiguous zoning information, no wildcard on Room or Subzone).

- the HZC shall support the setting of the 'Apartment' parameter
- in HZC implementation the support of the 'Room' <u>parameter</u> is optional If 'Room' parameter setting is not supported, the HZC shall communicate on the default Room=1 => Geographical Zone A.1.S
- in HZC implementation the support of the 'Subzone' <u>parameter</u> is optional If 'Subzone' parameter setting is not supported, the HZC shall communicate on the default Subzone=1 => Geographical Zone A.R.1
- if both Room and Subzone parameters are not supported, the HZC shall communicate on the default Geographical Zone A.1.1\*)

#### \*) Remark:

In mixed systems with HZC and HIRC the installer shall pay attention to the fact that the HZC occupies per default the zone A.1.1. I.e. Room  $N^{\circ}$  1 is per default "occupied" by the HZC.

In this case there are various addressing possibilities for HIRC, e.g.:

- locate the first HIRC in A.1.2 (usage of subzone, HZC and HIRC belong logically to the same Room and may share the same room temp sensor). Further HIRC are addressed in A.2.1 ... A.n.1
- reserve Room  $N^{\circ}$  1 for the HZC. The HIRC are addressed starting with Room  $N^{\circ}$  2 using addresses  $A.2.1 \dots A.m.1$
- Change the zoning address of the HZC to a "high" Room  $N^{\circ}$ ; e.g. A.31.1 (only possible if parameter 'Room' is supported by the device). HIRC addressing may start with Room  $N^{\circ}$  1 => zones A.1.1 .. A.n.1

The preferred solution will depend on the installation, e.g. which scheduler programs / RSMHD or room temp sensors have to be shared?

It was also discussed to reserve for the HZC a default address with a high (normally unused) Room  $N^{\circ}$ , e.g. A.31.1. This solution was dropped because in simple systems with only a HZC per Apartment (majority of installations) plug and play binding using the ex factory geographical zone 1.1.1 will no longer work.

For further information on geographical LTE zones see also [14]

#### **Room temperature control:**

The room temperature of one Apartment / Subzone is controlled by one Heating Zone Controller (HZC) which calculates and controls the corresponding flow temperature of the zone. The apartment heating system does not comprise (bus connected) individual room controllers.

The flow temperature setpoint is mainly calculated according to the actual HVACMode and the corresponding room temperature setpoint. These information are mandatory inputs which are provided by the Roomtemperature Setpoint Manager (RSMHD). The HVACMode from RSMHD may depend on automatic time schedule, local user operation (MMI) presence detection, window status, Comfort Prolongation etc.

The method of calculation of the flow temperature setpoint in the HZC is company-specific and uses build in algorithm like OTC (outside temperature compensation), load compensation or any other. For these algorithms additionally the outside temperature (=> heating curve) and the actual room temperature may be used.

In more advanced systems the HZC may incorporate <u>local</u> optimizer functionality (company specific functionality). The optimizer part of the HZC may provide functions like morning boost, start and stop optimization etc. In this case the optimizer will have influence on the HVAC Mode and the room temperature setpoint used internally by the HZC.

In addition the HZC provides optional inputs for an external (central) "HVAC Optimizer" which may be located in a management station etc. See clause 2.1.5

#### Heat demand generation and load management functions:

The HZC is connected to one Heat Distribution Segment and sends its heat demand to the corresponding HFDM which provides demand dependent hot water flow.

Out of the flow temperature setpoint, the HZC calculates the corresponding flow temperature demand signal which is sent to the HFDM in the corresponding Heat Distribution Segment. The HFDM in the Heat Distribution Segment collects the heat demands from all apartments (HZC) and other consumers (e.g. DHW) and calculates the resulting heat demand (see [08])

Load priority between HZC and other consumers (e.g. DHW) in the Heat Distribution Segment is controlled by the HFDM according to priority attributes in the heat demand signals. If load priority is requested by one or a class of consumers, the HFDM will send a locking signal to the consumers in the secondary Heat Distribution Segment. These locking signals for load priority as well as locking signals due to boiler overload are handled by the HZC.

Forcing signals due to boiler overheat protection or oversupply or intelligent usage of spare energy are also handled by the HZC (temporary increased energy consumption).

#### Usage of status information from heat production:

The signal StatusHPM is provided by the HPM / HFDM to inform consumers like HZC e.g. if the heat production is on and is able do provide energy. This information is used in the heat consumers for optimization purpose and "learning-functions" (e.g. heat-curve adaptation).

# Examples:

- if boiler is off due to SummerMode or manually switched off, it is not reasonable in the heating zone controllers to turn the circulation pumps on
- if the boiler can't provide energy, learning functions in the controllers should temporary be disabled.

#### **User Interface:**

A user interface in the apartment can be used for remote control of the HZC and may also contain the Roomtemperature Setpoint Manager (RSMHD), a room temperature sensor (RTS), room temperature setpoint adjustment etc.

# 2.1.2 Heating Individual Room Control for residential applications

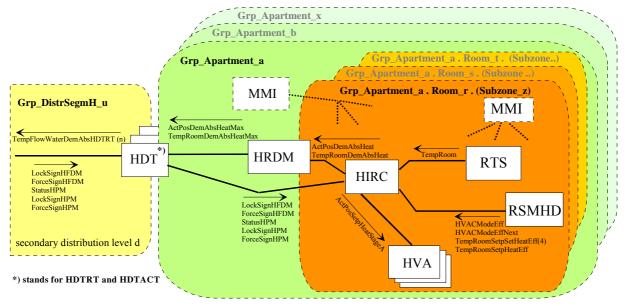


Figure 2 Residential Individual Room Control system (simplified)

Functional Blocks: HDT: Heating Demand Transformer (for more details see clause 0)

HRDM: Heating Room Demand Manager

RSMHD: Room Setpoint Manager HVAC Mode Driven

HIRC: Heating Individual Room Controller

RTS: Roomtemp. Sensor HVA: Heating Valve Stage A MMI: Man Machine Interface

This section describes individual room temperature control system which is mainly designed for residential applications. Each room within an entire apartment or a single family home is controlled individually.

In the LTE implementation the Geographical zone 'Apartment.Room' is used to address Functional Blocks within the same individual room control zone.

This application model makes the configuration of an IRC system easy because all IRC devices of an apartment are connected to the same Heat Distribution Segment which provides demand dependent hot water flow. Therefore collection and management of the heat demand from all rooms within <u>one</u> apartment can be done centrally at the level of apartment.

#### **Constraints:**

This Individual Room Control model is less suitable for large commercial applications because the hydraulic system may be different from the geographical structure of the building. The Rooms of one Floor could be connected to different Heat Distribution Segments. Therefore collection and management of the heat demand from all rooms within one floor can usually not be done centrally at the level of one Floor. The Terminal Unit (TU) application model [11] is more flexible for IRC applications in commercial buildings but additional configuration of the Heat Distribution Segment per Individual Room Controller is necessary.

#### **Room temperature control:**

Each room (or subzone of a room) in an apartment is controlled individually by an HIRC according to the actual HVACMode and the corresponding room temperature setpoint. These information are mandatory inputs which are provided by the Roomtemperature Setpoint Manager (RSMHD).

The actual room temperature setpoint and the HVACMode in each room are calculated by the RSMHD. The HVACMode may depend on automatic time schedule, local user operation (MMI), presence detection, window status, Comfort Prolongation etc.

The HIRC calculates and controls the position of the valve(s) in the room (or subzone of a room). Within one room (or subzone of a room) <u>all valves HVA are controlled together</u> by the HIRC. The method of calculation of the valve position in the HIRC is company-specific.

The actual room temperature value (provided by RTS) is used for room temperature control loop mechanism. It is a mandatory input for HIRC.

In more advanced systems the HIRC may incorporate <u>local</u> optimizer functionality (company specific functionality). The optimizer part of the HIRC may provide functions like morning boost, start and stop optimization etc. In this case the optimizer will have influence on the HVAC Mode and the room temperature setpoint used internally by the HIRC.

In addition the HIRC provides optional inputs for an external (central) "HVAC Optimizer" which may be located in a management station etc. See clause 2.1.5

#### Heat demand generation and load management functions:

All HIRC of the same Apartment are connected to <u>one</u> Heat Distribution Segment which provides demand dependent hot water flow.

The HIRC calculates the room heating demand to enable demand-dependant heat production. The heat demand calculation is based on the same mechanisms as room temperature control (see above). The heat demand is either expressed as a (rated) room temperature setpoint or (rated) valve position setpoint. See also chapter 0. The calculation mechanism is manufacturer specific.

The Heating Room Demand Manager (HRDM) collects the room demands from all HIRC's in the apartment and calculates the resulting heating room demand which is transmitted to the "Heating Demand Transformer" (HDT). Note: "HDT" stands for a cluster of two functional blocks used for demand transformation, see clause 2.1.3)

The "HDT" translates the resulting heating room demand to the corresponding hot water heat demand (requested water flow temperature) which is then transmitted to the HFDM in the corresponding Heat Distribution Segment. HRDM and "HDT" functional blocks are often located in the same device.

The HFDM collects the heat demands from all apartments ("HDT") and other consumers in the Distribution Segment and calculates the resulting heat demand (see [08]).

Load priority between the HIRC and other consumers (e.g. DHW) is controlled by the HFDM according to priority attributes in the heat demand signals. If load priority is requested by one or a class of consumers, the HFDM will send a locking signal to the consumers in the distribution segment. These locking signals for load priority as well as locking signals due to boiler overload are handled by the HIRC

Forcing signals due to boiler overheat protection or oversupply or intelligent usage of spare energy are also handled by the HIRC (temporary increased energy consumption).

Forcing and locking signals are received by the DT and must be routed to the HIRC controls. Locking signals can be used in HIRC, but normally without big effect because the heat consumption is already reduced before the HIRC system (e.g. in a pre-controller). Forcing signals can be handled by the HIRC solely because in an IRC system only the HIRC functional block can control the valves to be open and consume more energy.

#### Usage of status information from heat production:

The signal StatusHPM is provided by the HPM / HFDM in the Heat Distribution Segment to inform consumers e.g. if the heat production is on and is able do provide energy. StatusHPM is received by the DT and must be routed to the HIRC controls. Due to this routing mechanism, the HIRC's do not need to know to which Producer system (Heat Prod. Segment) they are connected.

Status HPM is used in the HIRC for optimization purpose and "learning-functions" (e.g. heat-curve adaptation).

## Examples:

- if boiler is off due to SummerMode or manually switch off, it is not reasonable in the IRC system to change the actuator position (=> all valves closed)
- if the boiler can't provide energy, learning functions in the controllers should temporary be disabled.

#### **User Interface:**

A user interface in the room (room MMI) can be used for remote control of the HIRC and may also contain the Room Setpoint Manager RSMHD, a room temperature sensor (RTS), room temperature setpoint adjustment etc.

A user interface in the apartment (apartment MMI) can be used for centralized remote control of the RSMHD's and HIRC's.

#### LTE Zoning:

HIRC, RSMHD, RTS, HVA <sup>1)</sup> and room MMI in the same room are grouped by the Group 'Apartment.Room and the room Subzone is normally not relevant.

- Remark: Usually all valves HVA in the same room are controlled in parallel. But in some cases Subzoning of valves in the same room is requested (optional feature) => Apartment.Room.Subzone
- all valves HVA connected to a HIRC are controlled together and belong to the same Subzone. I.e. for multiple Room Heating Subzones different heating controllers are responsible (HIRC or HZC)
- the HIRC and associated functional blocks shall support the setting of the 'Apartment' and 'Room' parameters
- the support of the 'Subzone' <u>parameter</u> is optional. If 'Subzone' parameter setting is not supported, the HIRC and associated functional blocks shall communicate on the default Subzone=1 => Geographical Zone A.R.1

"HDT", HRDM and apartment MMI belong to the overall group 'Apartment.\*.\*'. They collect data from Rooms and Subzones within the Apartment. They have therefore LTE 'Sniffer' functionality within the Apartment. For further information on LTE 'Sniffer' functionality see also [14]

"HDT" also belongs to a Group 'DistrSegmH' because the heat demand of the Apartment is sent to the corresponding Heat Distribution Segment.

# 2.1.3 Heating IRC Demand Transformation

The "HDT" in chapter 2.1.2 is a collection of 'Heating Demand Transformer Room Temperature' HDTRT and 'Heating Demand Transformer Actuator Position' HDTACT.

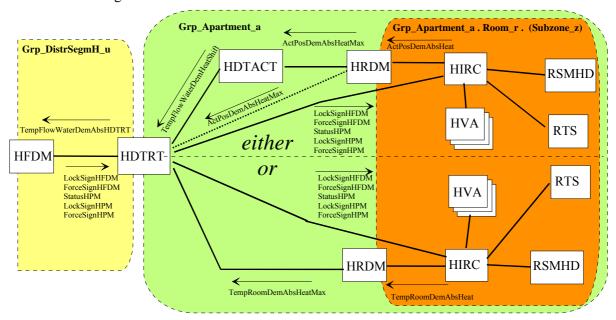


Figure 3 IRC heat demand calculation (simplified)

#### TWO heat demand calculation methods are supported by the system

- In the existing EIB solution, the valve positions are used for the calculation of the heat demand ActPosDemAbsHeat. From each HIRC the valve position (setpoint) is collected in the HRDM and the max. valve position ActPosDemAbsHeatMax is calculated. A control loop mechanism in the HDTACT calculates the FlowTemperature Demand so that valves are working in a mid-position. The Flow Temperature Demand TempFlowWaterDemHeatShift is transmitted by the HDTACT as Δ-flow temperature value to the HDTRT where the resulting absolute Flow Temperature Demand TempFlowWaterDemAbsHDTRT is calculated. The basic flow temperature demand value in the HDTRT may be fixed or outside temperature dependent. Further information is available in the corresponding EIB ObIS model [13].

ActPosDemAbsHeat signals from the HIRC and the resulting ActPosDemAbsHeatMax signal from HRDM may contain optional load priority and emergency heat demand information which is <u>not</u> considered in the HDTACT.

Load priority information can be used in the HDTRT to set load priority attributes in the resulting TempFlowWaterDemAbsHDTRT signal.

Emergency heat demand information can be used in the HDTRT to set the 'EmergDem' attribute in the resulting TempFlowWaterDemAbsHDTRT signal.

In order to maintain load priority and emergency heat demand information, the HDTRT may optionally receive and evaluate the ActPosDemAbsHeatMax signal.

- In the second solution, room temperature setpoints are used for the calculation of the Flow Temperature Demand. From each HIRC the actual room temperature setpoint TempRoomDemAbsHeat is collected in the HRDM and the max. room temperature setpoint TempRoomDemAbsHeatMax is calculated, which is then transmitted to the HDTRT. In the HDTRT, the absolute FlowTemperature Demand TempFlowWaterDemAbsHDTRT is calculated (e.g. using outside temperature and a heat curve). This mechanisms is in its simplest form only a control system without control-loop function. The mechanism may be extended by consideration of the difference between room temperature setpoint and actual room temperature value. In addition also the valve position can be used for further amendments.

TempRoomDemAbsHeat signals from the HIRC and the resulting TempRoomDemAbsHeatMax signal from HRDM may contain optional load priority and emergency heat demand information which can be considered in the HDTRT to set load priority attributes and emergency heat demand attribute in the resulting TempFlowWaterDemAbsHDTRT signal.

The detailed mechanism for the calculation of the Flow Temperature Demand is company specific and not subject of this specification.

#### HRDM shall support both mechanisms:

- calculation of the max. valve position setpoint
- calculation of max. room temperature setpoint.

In the HDTRT the delta value TempFlowWaterDemHeatShift from HDTACT is added to the absolute Flow Temperature Demand and the resulting TempFlowWaterDemAbsHDTRT signal is generated.

#### Constraints

- There is only one HRDM, HDTACT and HDTRT per Apartment zone
- Mix of both methods within one apartment is not allowed. If both TempRoomDemAbsHeatMax and ActPosDemAbsHeatMax signals occur, the behaviour of the system will be manufacturer specific.

# 2.1.4 Room Temperature Setpoint Management

Overview only: for more details see RSMHD in [02], [03], [04], [05] and [06]

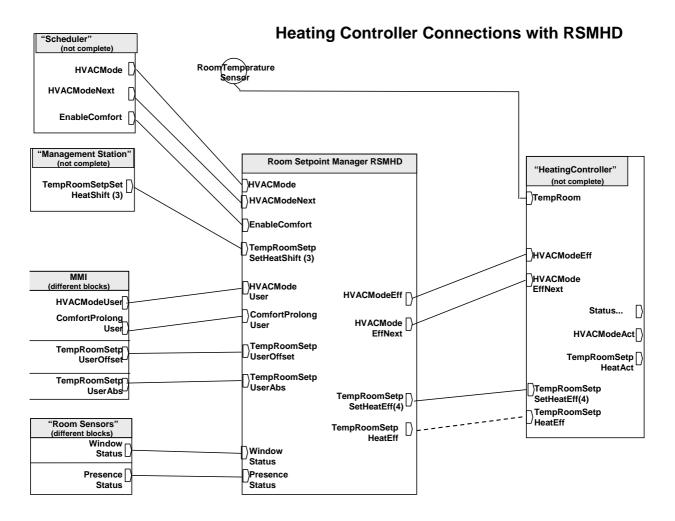


Figure 4 Room Setpoint Management (simplified)

The separation of the heating controller from RSMHD and "scheduling" allows much more flexibility for device design. The figure in above shows the dependencies between the Functional Blocks

The RSMHD provides the active HVAC mode (HVACModeEff), the scheduler-dependent next HVAC mode and the time until change of mode (HVACModeEffNext) and a set of 4 room temperature setpoints, one for each HVAC mode. In addition the actual room temperature setpoint (TempRoomSetpHeatEff) is provided for simple heating systems which are using the room temperature setpoint only (no usage of the HVAC mode, no optimizer functionality, no cooling)

The outputs of the RSMHD may depend on user interaction from an MMI, automatic scheduler program, interaction from a management station and room sensors (presence, window status etc.).

The Heating Controller (HZC or HIRC) uses these signals from the RSMHD to calculate the actual room temperature setpoint.

# 2.1.5 External HVAC Optimizer

Overview only: for more details see [02], [03], [04], [05] and [06]

In more advanced systems the heating controller functional block HZC and HIRC may incorporate <u>local</u> optimizer functionality (company specific functionality like morning boost, start and stop optimization etc).

In addition the HZC and HIRC may provide optional inputs for an <u>external</u> (central) "HVAC Optimizer" which may be located in a central unit or management station etc.

HVAC Optimizer provides an optimized HVAC Mode (HVACModeOptim) and a delta room temperature setpoint value which allows shift the actual roomtemp. setpoint, e.g. for morning boost (TempRoomSetpOptimHeatShift). These values are consumed by the heating controller

The HZC and HIRC provide a Status output signal with optimizer-attributes, the operating mode which the controller is currently using (including external and local optimization) and the currently active room temperature setpoint.. These information are mainly used for visualization (e.g. on a room unit)

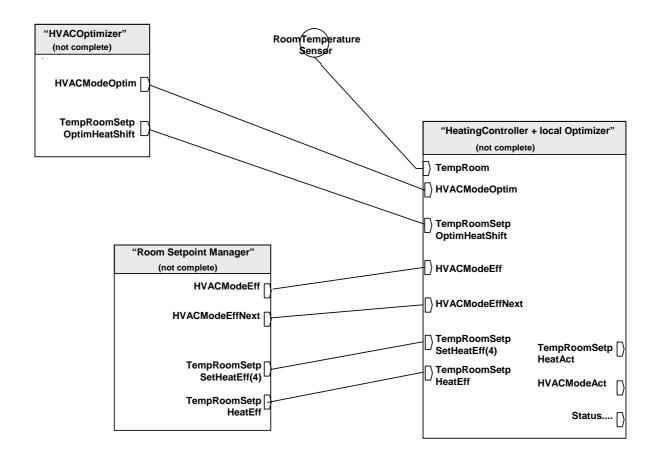


Figure 5 Link with HVAC Optimizer (simplified)

## 2.2 Functional Block: Heating Zone Controller (HZC)

## 2.2.1 Functional Specification

### 2.2.1.1 Room temperature control

The Heating Zone Controller HZC calculates and controls the necessary flow temperature for its zone (flow temperature control-loop) in order to control the room temperature according the requested room temperature setpoint.

Calculation of the flow temperature setpoint and the control-loop mechanism for flow temperature control is company-specific and not part of this specification. HZC may use built-in algorithm like OTC (outside temperature compensation), load compensation or any other.

But for HZC control loop mechanism the effective HVAC Mode and a set of room temperature setpoints (for the different HVAC Modes) or the effective Room Temperature Setpoint are mandatory inputs. Usually also the current room temperature, outside temperature etc. are used in addition.

Optionally the HZC may incorporate local functions like morning boost, start/stop optimization, ECO-function etc. These optimization functions are company specific and not part of the HZC specification

#### The RSMHD provides necessary information for the HZC as:

-	'HVACModeEff'	Contains the present/active 'HVACMode' which	n may depend on
	II VII CIVIO GCEII	Contains the present active in the tricae which	i ilia, acpella oli

automatic time schedule, local user operation (MMI) presence

detection, window status, comfort prolongation etc.

- 'HVACModeEffNext' Contains the effective next 'HVACMode' and the delay time

until the change of HVACMode (according to advanced scheduling information, local user operation etc.)

=> used in the HZC for local optimiser functionality

- 'TempRoomSetpSetHeatEff(4)' The effective temperature setpoints for heating for 'Comfort',

'Standby', 'Economy' and 'BuildingProtection' (set of setpoints).

- 'TempRoomSetpHeatEff' The effective room temperature setpoint for heating.

## Interaction with an external HVAC Optimizer: see also chapter 2.1.5

'HVACModeOptim' Contains the optimzed 'HVACMode' to be used in the HZC

instead of the 'HVACModeEff'

- 'TempRoomSetpOptimHeatShift delta correction value to be added in the HZC to the actual room

temperature setpoint

#### 2.2.1.2 Flow temperature demand

The Heating Zone Controller HZC is connected to one Heat Distribution Segment. The HZC calculates from the flow temperature setpoint for its zone the corresponding flow temperature demand.

- TempFlowWaterDemAbsHZC

This mandatory output signal contains the calculated flow temperature demand (absolute value) of the HZC which is sent to the HFDM in the Heat Distribution Segment.

Calculation of the flow temperature demand is company-specific and not part of this specification. Normally a temperature offset is added to compensate temperature difference in the valve.

The signal contains also attributes for load priority management (see clause 2.2.1.8) and control of a common system pump in the Heat Distribution Segment (see clause 2.2.1.9)

The emergency demand 'EmergDem' is also supported in the HZC heat demand signal (optional feature). This attribute can be set by the HZC to indicate a critical heat demand for frost protection, e.g. if the room- and/or outside temperature is below a critical value and no heat is provided by the heat production system (e.g. because boiler is in 'summer mode' or manually switched off).

If supported by the heat production system (HPM), the attribute 'EmergDem'=true will activate heat production in any case (override of e.g. local 'summer mode')

#### 2.2.1.3 Usage of StatusHPM by the HZC

The signal StatusHPM which is provided by the HPM / HFDM informs the HZC e.g. if the heat production is on and is able do provide energy. This information may be used in the HZC for optimization purpose and "learning-functions"(e.g. heat-curve adaptation). These functions are company-specific.

### 2.2.1.4 Usage of LockSignHPM by the HZC

If the HZC receives a critical locking signal from the HPM the HZC will reduce the flow according to the % reduction factor in any case.

If the HZC receives a uncritical locking signal from the HPM the HZC will reduce the flow according to the % reduction factor if the HZC has not requested load priority.

IMPORTANT: LockSignHPM must NOT have an influence on the calculation of the flow temperature demand signal (otherwise system may "oscillate")

Usage of LockSignHPM is an optional feature of the HZC. See also document [09].

#### 2.2.1.5 Usage of ForceSignHPM by the HZC

Forcing signals of the type 'Protection' or 'Oversupply' are only accepted by the HZC if either the attribute 'RoomHMax' or 'RoomHComf' is set (activate room heating).

- If the HZC receives a critical forcing signal (type 'Protection') it will react in any case (unconditional load). If 'RoomHMax' attribute is set the HZC will increase the flow until a max. flow temperature (parameter) is reached. If 'RoomHComf' attribute is set: room heating shall be temporarily activated with 'Comfort' room temperature setpoint (HVACMode = Comfort)
- If the HZC receives a uncritical forcing signal (type 'Oversupply') it <u>may react or may ignore</u> the signal (conditional load). Forcing signal could e.g. be ignored if the HZC is in an energy saving mode. If the signal is accepted, the reaction is the same as for type 'Protection', see above

If the HZC receives a forcing signal with the type 'Overrun' immediately after load shutdown it will temporarily keep the last flow temperature setpoint (used before shutdown) for control loop (pump overrun). So remaining energy in the heat producer / heat exchanger is efficiently used after load shutdown.

IMPORTANT: ForceSignHPM must NOT have an influence on the calculation of the flow temperature demand signal (otherwise system may "oscillate")

The implementation of forcing signals is an optional feature of the HZC. See also document [09].

#### 2.2.1.6 Usage of received LockSignHFDM in the HZC

same procedure as for LockSignHPM, see clause 2.2.1.3

### 2.2.1.7 Usage of received ForceSignHFDM in the HZC

same procedure as for ForceSignHPM, see clause 2.2.1.5

#### 2.2.1.8 Load Priority Management

Absolute or shift load priority can be requested by the HZC by setting the attributes 'AbsLoadPriority' or 'ShiftLoadPriority' in the TempFlowWaterDemAbsHZC signal.

Load Priority between the consumers within a Heat Distribution Segment is controlled by the HFDM according to priority attributes in the received heat demand signals. If <u>absolute load priority</u> is requested by one or a class of consumers, the HFDM will send a 'uncritical' locking signal LockSignHFDM with 100% power reduction to the consumers in the Heat Distribution Segment.

If the HFDM can not provide the requested flow temperature (e.g. in a heat-exchanger) and if a consumer requests shift load priority the HFDM will send an 'uncritical' locking signal with X % power reduction to the consumers in the Heat Distribution Segment. See also [08] and [09]

If the heat production system can not provide the requested boiler- / flow temperature and if a consumer requests shift load priority the HPM will send an 'uncritical' locking signal LockSignHPM with X % power reduction. See also [07] and [09]

#### 2.2.1.9 Sensors and actuators

The control of the pump of the heating zone and an optional 3-way valve is normally done directly by relays (hard wired).

In larger system a common System Pump is usually installed in the Heat Distribution Segment to provide water flow in the Segment. The System Pump is normally controlled by the HFDM. HZC <u>without</u> an own pump will set the 'SystemPumpReq' attribute in the TempFlowWaterDemAbsHZC signal if it has a valid heat demand.

HZC <u>with</u> an own pump will normally not set the 'SystemPumpReq' attribute in the TempFlowWaterDemAbsHZC signal if they have a valid heat demand.

Usage of a flow temperature sensor is mandatory for heating zone control. The flow temperature sensor is always connected to the HZC locally (hard wired).

Zone return temperature sensor is optional and is also always hard wired.

The common flow temperature and return temperature in the Heat Distribution Segment are optional input signals to the HZC.

The HZC will optionally also use the outside temperature (and in some cases wind speed and sun intensity) and the room temperature for the zone control loop mechanism. These sensors may be hardwired to the device containing the HZC or may be received as external inputs from the bus. If one of these sensors is connected locally to the device containing the HZC, the corresponding Functional Block is activated.

#### 2.2.2 Constraints

Constraints concerning the usage of the LTE zone 'Room' and 'Subzone' see 2.1.1

In the Standard Model all outside sensors are located in the same LTE Outside Sensor Zone (only one zoning parameter). Manufacturer specific parameters shall be used if different Outside Sensor Zones for the outside temperature, wind speed or sun intensity have to be supported.

The usage of HVACModeEff/HVACModeEffNext + TempRoomSetpSetHeatEff[4] for optimized zone control is restricted to LTE implementations only since the the necessary compound HVAC DPT for runtime-interworking are not yet available in Standard Mode.

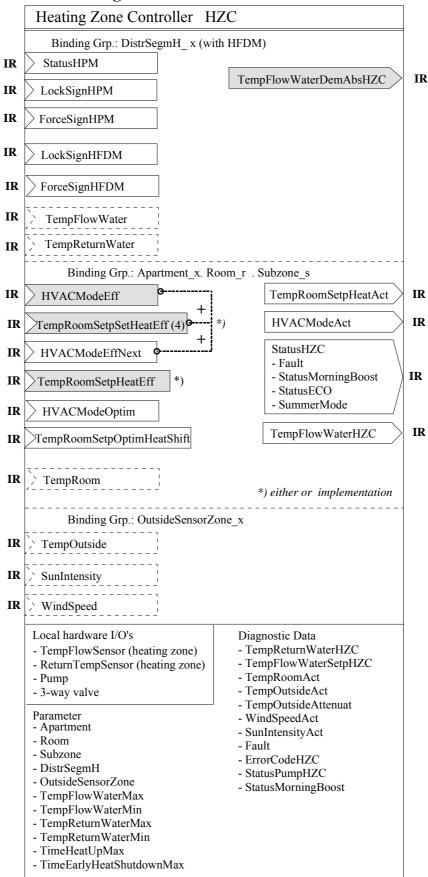
In Standard Mode implementations, the HZC room temperature control mechanism is based on the TempRoomSetpHeatEff information only (simplified model used in EIB ObIS [13]). In this case more sophisticated functions like start/stop optimization in the HZC can not be implemented.

IMPORTANT: reporting of the Heat Demand signal TempFlowWaterDemAbsHZC by the HZC can today not be implemented in Standard Mode because the necessary compound HVAC DPT for runtime-interworking is not yet available in Standard Mode

Therefore for the time being only LTE implementations of the HZC functional block offer a link to a demand dependent heat distribution (HFDM) and heat production system (HPM).

HZC implementations in Standard Mode must therefore rely on an "autonomous" heat production / heat distribution system which provides sufficient hot water flow temperature.

## 2.2.3 Functional block diagram



# 2.2.4 Datapoint description

# **2.2.4.1** Overview

Data Point	Description	Data Point Type	DPT N°
Outputs			
TempFlowWaterDemAbsHZC	Flow temperature demand of the HZC to be sent to the allocated HFDM	DPT_ TempFlowWaterDemAbs	210.100
TempRoomSetpHeatAct	Actual room temperature setpoint of the heating zone / LTE and S-interface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001
HVACModeAct	Actual active HVAC mode used by the HZC / LTE and S-interface	DPT_HVACMode_Z DPT_HVACMode	201.100 20.102
StatusHZC	Status attributes of HZC	DTP_StatusRHC	21.102
- Fault	Failure, some error in the HZC (S-interface)	DPT_Bool	1.002
- StatusMorningBoost	Morning boost function active (S-interface)	DPT_Bool	1.002
- StatusECO	ECO function active (S-interface)	DPT_Bool	1.002
- SummerMode	HZC is in summer mode (S-interface)	DPT_Bool	1.002
TempFlowWaterHZC	Actual water flow temperature of the heating zone / LTE and S-interface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001
Inputs			
StatusHPM	Status information from 'Producer Manager'	DPT_StatusHPM	209.100
ForceSignHPM	Forcing signal from HPM due to overheat, to force the consumers to consume energy	DPT_ForceSign	21.100
LockSignHPM	Locking signal from HPM due to boiler overload, to force the consumers to reduce energy consumption	DPT_LockSign	207.101
ForceSignHFDM	Forcing signal from HFDM in the Heat Distribution Segment	DPT_ForceSign	21.100
LockSignHFDM	Locking signal from HFDM in the Heat Distribution Segment	DPT_LockSign	207.101
TempFlowWater	Common flow temperature of the hydraulic group, Heat Distribution Segment / LTE and Sinterface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001
TempReturnWater	Common return temperature of the hydraulic group, Heat Distribution Segment / LTE and S-interface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001
HVACModeEff	Current/active 'HVACMode' from RSMHD	DPT_HVACMode_Z	201.100
TempRoomSetpSetHeatEff [4]	Set of 4 effective temperature setpoints for heating 'Comfort', 'Standby', 'Economy' and 'BuildingProt'	DPT_RoomSetpSet[4]	213.100
HVACModeEffNext	Next 'HVACMode' and time until next mode from RSMHD	DPT_HVACModeNext	206.100
TempRoomSetpHeatEff	The effective actual temperature setpoint for heating / LTE and S-interface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001
HVACModeOptim	Optimized HVAC Mode from external HVAC Optimizer	DPT_HVACMode_Z	201.100
TempRoomSetpOptimHeatShift	Room temp. setpoint shift from external HVAC Optimizer / LTE and S-interface	DPT_TempHVACRel_Z DPT_Value_Tempd	205.101 9.002
TempRoom	Current room temperature value / LTE and S-interface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001
TempOutside	Current outside temperature / LTE and S-interface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001

Data Point	Description	Data Point Type	DPT N°
WindSpeed	Current wind speed value / LTE and S-interface	DPT_WindSpeed_Z DPT_Value_Wsp	203.101 9.005
SunIntensity	Current sun intensity value W/m²/ LTE and S-interface	DPT_SunIntensity_Z DPT_PowerDensity	203.102 9.022
Parameters			
Apartment	LTE zone: Apartment number	DPT_UcountValue8_Z	202.002
Room	LTE zone: Room number	DPT_UcountValue8_Z	202.002
Subzone	LTE zone: Subzone number	DPT_UcountValue8_Z	202.002
DistrSegmH	LTE zone: number of the Heat Distribution Segment	DPT_UcountValue8_Z	202.002
OutsideSensorZone	LTE zone for external Outside temperature sensor	DPT_UcountValue8_Z	202.002
TempFlowWaterMax	Max. flow temperature in the heating zone	DPT_TempHVACAbs_Z	205.100
TempFlowWaterMin	Min. flow temperature in the heating zone	DPT_TempHVACAbs_Z	205.100
TempReturnWaterMax	Max. return temperature in the heating zone	DPT_TempHVACAbs_Z	205.100
TempReturnWaterMin	Min. return temperature in the heating zone	DPT_TempHVACAbs_Z	205.100
TimeHeatUpMax	Maximum heat-up time for local start optimization	DPT_TimePeriodMin	7.006
TimeEarlyHeatShutdownMax	maximum advanced shutdown time for local stop optimization	DPT_TimePeriodMin	7.006
Diagnostic Data			
TempReturnWaterHZC	Actual return temperature in the heating zone	DPT_TempHVACAbs_Z	205.100
TempFlowWaterSetpHZC	Actual flow temperature setpoint in the heating zone	DPT_TempHVACAbs_Z	205.100
TempRoomAct	Actual room temperature used by the HZC	DPT_TempHVACAbs_Z	205.100
TempOutsideAct	Actual outside temperature used by the HZC	DPT_TempHVACAbs_Z	205.100
TempOutsideAttenuat	Actual attenuated outside temperature used by the HZC	DPT_TempHVACAbs_Z	205.100
WindSpeedAct	Actual wind speed value used by the HZC	DPT_WindSpeed_Z	203.101
SunIntensityAct	Actual sun intensity value used by the HZC	DPT_SunIntensity_Z	203.102
StatusPumpHZC	actual relative power of the pump in the heating zone, % value; for switched pump 0%=off, 100%=on	DPT_RelValue_Z	202.001
Fault	failure, some error in the HZC	DPT_Bool	1.002
ErrorCodeHZC	company specific numeric error code	DPT_Value_2_Ucount	7.001
StatusMorningBoost	Status of morning boost function	DPT_Bool	1.002

<sup>\*)</sup> Implementation of Properties using standard DPT see clause 1.3.2

			STANDARD MODE	EXTE Mo	
		Basic FB	S-Mode	Standard Mode Interface	LTE-Mode
Outputs	TempFlowWaterDemAbsHZC	<b>NA</b> 1)	NA	NA	M
	TempRoomSetpHeatAct	(GO <sub>b</sub> )		(GO)	О
	HVACModeAct	(GO <sub>b</sub> )		(GO)	О
	StatusHZC	NA	NA	NA	О
	- Fault	(GO <sub>b</sub> )		(GO)	NA
	- StatusMorningBoost	(GO <sub>b</sub> )		(GO)	NA
	- StatusECO	$(GO_b)$		(GO)	NA
	- SummerMode	$(GO_b)$		(GO)	NA
	TempFlowWaterHZC	$(GO_b)$		(GO)	О
Inputs	StatusHPM	<b>NA</b> 1)	NA	NA	О
	ForceSignHPM	<b>NA</b> 1)	NA	NA	О
	LockSignHPM	<b>NA</b> 1)	NA	NA	О
	ForceSignHFDM	<b>NA</b> 1)	NA	NA	О
	LockSignHFDM	<b>NA</b> 1)	NA	NA	О
	TempFlowWater	(GO <sub>b</sub> )		(GO)	О
	TempReturnWater	(GO <sub>b</sub> )		(GO)	О
	HVACModeEff	<b>NA</b> 3)	NA	NA	M 2)
	TempRoomSetpSetHeatEff [4]	<b>NA</b> 1)	NA	NA	M 2)
	HVACModeEffNext	<b>NA</b> 1)	NA	NA	O 2)
	TempRoomSetpHeatEff	$\mathbf{GO_b}^{2)}$	GO	GO	M 2)
	HVACModeOptim	<b>NA</b> 3)	NA	NA	О
	TempRoomSetpOptimHeatShift	(GO <sub>b</sub> )		(GO)	О
	TempRoom	(GO <sub>b</sub> )		(GO)	О
	TempOutside	(GO <sub>b</sub> )		(GO)	О
	WindSpeed	(GO <sub>b</sub> )		(GO)	О
	SunIntensity	(GO <sub>b</sub> )		(GO)	О

<sup>1)</sup> the information is NA in the Basic FB and all other modes because the datapoint type is today not yet available in standard mode. Splitting of DPT is not possible because of necessary data consistency

2) Either implementation of { HVACModeEff + TempRoomSetpSetHeatEff [4] (+ HVACModeEffNext) } or

Table 1: HZC Runtime Interworking - dependence on Configuration Modes

<sup>{</sup> TempRoomSetpHeatEff }

3) Implementation of HVACModeEff or HVACModeOptim inputs only without TempRoomSetpSetHeatEff [4] does not make sense

		Support
Parameter	Apartment	M
	Room	О
	Subzone	О
	DistrSegmH	M
	OutsideSensorZone	О

**Table 2: HZC LTE specific Properties** 

		Support
Parameter	TempFlowWaterMax	О
	TempFlowWaterMin	О
	TempReturnWaterMax	О
	TempReturnWaterMin	О
	TimeHeatUpMax	О
	TimeEarlyHeatShutdownMax	О
Diagnostic Data	TempReturnWaterHZC	О
	TempFlowWaterSetpHZC	О
	TempRoomAct	О
	TempOutsideAct	О
	TempOutsideAttenuat	О
	WindSpeedAct	О
	SunIntensityAct	О
	StatusPumpHZC	О
	Fault	О
	ErrorCodeHZC	О
	StatusMorningBoost	О

**Table 3: HZC Standard Properties of Interface Objects (or memory mapped DP)** 

# 2.2.4.2 Output TempFlowWaterDemAbsHZC

# **Standard Mode**

Not applicable

## LTE-HEE mode:

FB:	HZC	LTE S	E Server Output Name: TempFlowWaterDemAbsHZC Mandatory Optiona										
Desci	ription:	-								<u> </u>	ор.		
		nal cont	ains	the calculated flo	w tempe	eratur	e dem	and (abso	olute vali	ue) of th	e HZC	It is	
				rresponding Heat									
	nd: see cl				2.00.100		, oge	iii. Gaiga			tompore		
DPT:	Name			 npFlowWaterDem <i>l</i>	Ahs	DPT	ID 2	210.100	Datatyr	e forma	t V <sub>16</sub> B <sub>16</sub>	,	
Field	rtanio	<u> </u>	_	scription		<u> </u>	Sup.	Range	Dutaty	Unit	COV	Default	
	FlowDem			uested flow tempe	rature		M	full temp	range	°C	2	CS	
Attrib			.109		iataic		'¥'	i i i i i i i i i i i i i i i i i i i	. runge		<del>-</del>		
- Dem			Vali	dity of TempFlow[	Dem		М	true/false	۵	bool	Y	false	
Den	rvana			se means also "no	d")		ti ac/iais	•	0001		idioc		
- Ahsl	LoadPriori	itv	`		<i>a )</i>	0	true/false	<b>a</b>	bool	Y	false		
7,031	Loadi iloii	ity		t if absolute load priority is quested by the HZC				li uc/iais	•	DOOI		iaisc	
- Shiff	LoadPrio	ritv		et if shift load priority is				true/false	۵	bool	Υ	false	
O				uested by the HZC			0	li do laio	•			10.00	
- Max	TempLimi	it		if flow temp. in the		ution	0	true/false	ج	bool	Υ	false	
max	1 0111p = 11111			ment must be limi				li do laio	•			10.00	
				ie (normally not th									
			HZ		0 0000 1	0.							
- Min	ΓempLimit	ļ .		cold water only			NA	false		bool	N	false	
- DHV				DHW only			NA	false		bool	N	false	
	mCtrlReq			cates that a room	heating		M	true/false	9	bool	Y	false	
				uit has heat dema							-		
- Vent	tRea			Ventilation only			NA	false		bool	N	false	
	AllSeason	Rea		auxiliary heat cons	sumer o	nlv	NA	false		bool	N	false	
	emPumpl			uest for water circu			0	true/false	е	bool	Υ	false	
,	•	•		ribution segment (									
				tem pump on)									
- Eme	ergDem			ergency heat dema	and for		0	true/false	Э	bool	Υ	false	
	J			m frost protection									
- DHV	VLegioRe	q		DHW only			NA	false		bool	N	false	
	nunicatio			•				•		•	•		
Bine	ding Grou	ıp:											
Clas		•		Туре				Į.	Default				
Ge	eographica	al [		, , , , , , , , , , , , , , , , , , ,									
	plication		X	DistrSegmH				·	1				
	nassigned	]	<u> </u>	Broadcast	Con	figura	able	]					
	Address:	<b>-</b>		IO Type(ID):		HZC)		Prope	rty ID:	51			
LTE	-Services	s (even	t):	cov	MinRe			10 se	_	Heartbe	eat: 1	5 min	
	oReport		Ź I	Output per defaul		•		Bindin	g Group			ed 🗌	
(L	TE Read-l	Respon	se	Tx Prio:	High	า 🔲		Nor	mal 🔯		Low		
ро	lling of the	e outpu	t						<del></del>			<del></del>	
sh	all always	be		Transm after Pow	erup: S	Stored	l Value	e 🗌 Ac	t Value	⊠ Def	ault Valu	ue 🗌	
su	pported)												
Pro	perty-Ser	vice		Read only	$\boxtimes$		Read	/\//rita					
(ind	ividual ad	ccess):		read only			i (Cau/	VVIILG					
Exce	ption Han	dling:							(	Save at I	Powerdo	own 🗌	
Speci	ial Featur	es:											
This s	signal can	be inte	rnal	if the assiciated H	FDM is	locate	ed in tl	ne same o	device				

# ${\bf 2.2.4.3} \quad Output \ TempRoomSetpHeatAct$

# **Standard Mode:**

DP Name:	TempRoomSetpHeat.	Act Abbr.:			Mandat	/landatory				
FB Name:	HZC					Can be	interna	al 🗌		
Description										
Actual room to	emperature setpoint of	the heating zone	(mainly us	ed fo	or visualis	ation)				
<b>Datapoint Ty</b>										
DPT_Name:	DPT_Value_Temp									
DPT Format:	F <sub>16</sub>			_	DPT_ID:	9.001				
Field	Description				Supp.	Range	Unit	Default		
		full range	°C	CS						
Access Type										
♦ Output										
this $\rightarrow$ M	⊠this –									
Spontaneous   COV:   Δ-Value: 0.2   Min repetition period: 10s										
	Cyclic	Period:	15 Min							
Request										
Communicat										
	ject Datapoint					Mandatory	":			
	oup Address:									
Dynamics										
Power dov		T								
Power up:		nitialisation:			t value:					
		ed value:				ot for input)				
	Transmit on bus	(only for output):		ead f	from bus	only for inp	out):			
Exception Ha	ndling									
Special Featu	ires									

# LTE-HEE mode:

FB:	HZC	LTE S	Serve	er Output Name:	TempRoom	SetpHe	eatAct			Mandatory ☐ Optional ⊠		
Desc	ription:									<u> </u>	otional 🔼	
		nperat	ure s	etpoint of the hear	ting zone (ma	inly use	ed for vi	sualisa	ation)			
DPT:	Name	DPT	Ten	npHVACAbs_Z	DPT ID	205.10	0 Da	itatype	format	$V_{16}Z_{8}$		
Field			Des	cription		Sup.	Range	)	Unit	COV	Default	
Temp			tem	perature setpoint v	/alue	М	full °C			0.2	CS	
Status	3		stan	dard Status attribu	utes	]						
- Out	OfService		void	value: setpoint no	ot available	М	true/fa		bool	Υ	true	
- Ove	rridden		setp	oint overridden tru	ıe / false	0	true/fa	lse	bool	Υ	false	
- all o	ther flags			supported								
Comn				idard Command, v								
				rride and release s	setpoint	0						
Relea												
- all o			not :	supported		NA						
comm												
	nunicatio											
	ding Grou	ıp:										
Clas				Type Default								
	eographica		$\boxtimes$	Apartment.Room.Subzone 1.1.1								
Ap	plication	Specifi	c 🗌									
	nassigned			Broadcast	Configura							
DP /	Address:			IO Type(ID):	160 (HZC)			erty ID		53		
	-Services	s (ever	nt):	COV 🛛	MinRepTime		10 s	ec	Heart	beat:	15 min	
	oReport TE Read-l		⊠ nse	Output per defau	It communicat	ting	Bindi	ng Gro	oup Wildo	ard allov	wed	
рo	lling of the	e outpu	ıt	Tx Prio:	High 🗌		No	rmal 🛭	$\triangleleft$	Low	' 🔲	
	all always pported)	be		Transm after Pov		l Value		ct Val		efault V	alue 🗌	
Pro	perty-Ser	vice		Read only [	7	Read/V	N/rita	$\boxtimes$	1)			
(ind	ividual ad	ccess)	:	INEad Only		i (Cau/ v	VIILE					
Exce	otion Han	dling:		•					Save a	t Power	down	
Speci	ial Featur	es:										
1) writ	e access	is option	onal;	for Override / Rele	ease function	only. If	'Overri	dden'	the HZC ι	uses the	override	
va	lue for roc	m tem	pera	ture control		-						

# 2.2.4.4 Output HVACModeAct

# **Standard Mode:**

DP Name:	HV	ACMode/	Act				Abbr.	.:			Ma	andat	ory	
FB Name:	HZ	3									Ca	ın be	interna	ıl
Description														
This output c	ontai	ns the ac	tual	<b>HVAC Mode</b>	e of the	hea	ting zo	ne (	(mai	nly used	for vis	ualisa	ation)	
Datapoint Ty														
DPT_Name:		PT_HVA	CMo	de										
DPT Format:										DPT_ID:		.102		
Field	De	escriptior	1							Supp.	Ran		Unit	Default
											14	1)		CS
Access Type	•													
◆ Output		_												
this $\rightarrow$ M				his → 1			-							
Spontaneous   COV:   Δ-Value:   Min repetition									period: 10sec					
			Cyclic		Perio	d:	15mi	n						
Request		$\square$												
Communica											1			
♦ Group Ol											Mand	atory	:   🖂	
Default G	roup .	Address:	_											
Dynamics		T												
Power do		Save:						-						
Power up:		Value:		No initialisa		Ш				t value:				
				Saved valu	e:			Ac	tual	value:				
Transmit on bus:														
Exception H	andli	ing												
Special Feat														
1) value 0='Aı	uto' is	s not allo	wed											

# LTE-HEE mode:

FB: HZ	ZC	LTE S	erve	r Output Name:	HVACMode	Act					datory 🗌	
Descript					_					-		
				neating zone (whi	ch may also d	epend	on inter	nal op	timiser fu	nctions	in the	
HZC, ma												
	Name	DPT_	_	CMode_Z	DPT ID	201.10				$N_8Z_8$		
Field				cription		Sup.	Range	)	Unit	COV	Default	
HVACM	ode			al HVAC Mode		М	[14] 1	) 		Υ	cs	
Status				dard Status attrib								
<ul> <li>Overrid</li> </ul>				C mode overridde	en true / false	0	true/fa	lse	bool	Υ	false	
- all othe	r flags			supported								
Comman				dard Command, v								
- Overrid	le &		over	ride and release s	setpoint	0						
Release												
- all othe	-		not s	supported		NA						
comman												
Commu												
Bindin	g Grοι	ıp:										
Class				Туре	Defau	<u>ılt</u>						
	raphica			Apartment.Room	.Subzone	1.1.1						
	cation S	Specifi										
	signed			Broadcast	Configura	ıble 💹						
DP Add				IO Type(ID):	160 (HZC)			erty ID		52		
LTE-Se				COV 🗵	MinRepTime		10 s	ec	Heart	beat:	15 min	
InfoR	eport Read-f	-	⊠ nse	Output per defau	It communicat	ting	Bindi	ng Gro	oup Wildc	ard allov	wed $\square$	
polling	g of the	e outpu		Tx Prio:	High 🗌		No	rmal 🛭		Low		
shall a	always orted)	be		Transm after Pov	verup: Stored	Value	A	ct Val	ue 🛛 D	efault V	alue 🗌	
Proper (individ			••	Read only [		Read/V	Vrite	$\boxtimes$	2)			
Exception	on Han	dling:							Save a	t Power	down	
Special	Featur	es:										
	'Auto' is											
		•		for Override / Rel	ease function	only: if	'Overric	dden' i	the HZC ι	uses the	override	
value	for roo	m tem	pera	ture control								

# 2.2.4.5 Output StatusHZC

Standard Mode: separate datapoints Fault, StatusMorningBoost, StatusECO, SummerMode

# LTE-HEE mode:

FB:	HZC	LTE Serv	ver Output Name:	: Sta	tusHZC						datory ☐ otional ⊠	
	iption:											
Inform unit)	nation pro	vided by t	he HZC mainly for	r visua	alisation &	monito	ring	e.g. on	an end-u	ser MMI (	(e.g. room	
DPT:	Name	DPT_St	atusRHC		OPT ID	21.102		Datatype	e format	B <sub>8</sub>		
Field	•		Description			Sup.	Rar	nge	Unit	COV	Default	
- Faul	t		HZC has a failure	;		M	true	e/false	bool	Υ	false	
- Statu	usECO		ECO status; temp	0	true	e/false	bool	Υ	false			
			saving mode									
			e.g. due to high ro									
			temperature or hi	igh ou	tside							
-			temperature				١.	<i>(</i> <b>6</b> 1	l			
- Tem	pFlowLim	It	Flow temperature			0	true	e/false	bool	Υ	false	
Tom	nDoturni i	mit	active (max. or m Return temperatu			0	truc	e/false	bool	Y	false	
- rem	pReturnLi	IIIIL	active (max. or m				uue	e/iaise	DOOI	I	laise	
_ Stati	usMorning	Boost	morning boost ac			0	truc	e/false	bool	Y	false	
Otati	JOIVIOITIIII	JDOOSt	for monitoring)	,tivC (i	ilaliliy		uuc	, iaisc	0001	'	laise	
- Statu	usStartOp	tim		start optimization active(mainly					bool	Υ	false	
0.0.11		••••	for monitoring)		· (	0		e/false				
- Statu	usStopOp	tim	stop optimization	active	e (mainly	0	true	e/false	bool	Υ	false	
			for monitoring)		` ,							
- Sum	merMode		room heating is d	0	true	e/false	bool	Υ	false			
			local summer/win	iter m	ode							
	nunicatio									_		
	ding Groւ	ıp:										
Clas			Туре				Default					
	ographica		Apartment.Roor	m.Sub	zone			1.1.1				
	plication S	Specific_				<u></u> -						
	assigned		Broadcast		Configura	ıble 💹						
	Address:		IO Type(ID):		60 (HZC)			operty II		54		
	-Services				nRepTime		10	sec	Hea	rtbeat:	15 min	
	oReport	<u> </u>	Output per defa	ult co	mmunicat	ting	Biı	ndina Gr	bliW quo	card allov	wed $\square$	
	TE Read-F				1 II I				•			
	lling of the all always		Tx Prio:		High 🗌			Normal	<u> </u>	Low	<u>′                                    </u>	
		De	Transm after Po	Transm after Powerup: Stored Value ☐ Act Value ☐ De							alue 🗌	
supported)  Property-Service  Pood only  Property-Service												
	(individual access):											
	otion Han		<u> </u>						Save	at Power	down	
	Z.OH HAH	unig.							Cave	at i owei		
Speci	al Featur	es:										

# 2.2.4.6 Output Fault

# **Standard Mode**

DP	Name:	Fau	ılt			Abbr.:				Manda	Mandatory		
FB	Name:	HZ(	С							Can b	e interna	al	
Des	scription												
			the HZ	ZC, ma	ainly used	for visualisa	tion						
	apoint Ty	ре											
DP	T_Name:	D	PT_Bo	ol									
	T Format:	B.							DPT_ID:				
Fiel	d	D	escripti	on					Supp.	Range	Unit	Default	
											false		
Acc	cess Type												
<b>*</b>	Output												
t	$his \rightarrow M$			t	his $\rightarrow$ 1								
Spontaneous   COV:   Δ-Value:   Min repetition period:   10s													
				Cyclic		Period:	15 M	in					
	Request												
Cor	<u>mmunicati</u>	ion	Type										
<b>♦</b>	Group Ob	ject	Datapo	oint						Mandator	y: 🛛 🖂		
[	Default Gro	oup	Addres	ss: -	-								
Dyr	namics												
_	Power dow	n:	Save:										
F	Power up:		Value	):	No initiali	sation:			ılt value:				
					Saved va		<u> </u>		•	ot for input			
				mit on	bus (only	for output):		Read	from bus	(only for ir	nput):		
Exc	eption Ha	ndl	ing										
Spe	ecial Featu	ıres											

LTE-HEE mode: NA

# 2.2.4.7 Output StatusMorningBoost

# **Standard Mode**

DP Name:	Sta	ıtusMornin	igBoo	ost	Abbr.:			Mandatory					
FB Name:	HZ	С							Can be	e interna	al [		
Description													
morning boos	t fur	nction activ	ve, m	ainly used f	for visualis	sation							
<b>Datapoint Ty</b>	ре												
DPT_Name:	D	PT_Bool											
<b>DPT Format:</b>	В	1						DPT ID: 1.002					
Field	D	escription						Supp.	Range	Unit	Default	t	
										false	,		
<b>Access Type</b>	)												
♦ Output													
this $\rightarrow$ M		$\boxtimes$	thi	is $\rightarrow$ 1									
Spontaneous   COV:   Δ-Value:   Min repetition period: 10s													
		C	yclic		Period:	15 Mi	n	-					
Request													
Communicat	tion	Туре											
♦ Group Ob	oject	Datapoint	t						Mandatory	y: 🛛 🖂			
Default Gr	oup	Address:											
Dynamics													
Power dov	vn:	Save:											
Power up:		Value:	1	No initialisa	tion:		Defau	ılt value:					
			5	Saved value	e:	]	Actua	l value (n	ot for input	): 🛛			
		Transmi	t on b	ous (only for	r output):		Read	from bus	(only for in	put):			
<b>Exception H</b>	andl	ling											
<b>Special Feat</b>	ures	;											
											_		

LTE-HEE mode: NA

## 2.2.4.8 Output StatusECO

#### **Standard Mode**

DP Name:	S	tatusECO		Abbr.:				Ma	andat	ory		
FB Name:	H	ZC						Ca	an be	interna	al 🗌	
Description	n											
		ctive (room heat			iced/off	due to	high outsi	de ten	npera	ture or	high	
room temp	eratu	re), mainly used	d for visualisa	tion								
<b>Datapoint</b>		)										
DPT_Nam		DPT_Bool										
DPT Form	at:	B <sub>1</sub>					DPT_ID:	1.0	002			
Field		Description					Supp.	Range	е	Unit	Default	
											false	
Access Ty	/ре											
♦ Output	t											
this $\rightarrow$ I	М	⊠ ti	nis → 1									
Sponta	neou	S COV:		Δ-Value:		Min	repetition	period	d:	10s		
		Cyclic		Period:	15 Mi	n						
Reques												
Communi	catio	n Type										
♦ Group	Obje	ct Datapoint						Mand	atory	: 🛛		
Default	Grou	p Address:	-									
<b>Dynamics</b>	;											
Power	down	: Save:										
Power i	up:	Value:	No initialisati	on:		Defau	ılt value:					
			Saved value:	: [		Actua	l value (no	ot for in	nput):			
		Transmit on	bus (only for	output):		Read	from bus	(only f	or inp	out):		
Exception	Han	dling										
Special Fe	atur	es										

LTE-HEE mode: NA

# 2.2.4.9 Output SummerMode

#### **Standard Mode**

DP N	lame:	SummerM	lode		Abbr.:				Manda	tory	
FB N	lame:	HZC							Can be	interna	al 🗌
Desc	ription										
room	heating is	s disabled	due to	local summe	er/winter r	node, m	ainly u	sed for vis	sualisation		
Data	point Typ	e									
DPT	Name:	DPT_Bo	ol								
DPT	Format:	B <sub>1</sub>						DPT_ID:	1.002		
Field		Descript	ion					Supp.	Range	Unit	Default
											false
Acce	ess Type										
<b>♦</b> C	Dutput										
th	$iis \to M$		t	his $\rightarrow$ 1							
S	pontaneo	us 🖂	COV:		Δ-Value:		Minl	RepTime:		10s	
			Cyclic		Period:	15 Mi	n				
R	equest	$\boxtimes$									
Com	municati	on Type									
<b>♦</b> (	Group Obj	ect Datap	oint						Mandatory	<i>'</i> :	
D	efault Gro	up Addres	ss: -	-							
Dyna	amics										
Po	ower dow	n: Save	:								
Po	ower up:	Value	<b>e</b> :	No initialisat	ion:		Defau	ılt value:			
				Saved value	e:		Actua	I value (no	ot for input)	:	
		Trans	smit on	bus (only for	output):		Read	from bus	(only for in	put):	
Exce	ption Ha	ndling									
Spec	ial Featu	res									

LTE-HEE mode: NA

# 2.2.4.10 Output TempFlowWaterHZC

#### **Standard Mode**

DP Name:	TempFlowWater	HZC	Abbr.:				Mandat	tory	
FB Name:	HZC						Can be	interna	al
Description									
Current flow to	mperature of the	heating zon	е						
Datapoint Type									
DPT_Name:	DPT_Value_Te	emp							
DPT Format:	F <sub>16</sub>					T_ID:	9.001		•
Field	Description				Su		ange	Unit	Default
						fu	II range	°C	CS
Access Type									
◆ Output									
this $\rightarrow$ M		his → 1							
Spontaneo			Δ-Value:			petition <sub>l</sub>	period:	10s	
	Cyclic		Period:	15 Mi	n				
Request									
Communicati									
	ect Datapoint					M	andatory	<i>ı</i> :   🖂	
	oup Address:  -	-							
Dynamics									
Power dow	n: Save:								
Power up:	Value:	No initialisa			Default va				
		Saved value	~ -		Actual va				
		bus (only fo	r output):		Read from	n bus (o	nly for in	put):	
<b>Exception Ha</b>	ndling								
Special Featu	res								

FB:	HZC	LTE S	erve	r Output Name:	T	empFlowW	/aterHZ	<u>'C</u>				datory 🗌
Desc	ription:										-	
Curre	nt flow ter	mperat	ure o	of the heating zone	Э							
DPT:	Name	DPT	Tem	npHVACAbs_Z		DPT ID	205.10	0	Datatype	format	$V_{16}Z_{8}$	
Field			Des	cription			Sup.	Ra	ange	Unit	COV	Default
Temp			flow	temperature valu	е		М	ful	l	°C	2	cs
Status	3		stan	dard Status attrib	ute	es						
- Faul	-		sens	sor failure true / fa	lse	)	M		e/false	bool	Υ	false
- InAla	_		sens	sor value alarm tru	Je.	/false	0	tru	ie/false	bool	Υ	false
- Aları	mUnAck		alarr	m acknowledgeme	ent	status	0	ac	k/unack	bool	Υ	unack
				/ unack								
	ther flags			supported				ļ				
Comn	nand			dard Commands,	W	rite only						
- Aları	mAck			m acknowledge			0					
- all o	ther		not s	supported			NA					
comm	nands											
	nunicatio							_				
	ding Groເ	лр:										
Clas	SS			Type					Defau	ılt		
Ge	eographic	al	$\boxtimes$	Apartment.Room	ı.S	ubzone			1.1.1			
Ap	plication	Specific	c									
Ur	assigned			Broadcast		Configura	able 🔲					
DP	Address:			IO Type(ID):		160 (HZC)		Р	roperty ID	: 5	55	
LTE	-Services	s (ever	ıt):	COV 🛛	N	<b>MinRepTime</b>	e:	1	0 sec	Heart	beat:	15 min
Inf	oReport		Ĭ	Output per defau	lt c	communicat	ting	Ь	inding Cr	Nun Wildo	ard allow	uod 🗆
(L	TE Read-l	Respor	nse				_		inding Gro	oup wilde	aru allov	veu 🗀
	lling of the		ıt	Tx Prio:		High 🗌			Normal D	$\leq$	Low	
	all always	be		Transm after Pov	۸/۵۱	run: Storod	l Value		Act Valu	ıo M D	efault Va	alua 🗆
	pported)			Transin alter For	WEI	iup. Stored	value	Ш	ACI Vali		Clault V	alue 🔲
	perty-Ser			Read only [			Read/V	Vrit	e 🖂	1)		
•	ividual ad			rtodd omy								
Exce	otion Han	ndling:								Save a	t Power	down
	ial Featur											
<sup>1)</sup> writ	e access	is option	nal:	for AlarmAck fund	ctic	n onlv						

## 2.2.4.11 Input StatusHPM

## **Standard Mode**

Not applicable

FB:	HZC	LTE Clien	t Input Name:	StatusHPM					datory [] otional [X]
Desc	ription:			-				-	
			s status informa					also used	for local
contro	ol function	ality in the l	HZC (company s	specific solution			.1		
DPT:	Name	DPT_Stat	usHPM	DPT ID	209.100	Datatyp	e format	$V_{16}B_{8}$	
Field			Description				Sup.	Unit	Default
Temp	FlowProd	SegmH	common flow to	emperature of h	neat prod	luction	M	°C	CS
			segment						
Attrib									
	pFlowVal	id	validity of Temp				M	bool	false
- Faul	t		one or more bo				М	bool	false
			ction in the						
			ue to local						
- Sum	merMode	<b>!</b>	0	bool	false				
0,110			toring)						
- OffP	'erm		boilers are perr	nanently off (m	ıanuai sw	litch or	0	bool	false
N1-11	l 4 A !I - I	L. I	failure)					h 1	6-1
- NOH	leatAvaila	bie	boiler / boiler se	equence is tem	g O	bool	false		
0	!4!-		пеас				<u> </u>	<u> </u>	
	nunicatio								
	ding Grou	ıp:	T			Defect			
Clas			Туре			Default			
	eographic		Diotrogram		<b>-</b>	1			
		Specific	DistrSegmH Broadcast ☐	Configural		- !			
	nassigned Address:		IO Type(ID):	Configural 136 (HPM		Property I	D.	51	
	-Service	/ovent\.	InfoReport Sni			Property i	υ.	31	
	oReport	(event).	Timeout:	ner on binding		Min			
	-Service		Timeout.		31	IVIIII			
	ead – Res		Read Wildcard	/ Resp Sniffer	on Bindir	ng Group:			
Value	after Po	werup:	Defa	ult Value 🛚				Stored Va	lue 🗌
Exce	ption Han	dling:				5	Save at Po	owerdown	
		_							
Spec	ial Featur	es:							

## 2.2.4.12 Input LockSignHPM

### **Standard Mode**

Not applicable

FB:	HZC	LTE Clien	t Input Name:	LockSignHP	M				ndatory 🗌 Optional 🖂
Desc	ription:								puonai 🔼
		1.3 and doo	cument [09]						
DPT:		DPT Loc		DPT ID	207.101	Datatype	e format	U <sub>8</sub> B <sub>8</sub>	
Field	1.10		Description	12	1=0	= = = = = = = = = = = = = = = = = = =	Sup.	Unit	Default
PwrR	eduction		Requested pow	ver-consumption	on reduction	on	M	%	cs
			- 0 % no redu						
			– 100% max. re	eduction					
Attrib	utes		Bitset containin	g status info					
– Loc	kRequest		indicates if pow	er reduction is	necessa	ry (validity	M	bool	false
– Typ	bool	uncritical							
Com	municatio	n:	•				-	-	-
Bin	ding Gro	up:							
Cla	SS		Туре			Default			
	eographic								
A	plication	Specific⊠	DistrSegmH			1			
	nassigned		Broadcast	Configura					
	Address:		IO Type(ID):	136 (HPN		Property ID	):	54	
	E-Service	(event):	InfoReport Sni	ffer on Bindin					
	foReport	$\boxtimes$	Timeout: 1)		7	Min			
	E <b>-Service</b> ead – Res	<b>(polling):</b> ponse□	Read Wildcard	/ Resp Sniffer	on Bindin	g Group:			
Value	e after Po	werup:	Defa	ult Value 🛚		•		Stored V	′alue 🗌
Exce	ption Har	ndling:				S	ave at Po	owerdow	n 🗌
	ial Featur								
			n event and perio						
			overload conditi						
			be repeated by t						
	• ,		transmission is	stopped until a	new over	rload conditi	ion appe	ars (this	procedure
reduc	es unnec	essary bus-	·load)						

## 2.2.4.13 Input ForceSignHPM

#### **Standard Mode**

Not applicable

FB:	HZC	LTE Clier	t Input Name:	ForceSignI	HPM				datory 🗌 otional 🖂
Desc	ription:								raoriai 🔼
		1.5 and do	cument [09]						
DPT:	Name	DPT For	ceSign	DPT ID	21.100	Dataty	oe format	B <sub>8</sub>	
Field			Description	· ·			Sup.	Unit	Default
Attribu	utes		Bitset containing	status info					
- Ford	eReques	t	indicates overhe	at condition in	n the HPM	(validity of	М	bool	false
- Prot	ection		remaining attribu indicates that ove temp		cal, too hig	h boiler	М	bool	false
- Ove	rsupply		indicates that ove is much higher th				M	bool	false
- Ove	rrun		indicates that rer boiler(s) after loa	naining energ			M	bool	false
- DHV	VNorm 2)		Load DHW to 'No ('Protection' or 'C	ormal' Level i			NA	bool	false
- DHV	VLegio <sup>2)</sup>	NA	bool	false					
- Roo	mHComf		supported Load Room Heat overheat ('Proted			n case of	М	bool	false
- Roo	mHMax		Load Room Heat temperature in ca	ing with max	kimum flow		М	bool	false
_			'Oversupply')						<u></u>
	nunicatio								
	ding Grou	ıp:	Τ_			I =			
Clas		. –	Туре			Default			
	eographic								<del>-</del>
		Specific⊠	DistrSegmH			1			
	nassigned		Broadcast	Configur				=-	
	Address:		IO Type(ID):	136 (HF		Property	ID:	53	
	-Service		InfoReport Sni	fer on Bindi		n 4:			
	oReport		Timeout: 1)		7	Min			
	: <b>-Service</b> ead – Res	(polling):	Read Wildcard	/ Resp Sniffe	er on Bindir	ng Group:			
	after Po		Defa	ult Value 🖂			-	Stored Va	lue 🗌
	ption Har					[ 9	Save at Po		
		· · · · · · · · · · · · · · · · · · ·							
Speci	ial Featur	es:							
1) The attributo fals mess	signal is ute is true se and the ages). Aft es unnece	received o . When the signal will erwards re essary bus	n event and perion forcing condition be repeated by the transmission is selected.	in the HPM the HPM with stopped until	disappears the hearth a new forc	s, the Force beat-period cing condition	eRequest during 9 i on appear	attribute of minutes (3 s (this pro	hanges cedure
of ove	M with hig erheat. Th	her functio e flags for	nality may indica DHW are not cor	te whether D isidered in th	)HW or Roo ne HZC	om Heating	should be	e activate	d in case

## 2.2.4.14 Input LockSignHFDM

### **Standard Mode**

Not applicable

FB:	HZC	LTE Clien	t Input Name:	Loc	ckSignHF	тDМ					ndatory 🔲	
_		-		_						C	optional 🖂	
	ription:											
			cument [09]		т					1		
DPT:	Name	DPT_Loc			DPT ID	207.10	)1	Datatyp	e format	U <sub>8</sub> B <sub>8</sub>		
Field			Description						Sup.	Unit	Default	
PwrR	eduction		Requested pow			on reduc	ction	1	M	%	cs	
			– 0 % no redu									
			– 100% max. re									
Attrib			Bitset containing									
- Loc	kRequest		indicates if pow		eduction is	s necess	ary	(validity	M	bool	false	
			of PwrReductio									
– Тур	е		type of overload		lue is onl	y meanir	ngfu	ıl if	$M^{2)}$	bool	uncritical	
			LockRequest=ti	rue								
Com	Communication:											
Bine	Binding Group:											
Clas	SS		Туре				D	efault				
	eographica											
Ap	plication	Specific⊠	DistrSegmH				1					
	nassigned		Broadcast Configurable									
	Address:		IO Type(ID):		144 (HFI			Property I	D:	52		
LTE	-Service	(event):	InfoReport Snit	ffer	on Bindin	g Group	:					
	oReport	$\boxtimes$	Timeout: 1)			7	7 M	lin				
	-Service		Read Wildcard	/ Pa	en Sniffer	on Rino	lina	Group:				
Re	ead – Res	ponse	Tread Wildcard	/ 110	sp Silliei	OH BING	iiig	Group.				
Value	after Po	werup:	Defa	ult V	alue 🛚				•	Stored V	′alue 🗌	
Exce	ption Han	dling:						9	Save at Po	werdow	'n 🗌	
	Special Features:											
	The signal is received on event and periodically (if no COV occurred) as long as the LockRequest											
	tribute is true. If LockRequest attribute changes to false, the signal is still repeated by the preceding											
			period during 9 m							ssion is	stopped	
			on appears (this									
<sup>2)</sup> Loc	kSignHFD	M have us	ually the type 'ur	ncriti	cal' – only	y the % v	/alu	e varies.	At the mo	ment no	useful	
applic	cations for	'critical' Lo	ckSignHFDM are	e kno	own. But	in princip	ole i	t is allowe	ed to impl	ement 'c	ritical'	
Locks	SignHEDM	I and the H	7C shall react ac	corc	dinaly							

## 2.2.4.15 Input ForceSignHFDM

#### **Standard Mode**

Not applicable

FB:	HZC	LTE Clie	nt Input Name:	ForceSig	gnHF	DM				datory 🗌 otional 🖂
Desc	ription:			_						
		1.7 and do	ocument [09]							
DPT:	Name	DPT Fo		DPT	ID	21.101	Dataty	pe format	B <sub>8</sub>	
Field		_	Description					Sup.	Unit	Default
Attrib	utes		•							
- Ford	eReques	t	indicates if force (validity of the re			nption is	necessary	/ M	bool	false
- Prot	ection		indicates that over			e.g. in h	eat	М	bool	false
- Ove	rsupply		indicates that over is much higher the					М	bool	false
- Ove	rrun		indicates that rer	naining en	nergy	is availa		М	bool	false
- DHV	VNorm 2)		heat-exchanger a Load DHW to 'No ('Protection' or 'C	ormal' Lev	el in	case of c		NA	bool	false
- DHV	VLegio <sup>2)</sup>		Load DHW to 'Le	gioProtec	ť Lev	el in cas	e of	NA	bool	false
- Roo	mHComf		supported Load Room Hea				case of	М	bool	false
- Roo	mHMax		overheat ('Protect Load Room Hear temperature in ca	ing with m	naxim	ium flow	tion' or	М	bool	false
			'Oversupply')	200 01 010		(1.10100				
Comi	nunicatio	n:						-	-	-
Bin	ding Grou	ıp:								
Clas	SS		Туре				Default			
Ge	eographic	al 🗌								
Ap	plication	Specific	DistrSegmH				1			
Ur	nassigned		Broadcast	Config	gurat	ole 🔲				
DP	Address:		IO Type(ID):	144 (	HFDI	M)	Property	ID:	53	
LTE	-Service	(event):	InfoReport Sni	ffer on Bir	nding	Group:				
Inf	oReport		Timeout: 1)			7	Min			
LTE	-Service	(polling):	Read Wildcard	/ Doon Cn	iffor	on Dindir	or Croup:			
Re	ead – Res	ponse	Read Wildcard	r Resp Sil	illier (	ווטוזום וזכ	ig Group.			
Value	after Po	werup:	Defa	ult Value 🏻	$\boxtimes$			;	Stored Va	alue 🗌
Exce	ption Har	ndling:						Save at Po	werdowr	1
	ial Featur									
attributo fals	ute is true se and the	. When the signal wil	on event and perion of forcing condition of the repeated by the of transmission is:	n in the HF the HFDM	DM o	disappea the hear	rs, the For tbeat-perio	ceReques od during 9	t attribute minutes	changes (3
reduc	es unnece	essary bus					•		, ,	
case	of overhea	at. The flag	gs for DHW are n	ot conside	red i	the HZ	C	ng should i	oc activat	.00 111

# 2.2.4.16 Input TempFlowWater

#### **Standard Mode**

DP Name:		npFlowWate	r		Abbr.:					Ma	andat	tory	
FB Name:	HZC									Ca	n be	intern	al 🛛
Description													
see LTE-HEE	mod	de											
<b>Datapoint Ty</b>	ре												
DPT_Name:	DI	PT_Value_T	emp										
DPT Format:	F <sub>1</sub>	6						DP	T_ID:	9.0	001		
Field	De	escription						Sup	op.	Range	е	Unit	Default
										full rai	nge	°C	CS
Access Type	;												
♦ Input													
$N \rightarrow this$			$1 \rightarrow th$	is	$\leq$								
Spontaneo	ous			Cyclica	lly:				Time	-out:		31 mi	n
Request				Polling:					Perio	od:			
Communicat	tion <sup>-</sup>	Гуре											
♦ Group Ob	oject	Datapoint								Manda	atory	/:	
Default Gr	oup	Address:								•		•	
Dynamics													
Power dov	vn:	Save:											
Power up:		Value:	No in	itialisatio	on: [		Defa	ult va	alue:				
			Save	d value:			Actu	al val	lue (n	ot for ir	nput)		
		Transmit o	n bus (	only for	output)	: 🗆	Read	d fron	n bus	(only f	or in	out):	
<b>Exception H</b>	andli	ng											
<b>Special Feat</b>	ures												

FB: HZC	LTE Clien	t Input Name:	Ter	mpFlowWa	ater					datory 🗌
Description:	<u> </u>								<u> </u>	
		flow temperature							mperature	e of the
		=> may be used	l in t							
<b>DPT</b> : Name	DPT_Ten	npHVACAbs_Z		DPT ID	205.100	)	Datatyp	oe format	$V_{16}Z_{8}$	
Field		Description						Sup.	Unit	Default
TempFlowWat	er	temperature val						M	°C	cs
Status		standard Status						M	bitset	
<ul> <li>OutOfService</li> </ul>		void sensor valu						M	bool	false
- Fault		sensor failure tr						M	bool	false
- Overridden sensor value overridden true / false O										false
- InAlarm sensor value alarm true /false O b										false
- AlarmUnAck alarm acknowledgement status ack / unack O bool unack										
- all other flags not supported NA bool										
Communication	on:									
Binding Gro	up:									
Class		Туре				Def	fault			
Geographic										
Application	Specific⊠	DistrSegmH				1				
Unassigned		Broadcast		Configurat	ole 🗌					
DP Address:		IO Type(ID):		324 (FWT	S)	Pr	operty I	D:	51	
LTE-Service	(event):	InfoReport Snif	fer	on Binding	Group:					
InfoReport	$\boxtimes$	Timeout:			31	Mir	1			
LTE-Service Read – Res		Read Wildcard	/ Re	sp Sniffer	on Bindir	ng G	Group:			
Value after Po	alue after Powerup: Default Value ⊠ Stored Value □									
<b>Exception Hai</b>	ndling:						9	Save at Po	werdown	
		ny specific defau	ılt va	alue after p	ower-up	or i	n case	of commu	nication fa	ailure, if
no sensor data	is received									
Special Featur	res:									
This input can	be internal									

# 2.2.4.17 Input TempReturnWater

#### **Standard Mode**

DP Name:	Ten	npReturnWat	er		Abbr.:						Manda	tory	
FB Name:	HZ										Can be	intern	al 🛛
Description													
see LTE-HEE		de											
<b>Datapoint Ty</b>													
DPT_Name:		PT_Value_Te	emp										
DPT Format:	F <sub>1</sub>							DF	PT_ID:		9.001		
Field	De	escription						Sι	ірр.		nge	Unit	Default
										full	range	°C	CS
Access Type	•												
♦ Input													
$N \rightarrow this$		]	$1 \rightarrow \text{this}$	s D									
Spontaneo	ous		(	Cyclica	lly:	$\square$			Time	-out	:	31 mi	n
Request				Polling:					Perio	od:			
Communicat	tion	Туре											
♦ Group Ob	oject	Datapoint								Ma	ndatory	/:	
Default Gr	oup.	Address: -	-										
Dynamics													
Power dov	vn:	Save:											
Power up:		Value:	No init	tialisatio	on:		Defa	ault v	alue:				
			Saved	d value:			Actu	ıal va	alue (n	ot fo	r input)	):	
		Transmit on	bus (o	nly for	output):		Rea	d fro	m bus	(onl	ly for in	put):	
<b>Exception H</b>	andli	ing											
<b>Special Feat</b>	ures												

FB: HZC	LTE Clien	t Input Name:			latory ☐ tional ⊠						
Description:									<del></del>		
		temperature ser							erature o	f the	
		=> may be used	l in t								
<b>DPT</b> : Name	DPT_Ten	npHVACAbs_Z		DPT ID	205.100	] (	Dataty	pe format	$V_{16}Z_{8}$		
Field		Description						Sup.	Unit	Default	
TempReturnW	ater	temperature val						M	°C	cs	
Status		standard Status						M	bitset		
- OutOfService	)	void sensor valu sensor failure tr						M M	bool	false	
- Fault	bool	false									
<ul> <li>Overridden</li> </ul>	bool	false									
- InAlarm	bool	false									
- AlarmUnAck	bool	unack									
- all other flags	bool										
Communicati	on:										
Binding Gro	up:										
Class		Туре				Def	ault				
Geographic											
Application	Specific⊠	DistrSegmH				1					
Unassigned	d 🗌	Broadcast		Configurat	ole 🗌						
DP Address	:	IO Type(ID):		325 (RNW	/TS)	Pro	perty	ID:	51		
LTE-Service	(event):	InfoReport Snif	fer	on Binding							
InfoReport	$\boxtimes$	Timeout:			31	Min					
LTE-Service Read – Res		Read Wildcard	/ Re	sp Sniffer	on Bindir	ng G	roup:				
Value after Po	Value after Powerup: Default Value ☑ Stored Value ☐										
<b>Exception Ha</b>	ndling:						(	Save at Po	werdown		
The HZC will u	ise a compa	ny specific defau	ılt va	alue after p	ower-up	or ir	n case	of commu	nication fa	ailure, if	
no sensor data	is received	·									
Special Featu	pecial Features:										
This input can											

# 2.2.4.18 Input HVACModeEff

### **Standard Mode**

Not applicable

FB: HZC	LTE CI	ientInput Name:	HVACMo	deEff				Mandat	ory 🛛 1)		
								Opt	tional 🗌		
Description:											
This input is provide	ded by th	ne RSMHD and defir	nes the act	ual HVA0	Сор	erating r	node of t	he heating	zone		
	PT_HVA	ACMode_Z	DPT ID	201.100	) [	Datatype	format	$N_8Z_8$			
Field		Description					Sup.	Unit	Default		
HVACMode		Actual HVAC Mode		.4] <sup>2)</sup>			M	enum.	cs		
Status		standard Status att	ributes								
<ul> <li>Overridden</li> </ul>		HVACMode overric	dden true /	false			0	bool	false		
- all other flags		not supported					NA				
Communication:											
Binding Group:											
Class Type Default Geographical Apartment . Room . SubZone 1.1.1											
Geographical Apartment . Room . SubZone 1.1.1											
Application Spe	ecific								<b>.</b>		
Unassigned		Broadcast	Configura								
DP Address:		IO Type(ID):	100 (RSM		Pro	operty ID	):	51			
LTE-Service (ev	/ent <u>):</u>	InfoReport Sniffer	on Binding	g Group:		•					
InfoReport	$\boxtimes$	Timeout:		31	Min	1					
LTE-Service (po Read – Respon		Read Wildcard / Re	esp Sniffer	on Bindir	ng G	Group:					
Value after Powe	r-up:	Default \	/alue ⊠			•	;	Stored Val	ue 🗌		
Exception Handling: Save at Powerdown											
-											
<b>Special Features</b>	:										
If the signal HVAC	ModeOp	otim is received from	n an extern	al Optimi	zer,	the HZC	will igno	ore the sig	nal		
		SMHD and use the o									
	Either implementation of {HVACModeEff + TempRoomSetpSetHeatEff [4] (+ HVACModeEffNext) } or										
{TempRoomSetp	oHeatEff	}. This input can be	device-inte	rnal							
<sup>2)</sup> value 0='Auto' is	not allo	wed => to be ignore	d by the H	ZC => us	e de	efault val	ue				

## 2.2.4.19 Input TempRoomSetpSetHeatEff [4]

### **Standard Mode**

Not applicable

FB:	HZC	LTE Clien	tInput Name:	iput Name: TempRoomSetpSetHeatEff [4] Mandatory Option									
Descr	iption:						<u></u>	tional					
This in	put is pro			contains the four effecti	ve (after co	rrections)	heating ro	om					
tempe	rature se	tpoints whic	ch are valid for th	e controller.									
DPT:	Name	DPT_Ten	npRoomSetpSet[	[4] DPT ID 213.100	0 Datatyp	oe format	V <sub>16</sub> V <sub>16</sub> V <sub>16</sub>	<sub>5</sub> V <sub>16</sub>					
Field		Sup.	Unit	Default									
Temps	SetpCom	f		M	°C	CS							
Temps	SetpStdb	y		0	°C	cs							
Temps	SetpEco		Economy setpo			M	°C	cs					
Temps	SetpBPro	t	<b>Building protect</b>	ion setpoint heating		M	°C	CS					
Comn	nunicatio	n:	-			- ·	=	=					
Bind	ling Grou	ıp:											
Binding Group:  Class Type Default													
Ge	ographica	al 🛛	Apartment . Roo	om . SubZone	1.1.1								
Ар	plication	Specific											
Un	assigned		Broadcast	Configurable									
DP A	Address:		IO Type(ID):	100 (RSMHD)	Property I	ID:	53						
LTE-	Service	(event):	InfoReport Snif	fer on Binding Group:									
Info	Report	$\boxtimes$	Timeout:	31	Min								
	<b>-Service</b> ad – Res	(polling): ponse	Read Wildcard	Resp Sniffer on Bindi	ng Group:								
Value after Power-up:    Default Value       □    Stored Value													
Excep	tion Han	dling:			(5	Save at Po	werdown						
Speci	Special Features:												
1) Eithe	Either implementation of {HVACModeEff + TempRoomSetpSetHeatEff [4] (+ HVACModeEffNext) } or												
{Ten	npRoomS	SetpHeatEff	}. This input can	be device-internal	- <del>-</del> ·			-					

## 2.2.4.20 Input HVACModeEffNext

#### **Standard Mode**

Not applicable

#### LTE-HEE Mode:

FB:	HZC	LTE CI	ientInput Name:	HVACMod	leEffNe	ĸt			latory $\square$			
Desc	ription:							Орш	Ullai 🔼			
		vided by th	ne RSMHD and defir	nes the nev	t HVAC	onerating	mode and	the delay t	ime to it			
			the HZC for local o						iiiic to it.			
DPT:	Name		ACModeNext	DPT ID	206.100		ype format	1				
Field	110		Description		1		Sup.	Unit	Default			
Delay	Time		Time to next HVAC	mode in m	ninutes		М	min	0			
			0 = no next HVAC	Mode avail	able <sup>2)</sup>							
HVAC	enum.	cs										
Communication:												
Bine	Binding Group:											
Clas	Class Type Default											
Ge	eographica		Apartment . Room	. SubZone		1.1.1						
Ap	plication S	pecific										
Ur	nassigned		Broadcast	Configurat	ole 🗌							
DP.	Address:		IO Type(ID):	100 (RSM	HD)	Property	y ID:	52				
	-Service (	event):	InfoReport Sniffer	on Binding	Group:							
	oReport		Timeout:		31	Min						
	- <b>Service (</b> ead – Resp		Read Wildcard / Re	esp Sniffer	on Bindiı	ng Group	:					
Value	Value after Power-up:   Default Value      □   Stored Value											
Exce	otion Hand	dling:					Save at Po	owerdown				
Spec	ial Feature	es:										
			{ HVACModeEff + 7			heatEff [4	] (+ HVACN	/lodeEffNe	xt) } or			
ູ{ Te	TempRoomSetpHeatEff }. This input can be device-internal											
<sup>2)</sup> enc	ncoding of special conditions, see table below											

### Interpretation of Time and HVACMode fields

Time	HVACMode	
= 0 (Undefined)	= 0 (Undefined)	the content of the datapoint is void / undefined => no next HVAC Mode available for an undefined time period
= 0 (Undefined)	= {14}	defined and valid next HVACMode but the delay time is undefined/unknown => in case of manually selected HVACModeUser ≠ 'Auto' (i.e. next HVACMode = current HVACModeEff)
> 0	= 0 (Undefined)	undefined (unknown) HVACMode during a defined delay time => in practice this combination is useless and is interpreted like Time=0 / HVACMode=0 (default value)
> 0	= {14}	defined and valid HVACMode and delay time

# ${\bf 2.2.4.21\ Input\ TempRoomSetpHeatEff}$

#### **Standard Mode**

DP	Name:	Tem	pRoomSetp	HeatE	ff	Abbr.:					Man	date	ory		$\boxtimes$
FB	Name:	HZC									Can	be	interna	al	$\boxtimes$
De	scription														
see	e LTE-HEE	mod	e												
Da	tapoint Ty	ре													
	PT_Name:		T_Value_Te	emp											
DP	T Format:	F <sub>16</sub>							DP	T_ID:	9.00	1			
Fie	eld	Des	scription						Su	pp.	Range		Unit	Defa	ult
											full rang	ge	°C	C	S
Ac	cess Type														
<b>♦</b>	Input														
	$N \rightarrow this$		1	$1 \rightarrow th$	is	$\boxtimes$									
	Spontaneo	us			Cyclica	ally:	$\square$			Time	-out:		31 mir	1	
	Request				Polling	g:				Perio	d:				
Co	mmunicat	ion T	уре												
<b>♦</b>	Group Ob	ject D	Datapoint								Mandat	ory:			
	Default Gro	oup A	ddress: -	-											
Dy	namics														
	Power dow	/n:	Save:												
	Power up:		Value:	No in	itialisat	tion:		Defau	ult va	alue:			$\boxtimes$		
				Save	d value	e: [		Actua	ıl va	lue (n	ot for inp	out):			
			Transmit on	bus (	only for	output)	: [	Read	fror	n bus	(only for	· inp	ut):		
Ex	ception Ha	ndlir	ng												
Sp	ecial Featu	ıres													

FB: HZ	C C	LTE Client Input Name: TempRoomSetpHeatEff								Manda Op	tory $\boxtimes^{1)}$ tional $\Box$
Descripti	ion:										
			e RSMHD and d								t which
is valid fo	r the c	ontroller. T	his information is	use	ed for simp	le applic	catio	ns (hea	ting only)		
DPT:	Name	DPT_Tem	npHVACAbs_Z		DPT ID	205.10	0	Datatyp	e format	$V_{16}Z_{8}$	
Field			Description						Sup.	Unit	Default
Temperat	ture		room temperatu	re s	etpoint val	ue			M	°C	cs
Status			standard Status		ibutes				M	bitset	
- OutOfSe	ervice		void setpoint va						M	bool	false
<ul><li>Overridden</li><li>all other flags</li><li>setpoint value overridden true / false</li><li>not supported</li></ul>										bool	false
- all other		NA	bool								
Communication:											
Binding Group:											
Class Type Default											
	raphica		Apartment . Roo	om .	SubZone		1.1	<u>.1</u>			
		Specific				<u></u>					<b>.</b>
Unass	signed		Broadcast		Configural						
DP Add			IO Type(ID):		100 (RSM		Pr	operty I	D:	55	
LTE-Se		(event):	InfoReport Snif	fer	on Binding	Group:					
InfoRe	•		Timeout:			31	Mir	า			
		(polling): conse	Read Wildcard	/ Re	sp Sniffer	on Bindi	ng (	Group:			
Value after Powerup:    Default Value ∑    Stored Value □										lue 🗌	
Exceptio	n Han	dling:						5	Save at Po	werdown	
In case of	f missi	ng input da	ta (timeout) or va	alue	'OutOfSe	vice' the	HZ	C will h	ave a con	npany spe	cific
behaviou	r										
Special F	eature	es:									
	Either implementation of { HVACModeEff + TempRoomSetpSetheatEff [4] (+ HVACModeEffNext) } or										
{ TempRo	oomSe	tpHeatEff }	This input can	be d	levice-inte	nal					-

# 2.2.4.22 Input HVACModeOptim

### **Standard Mode**

Not applicable

FB:	HZC	LTE CI	ientInput Name:	HVACMo	deOptim					datory ☐ tional ⊠
Desci	ription:		_ Op	tional 🖂						
			by an external HVA	.C Optimis	er and de	efine	s the o	otimised F	IVAC ope	rating
	for the hea								1	
DPT:	Name	DPT_HVA	ACMode_Z	DPT ID	201.100	)	Datatyp	e format	$N_8Z_8$	
Field			Description			-11		Sup.	Unit	Default
	Mode		optimised HVAC M		e [14] or	0 '		M	enum.	0
Status			standard Status att					M	bitset	
	OfService		void value => no op not supported	otimized H	VAC Mod	de a	vailable		bool	true
	ther flags			NA	bool					
Communication:										
	Class Type Default									
Class Type Default										
	ographical		Apartment . Room	. SubZone		1.1	.1			
	plication S	pecific								
	assigned		Broadcast	Configura				_		
	Address:		IO Type(ID):	115 (HVA		Pr	operty I	D:	51	
	-Service (	<u> </u>	InfoReport Sniffer	on Bindin						
	oReport		Timeout:		31	Mir	1			
	-Service (		Read Wildcard / Re	esp Sniffer	on Bindii	na G	Group:			
	ad – Resp			<u> </u>		.9 -		_		
Value after Power-up:    Default Value □      Stored Value □										
Exce	otion Hand	lling:					5	Save at Po	werdown	
	al Feature									
			Status 'OutOfServic							
			TANT, if this signal i							
			gnore the signal HV	ACModeEf	f from the	RS	SMHD a	nd use th	e optimise	d HVAC
Mod	e instead i	f HVACMo	odeOptim is ≠ 'Auto							

## 2.2.4.23 Input TempRoomSetpOptimHeatShift

#### **Standard Mode:**

DP	Name:	Ten	npRoomSet	pOptim	HeatShift		Abbr.:			Manda	tory	
FΒ	Name:	HZC	)							Can be	internal	
De	scription											
					ernal HVAC					ion value to	the act	ual room
			<u>int. This shi</u>	ift value	is used e.g	. for ı	morning	boost.				
	tapoint Ty	_										
	T_Name:	_	PT_Value_1	Tempd								
	T Format:	F <sub>1</sub>							DPT_ID:	9.002		
Fie	ld	De	escription						Supp.	Range	Unit	Default
										full	K	0
Ac	cess Type											
<b>♦</b>	Input											
	$N \rightarrow this$			$1 \rightarrow th$	is 🛚							
	Spontaneo	us			Cyclically:				Time-	-out:	31min	
	Request				Polling:				Perio	d:		
Co	mmunicati	on T	Гуре									
<b>*</b>	Group Ob	ject	Datapoint							Mandatory	/: X	
	Default Gro	oup /	Address:									
Dy	namics											
	Power dow	'n:	Save:									
	Power up:		Value:	No in	itialisation:			Defau	It value:			
				Save	d value:							
								Read	from bus:			
Exc	ception Ha	ndli	ng					•				
Sp	ecial Featu	ıres										

#### **LTE-HEE Mode Interface:**

FB:	HZC	LTE Client TempRoomSetpOptimHeatShift Input Name:								datory 🗌		
<u> </u>		inpu	t Name	<u>.                                      </u>							Up	tional 🛚
	ription:			,	11117							
				om an extern					ectio	n value	to the act	tual room
				shift value is							1	
DPT:	Nam	e DF	PT_Ten	pHVACRel_2	<u> </u>	DPT ID	205.10°	1 Data	type	format	$V_{16}Z_{8}$	
Field				Description						Sup.	Unit	Default
Temp	Temperature room temperature setpoint shift value M										K	0
Status standard Status attributes M								М	bitset			
- all flags not supported, can be ignored										NA	bool	
Comr	nunicat	ion:		-					<u> </u>		•	
Bind	Communication: Binding Group:											
Clas	SS			Туре				Default				
Ge	ographi	ical	$\boxtimes$	Apartment . I	Room	. SubZone		1.1.1				
Ар	plication	າ Spe	cific 🗌									
Un	assigne	ed		Broadcast [		Configural	ole 🗌					
DP A	Address	s:		IO Type(ID):		115 (HVA	COPT)	Propert	y ID:		52	
LTE	-Servic	e (eve	ent):	InfoReport S	Sniffer	on Binding	Group:					
Inf	oReport	t	$\boxtimes$	Timeout:			31	Min				
	-Servic			Read Wildca	rd / Re	esp Sniffer	on Bindii	ng Group	:			
Value after Power-up:   Default Value    Stor									Stored Va	lue 🗌		
Excep	otion Ha	andlin	ng:						Sav	e at Po	werdown	
Speci	ial Feat	ures:										
											-	

# 2.2.4.24 Input TempRoom

### **Standard Mode**

DF	Name:	Tem	pRoom			Abbr.:	_	-				Mand	latory		
FB	Name:	HZC										Can b	e inte	nal	$\boxtimes$
De	scription														
Cu	rrent room	temp	erature valu	e from	RTS										
	tapoint Ty														
	PT_Name:		T_Value_T	emp											
DF	PT Format:	F <sub>16</sub>								DP	T_ID:	9.001			
Fie	eld	Des	scription							Su	pp.	Range	Unit	Det	fault
												full range	e °C		CS
Ac	cess Type														
<b>♦</b>	Input														
	$N \to this$			$1 \rightarrow th$	is	$ \boxtimes$									
	Spontaneo	us	$\boxtimes$		Cyclic	cally:		$\boxtimes$			Time	-out:	31 r	nin	
	Request				Pollin	ıg:					Perio	d:			
Co	mmunicati	on T	уре												
<b>♦</b>	Group Ob	ject D	Datapoint									Mandato	ry: [		
	Default Gro	oup A	ddress:												
Dy	namics														
	Power dow	'n:	Save:												
	Power up:		Value:	No in	itialisa	ation:			Defau				_	$\boxtimes$	
					d valu							ot for inpu			
			Transmit or	n bus (	only fo	or output)	):		Read	fror	n bus	(only for i	input):		
Ex	ception Ha	ndlir	ng												
Sp	ecial Featu	ires													

FB:	HZC	LTE Clien	t Input Name:	Ter	mpRoom						datory 🗌	
Desc	ription:			-						1 01	Aloriai 🔼	
		gnal from a	room temperatu	re s	ensor RTS	S contain:	s th	e current	room te	mperature	e of the	
	ng zone `	-	·							•		
DPT:	Name	DPT_Ten	npHVACAbs_Z		DPT ID	205.100	)	Datatype	format	$V_{16}Z_{8}$		
Field			Description						Sup.	Unit	Default	
Temp	Room		current room ter	mpe	rature valu	ue			M	°C	cs	
Status			standard Status						M	bitset		
	OfService		void sensor valu						M	bool	false	
									M	bool	false	
	rridden		sensor value ov						0	bool	false	
- InAlarm sensor value alarm true /false O									bool	false		
										bool	unack	
- all other flags not supported NA b										bool		
Communication:												
	Binding Group:											
Clas			Туре			4)		fault				
	eographica		Apartment . Roo	om .	SubZone	1) 	1.1	.1				
	plication S	Specific									<del>.</del>	
	nassigned		Broadcast		Configura							
	Address:		IO Type(ID):		321 (RTS		Pr	operty ID	:	51		
	-Service		InfoReport Snif	fer	on Binding			-	-			
	oReport	$\boxtimes$	Timeout:			31	Mir	1				
	-Service ead – Res		Read Wildcard	/ Re	sp Sniffer	on Bindir	ng C	Group: 2	2)			
Value	after Pov	werup:	Defau	ult V	′alue 🛚				;	Stored Va	ılue 🗌	
Exce	otion Han	dling:						Sa	ve at Po	werdown		
	The HZC will use a company specific default value after power-up or in case of communication failure, if											
	no sensor data is received.											
Speci	ial Featur	es:										
	nput can b	e internal										
1) The	RTS ma	y also send	on the zone A.F	۲.* (۵	one senso	r per roo	m) (	or A.*.* (o	ne refer	ence roor	n temp	
		ie apartmer										
	The HZC may support the calculation of the mean value from different room temperature sensors.											
Th	ese senso	ors may e.g	. have different F	Roor	m or Subz	one infor	mat	ion => in	this case	e the HZC	c is a	
sn	iffer for ro	om tempera	ature values from	า diff	ferent zon	es (comp	anv	specific '	feature)			

## 2.2.4.25 Input TempOutside

Standard Mode: see specification in document [07], functional Block BOC

FB: HZC	LTE Clien	t Input Name:	TempOutsid	е					datory 🗌
Description:								O P	tional 🖂
	ature from	a remote outside	temperature	sensor ca	an be use	ed for	flow te	mperature	e setpoint
		CO Mode mecha						•	•
<b>DPT</b> : Name	DPT_Ten	npHVACAbs_Z	DPT ID	205.100	Data	type	format	V <sub>16</sub> Z <sub>8</sub>	
Field	_	Description					Sup.	Unit	Default
TempOutside		temperature val	ue				M	°C	cs
Status		standard Status	attributes				М	bitset	
<ul> <li>OutOfService</li> </ul>		void sensor valu	ue true / false				М	bool	false
- Fault		sensor failure tr	ue / false				М	bool	false
- Overridden sensor value overridden true / false O bo									false
- InAlarm sensor value alarm true /false O bool									false
									unack
- all other flags not supported NA bool									
Communication	n:								
Binding Grou	ıp:								
Class		Туре			Default				
Geographic				,					
Application	Specific⊠	OutsideSensor2	Zone		1				
Unassigned		Broadcast	Configura	ble 🗌					
DP Address:		IO Type(ID):	320 (OTS		Propert	y ID:		51	
LTE-Service		InfoReport Snif	ffer on Binding						
InfoReport		Timeout:		31	Min				
LTE-Service Read – Res		Read Wildcard	/ Resp Sniffer	on Bindir	ng Group	:			
Value after Po		Defa	ult Value 🖂			<u> </u>	,	Stored Va	lue 🗌
Exception Handling: Save at Powerdown									
		ny specific defau	ılt value after p	ower-up	or in cas	se of	commu	nication fa	ailure, if
		. The outside ten							
used (company			-			•		,	-
Special Featur									
This input can b	oe internal								

# 2.2.4.26 Input WindSpeed

#### **Standard Mode**

DP Name:	WindS	peed		Abbr.:					М	landa	tory		]
FB Name:	HZC								C	an be	intern	al 🛛	1
Description													
Current wind	speed \	/alue											
<b>Datapoint Ty</b>													
DPT_Name:		_Value_W	sp										
DPT Format:	- 10						DP	T_ID:	: 9.	.005			
Field	Desc	ription					Su	pp.	Rang	ge	Unit	Default	
									full ra	ange	m/s	CS	
Access Type	е												
♦ Input													
$N \rightarrow this$		•	$1 \rightarrow \text{this}$										
Spontane	ous	$\boxtimes$	Cy	clically:				Time	-out:		31 mi	n	
Request			Pol	lling:				Perio	od:				
Communica	tion Typ	pe											
♦ Group O	bject Da	ıtapoint							Mand	datory	/:		
Default G	roup Ad	dress: -	-										
Dynamics													
Power do		ave:											
Power up	: <b>V</b>	alue:	No initial	isation:		Defa	ault va	alue:					
			Saved va						ot for i	/			
	Tı	ransmit on	bus (only	for output	:):	Rea	d fror	n bus	(only	for in	put):		
<b>Exception H</b>	andling												
<b>Special Feat</b>	ures												

FB: I	HZC	LTE Client	t Input Name:	WindSpeed					datory 🗌 otional 🖂
Descri	ption:			-				=	
This pro	ocess si	gnal from a	wind speed sen	sor WSS conta	ains the c	current win	d speed inf	ormation	
DPT:	Name	DPT_Win	dSpeed_Z	DPT ID	203.101	Dataty	pe format	$U_{16}Z_{8}$	
Field			Description				Sup.	Unit	Default
WindS	peed		current wind sp		0.01 m/s	resolution	ı M	m/s	cs
Status			standard Status	attributes			M	bitset	
- OutOt	fService		void sensor valu	ue true / false			M	bool	false
- Fault			sensor failure tr				M	bool	false
- Overr			sensor value ov				0	bool	false
- InAlar			sensor value ala				0	bool	false
- Alarm			alarm acknowle	dgement statu	ıs ack / u	nack	0	bool	unack
- all oth	ner flags		not supported				NA	bool	
Comm	unicatio	n:							
	ing Groເ	ıp:							
Class	3		Туре			Default			
	ographica	<del></del>							
App	lication	Specific⊠	OutsideSensor2	Zone		1			
Una	assigned		Broadcast	Configural	ole 🗌				
	ddress:		IO Type(ID):	347 (WSS		Property	ID:	51	
	Service	(event <u>):</u>	InfoReport Snif	ffer on Binding					
	Report	$\boxtimes$	Timeout:		31	Min			
LTE-S Rea	<b>Service</b> ad – Res	<b>(polling):</b> ponse□	Read Wildcard	/ Resp Sniffer	on Bindir	ng Group:			
Value a	after Po	werup:	Defa	ult Value 🛚				Stored Va	lue 🗌
Except	tion Han	dling:				;	Save at Po	werdown	
The HZ	ZC will us	se a compa	ny specific defau	ılt value after p	ower-up	or in case	of commu	nication fa	ailure, if
no sens	sor data	is received	•						
Specia	l Featur	es:							
This in	put can b	e internal							

# 2.2.4.27 Input SunIntensity

#### **Standard Mode**

DP Name:	SunIntensity	Abbr.:			Man	datory	
FB Name:	HZC				Can	be interna	ı 🛛
Description							
Current sun i	ntensity value						
<b>Datapoint Ty</b>							
DPT_Name:	DPT_Power	Density					
DPT Format:	- 10			DPT_I	ID: 9.02		
Field	Description			Supp.	Range	Unit	Default
					full rang	ge W/m²	CS
Access Type	•						
♦ Input							
$N \rightarrow this$		$1 \rightarrow \text{this}$					
Spontane	ous 🛚	Cyclically:	$\square$	Tir	ne-out:	31 min	
Request		Polling:		Pe	riod:		
Communica	tion Type						
♦ Group O	bject Datapoint				Mandat	tory:	
Default G	roup Address:						
Dynamics							
Power do	wn: Save:						
Power up	: Value:	No initialisation:		Default value	e:		
		Saved value:		Actual value			
		on bus (only for output)		Read from b	us (only for	rinput):	
<b>Exception H</b>	andling						
<b>Special Feat</b>	ures						

FB: HZC	LTE Clien	t Input Name:	Su	nIntensity	•					datory 🗌
Description:	<del>-</del>		-							
	ignal from a	sun intensity se	nsor	SIS conta	ains the c	urr	ent sun i	ntensity ir	nformation	in W/m²
=> not to be co	infused with	Light sensor wh	ich	provides L	ux inform	nati	on	_		
<b>DPT</b> : Name	DPT_Sun	Intensity_Z		DPT ID	203.102	2	Datatyp	e format	$U_{16}Z_{8}$	
Field		Description						Sup.	Unit	Default
SunIntensity		current sun inte resolution	nsity	y value wit	h 0.05 W	//m <sup>²</sup>	2	M	W/m <sup>2</sup>	cs
Status		standard Status	attr	ributes				М	bitset	
- OutOfService void sensor value true / false M b										false
- Fault sensor failure true / false M b										false
- Overridden sensor value overridden true / false O bo										false
- InAlarm sensor value alarm true /false O bo										false
- AlarmUnAck alarm acknowledgement status ack / unack O bo										unack
<ul> <li>all other flags</li> </ul>	<u> </u>	not supported						NA	bool	
Communicati										
Binding Gro	up:									
Class		Туре				De	efault			
Geographic					<b>·</b>					
Application	Specific⊠	OutsideSensor2	Zone	9		1				
Unassigned	l 🗌	Broadcast		Configura	ble 🗌					
DP Address	:	IO Type(ID):		348 (SIS)		Р	roperty II	D:	51	
LTE-Service	(event):	InfoReport Snif	fer	on Binding	g Group:					
InfoReport	$\boxtimes$	Timeout:			31	Mi	n			
<b>LTE-Service (polling):</b> Read – Response ☐ Read Wildcard / Resp Sniffer on Binding Group:										
Value after Po	werup:	Defa	ult V	′alue ⊠			•	,	Stored Va	lue 🗌
<b>Exception Ha</b>	ndling:						S	Save at Po	werdown	
The HZC will u	se a compa	ny specific defau	ılt va	alue after p	ower-up	or	in case of	of commu	nication fa	ailure, if
no sensor data	is received	·								
Special Featu	res:									
	his input can be internal									

## 2.2.4.28 Parameter Apartment

FB:	HZC	Proper	ty Name ( <u>Server</u> ):	Α	partment							datory 🛚
Desc	ription:	1										
LTE z	one: Apart	ment nui	mber									
DPT:	Name	DPT_U	countValue8_Z		DPT ID	202.002	2	Dat	atype form	at l	$J_8Z_8$	
Field			Description				Si	ıр.	Range	U	Jnit	Default
Count	terValue		Apartment number				١	<b>/</b>	1126			1
Status	-									b	itset	
	OfService		zone active /inactiv	-				_	true/false			false
- all other flags not supported, fixed to '0' NA										_		
Comn	nand									е	num	
	nalWrite							Л				
	OSV & Res		set zone inactive /	ac	tive			_				
- all o	ther comma	ands	not supported				N	Α				
Comr	nunicatior	<b>า</b> :										
DP A	Address:		IO Type(ID):		160 (HZC	)	Pr	ope	rty ID:	1	01	
(in t	he server)		Start-Index:		1		N°	of e	elements	1		
Pro	perty acce	ss:	Read only			Read/W	rite/		$\boxtimes$			
Prof	tection		Read level				Wı	rite	level		-	
Exce	otion Hand	lling:	Value after Poweru	ıp:	Stored	Value 🛚	Ac	t Va	alue 🔲 🏻 🏻 🖺	)efa	ult Value	e 🗌
Speci	ial Feature	s:										
HZC I	OP's are no	ot LTE co	ommunicating if zon	e i	s 'OutOfSe	ervice'. If	Apa	artm	ent is 'Out	OfSe	ervice' a	lso the
corres	sponding R	oom and	Subzone is 'OutOf	Se	rvice' (co	mmon fla	g)					

#### 2.2.4.29 Parameter Room

FB:	HZC	Proper	ty Name ( <u>Server</u> ):	R	oom						datory 🗌
Desc	ription:									<u> </u>	
LTE z	one: Room	numbei	r. parameter used o	r fi	xed value '	1' => see	e rei	mar	k in chapter	2.1.1	
DPT:	Name	DPT_U	countValue8_Z		DPT ID	202.002	<u> </u>	Dat	atype forma	$t U_8Z_8$	
Field			Description				Su	ıp.	Range	Unit	Default
Coun	terValue		Room number				N	1	163		1
Status	S									bitset	
									true/false		false
- all other flags											
										enum	
- NormalWrite M											
	OSV & Res		set zone inactive /	ac	tive		C				
- all o	ther comma	ands	not supported				N.	A			
Com	nunicatior	):									
DP .	Address:		IO Type(ID):		160 (HZC)	)			rty ID:	102	
(in t	he server)		Start-Index:		1		N°	of e	elements	1	
Pro	perty acce	ss:	Read only			Read/W	rite		$\boxtimes$		
Pro	tection		Read level				Wr	ite	level		
Exce	ption Hand	lling:	Value after Poweru	ıp:	Stored \	√alue 🛚	Ac	t Va	alue 🔲 D	efault Valu	e 🗌
	-										
Spec	pecial Features:										
	ZC DP's are not LTE communicating if zone is 'OutOfService'. If Apartment is 'OutOfService' also the										
corres	sponding R	oom and	Subzone is 'OutOf	Se	ervice' (cor	nmon fla	g)				

### 2.2.4.30 Parameter Subzone

FB:	HZC	Proper	ty Name ( <u>Server</u> ):	S	ubzone						datory 🗌
Descr	iption:	•									
LTE zo	one: Subzo	one num	ber within the Apart	me	ent & Roon	n => see	remar	k in chapter	2.1.	.1	
DPT:	Name	DPT_U	countValue8_Z		DPT ID	202.002	Da	tatype forma	at l	$J_8Z_8$	
Field			Description				Sup.	Range	U	Jnit	Default
Counte	erValue		Subzone number				М	115		-	1
Status									b	itset	
	fService 1		zone active /inactiv	_			0	true/false			false
- all otl	her flags		not supported, fixe		NA				 		
Command										num	
- NormalWrite M											
- SetO	SV & Res	etOSV	set zone inactive /	ac	tive		0				
- all otl	her comma	ands	not supported				NA				
	nunication	):						_	_		
DP A	ddress:		IO Type(ID):		160 (HZC)	)	Prop	erty ID:	1	03	
(in th	ne server)		Start-Index:		1		N° of	elements	1		
Prop	erty acce	ss:	Read only			Read/W	rite	$\boxtimes$			
Prote	ection		Read level				Write	level	_	-	
Excep	tion Hand	lling:	Value after Poweru	ıp:	Stored \	Value 🛚	Act \	/alue 🔲 🏻 🗈	Defa	ult Value	e 🗌
-											
Specia	al Feature	s:									
			ommunicating if zon			ervice'. If	Apartı	ment is 'Out	OfS6	ervice' a	Iso the
corres	ponding S	ubzone i	s 'OutOfService' (c	on	nmon flag)						

## 2.2.4.31 Parameter DistrSegmH

FB:	HZC	Proper	ty Name ( <u>Server</u> ):	DistrSegmH				ndatory 🛚			
Desc	ription:			-			<del>.</del>				
LTE 2	zoning infor	mation :	link with the HFDM	in the corresponding	Heat D	istribution Se	egment				
DPT:	Name	DPT_U	countValue8_Z	DPT ID 202.002	2 Da	tatype forma	t $U_8Z_8$				
Field			Description		Sup.	Range	Unit	Default			
Coun	terValue		Heat Distribution S	Segment number	M	131		1 1			
Statu	s						bitset				
- Out	OfService		zone active /inactive	ve	О	true/false		false			
- all c	ther flags		not supported, fixe	d to '0'	NA						
Comi	mand						enum				
	malWrite				M						
	OSV & Res		set zone inactive /	active	0						
- all c	ther comma	ands	not supported		NA						
Com	munication	<b>า</b> :									
DP	Address:		IO Type(ID):	160 (HZC)		erty ID:	104				
(in	the server)		Start-Index:	1	N° of	elements	1				
Pro	perty acce	ss:	Read only	Read/V	Vrite	$\boxtimes$					
Pro	tection		Read level		Write	level					
Exce	ption Hand	lling:	Value after Poweru	up: Stored Value 🗵	Act V	alue 🔲 D	efault Valu	ıe 🗌			
Spec	ial Feature	s:									
HZC	IZC DP's on the Heat Distribution Segment are not LTE communicating if zone is 'OutOfService'										

## 2.2.4.32 Parameter OutsideSensorZone

FB:	HZC	Property	Name ( <u>Server</u> ):	0	utsideSer	nsorZone	•			datory ∐ otional ⊠	
Desc	ription:			_							
LTE z	oning nur	nber for th	ne link with an Outs	ide	Temperat	ture Sens	or, Wir	nd Speed sen	sor and S	Sun	
	sity Senso	r. Only or	ne zone parameter i	s s	tandardise	ed for all o	outside	sensors, see	remark ir	n chapter	
2.2.2						_			-		
DPT:	Name	DPT_U	countValue8_Z		DPT ID	202.002		atype format			
Field			Description				Sup.	Range	Unit	Default	
Coun	terValue		Outside sensor zo	ne	number		M	131		1	
Status			zone active /inactiv						bitset		
	OfService		true/false		false						
	ther flags										
Comr									enum		
	nalWrite						M				
	DSV & Re		set zone inactive /	act	tive		0				
- all o	ther comn	nands	not supported				NA				
Comr	nunicatio	n:									
	Address:		IO Type(ID):		160 (HZC	)		erty ID:	105		
(in t	he serve	r)	Start-Index:		1			elements	1		
Pro	perty acc	ess:	Read only			Read/W	rite	$\boxtimes$			
Pro	tection		Read level				Write	level			
Exce	otion Han	ndling:	Value after Powert	up:	Stored	Value 🛚	Act V	alue 🗌 🏻 De	fault Valu	e 🗌	
Spec	pecial Features:										
HZC i	ZC is not using external outside sensor (s) if zone is 'OutOfService'										

## 2.2.4.33 Parameter TempFlowWaterMax

FB:	HZC	Proper	ty Name ( <u>Server</u> ):	T	empFlow\	WaterMa	X				datory 🗌 otional 🏻
Desci	iption:	<u> </u>		-							- t. e
		e limitation	on in the heating zo	ne	)						
DPT:	<del></del>		/ACTempAbs Z		DPT ID	205.100	)	Dat	atype format	$V_{16}Z_{8}$	
Field	'	_	Description		•	•	S	up.	Range	Unit	Default
Temp			temperature value					M	cs	° C	CS
Status										bitset	
- OutOfService max limitation active /inactive O true/false											false
- all other flags not supported, fixed to '0'								NΑ			
										enum	
- Norr	nalWrite							M			
- SetC	SV & Res	etOSV	set limitation paran	ne	ter inactive	e / active		0			
- all of	her comma	ands	not supported				١	NΑ			
Comr	nunicatior	):								· <del>·</del>	<del>-</del>
DP /	Address:		IO Type(ID):		160 (HZC	;)	Р	rope	rty ID:	110	
(in t	he server)		Start-Index:		1		Ν	° of e	elements	1	
Pro	perty acce	ss:	Read only			Read/W	/rite	)	$\boxtimes$		
Prot	ection		Read level				W	/rite	level		
Excep	otion Hand	lling:	Value after Poweru	ıp:	Stored	Value ⊠	Α	ct Va	alue 🔲 De	fault Valu	e 🗌
Speci	pecial Features:										
Limita	tion function	n is activ	vated or deactivated	d b	y the 'Out	OfService	e' S	tatu	S		

## 2.2.4.34 Parameter TempFlowWaterMin

FB:	HZC	Proper	ty Name ( <u>Server</u> ):	T	empFlowV	<b>VaterMin</b>	)				ndatory 🔲 Optional 🖂
Doco	ription:			_							ptional 🖂
		. t	Madian to the backets					- 1	II 4 l l I	Al-1 II	- 14
IVIIN TI			itation in the heating	) Z	_						nit.
DPT:	Name	DPT_H	VACTempAbs_Z		DPT ID	205.100	)	Dat	atype forma	$t V_{16}Z_8$	
Field			Description				S	up.	Range	Unit	Default
Temp			temperature value					M	cs	° C	cs
Status	3									bitset	
- Out	OfService		limitation active /ina	act	tive		(	0	true/false		false
- all other flags											
Command enum										enum	
- Norr	nalWrite						I	M			
- SetC	SV & Res	etOSV	set limitation paran	net	ter inactive	/ active	(	0			
- all of	ther comma	ands	not supported				N	١A			
Comr	nunication	):	-							-	-
DP A	Address:		IO Type(ID):		160 (HZC)	)	Pı	rope	rty ID:	111	
(in t	he server)		Start-Index:		1		N	° of e	elements	1	
Pro	perty acce	ss:	Read only			Read/W	rite	;	$\boxtimes$		
Prof	ection		Read level				W	'rite	level		
Exce	otion Hand	lling:	Value after Poweru	ıp:	Stored '	Value 🛚	Α	ct Va	alue 🔲 D	efault Valı	ue 🗌
					•					•	•
Speci	al Feature	s:									
Limita	tion function	n is acti	vated or deactivated	d b	y the 'OutO	OfService	' S	tatu	s		

## 2.2.4.35 Parameter TempReturnWaterMax

FB:	HZC	Proper	ty Name ( <u>Server</u> ):	Te	empRetur	rnWaterN	lax				Mandatory ☐ Optional ⊠	
Desci	ription:	<u> </u>									otional 🔼	
		erature	limitation in the hea	ting	zone. Th	ne retur te	empe	ratı	ure shall be	below this	limit.	
DPT:			VACTempAbs_Z		DPT ID	205.100			atype format			
Field		_	Description			•	Sup	١.	Range	Unit	Default	
Temp			temperature value				М		cs	° C	CS	
Status	3									bitset		
- Out	OfService		max limitation activ	/e	inactive		0	1	true/false		false	
- all o	ther flags		not supported, fixed	d to	o '0'		NA					
Comn	nand							enum				
- Norr	nalWrite						M					
- SetC	OSV & Res	etOSV	set limitation paran	net	er inactive	e / active	0					
- all of	ther comma	ands	not supported				NA					
Comr	nunication	n:	-			,				-	•	
DP A	Address:		IO Type(ID):		160 (HZC	;)	Pro	oer	ty ID:	112		
(in t	he server)		Start-Index:		1		N° c	of e	lements	1		
Pro	perty acce	ss:	Read only [			Read/W	rite/					
Prot	ection		Read level				Writ	e le	evel			
Exce	otion Hand	lling:	Value after Poweru	ıp:	Stored	Value 🛚	Act	Va	lue 🔲 De	efault Valu	e 🗌	
Speci	al Feature	s:										
Limita	tion function	n is acti	vated or deactivated	d by	y the 'Out	OfService	' Sta	tus				

## 2.2.4.36 Parameter TempReturnWaterMin

FB:	HZC	Proper	ty Name ( <u>Server</u> ):	T	empRetur	nWaterN	lin					datory $\square$
											Op	otional 🛚
Desc	Description:											
Min re	eturn tempe	erature li	mitation in the heat	ing	zone. The	e return te	m	oera <sup>*</sup>	ture shall be	abo	ve this	limit.
DPT:	Name	DPT_H	VACTempAbs_Z		DPT ID	205.100	)	Dat	atype forma	it V <sub>1</sub>	$_{6}Z_{8}$	
Field			Description				S	up.	Range	Un	it	Default
Temp	1		temperature value					M	cs	° C	,	CS
Status	S									bits	set	
- Out	OfService		limitation active /in	ac	tive			0	true/false			false
- all o	ther flags		not supported, fixe	ed t	:o '0'		١	ΙA				
Comr	nand			er						eni	um	
- Norr	malWrite							M				
- SetC	DSV & Rese	etOSV	set limitation parar	et limitation parameter inactive / active								
- all o	ther comma	ands	not supported				١	۱A				
Comr	nunication	<b>)</b> :	•			•			_	-		
DP .	Address:		IO Type(ID):		160		Р	rope	rty ID:	11	3	
(in t	he server)		Start-Index:		1		Ν	° of	elements	1		
Pro	perty acce	ss:	Read only			Read/W	rite	;	$\boxtimes$			
Protection Read level Write level												
Exce	ption Hand	lling:	Value after Power	up:	Stored	Value 🛚	Α	ct Va	alue 🔲 D	efaul	lt Value	e 🗌
Special Features:												
Limita	tion function	n is acti	vated or deactivate	d b	y the 'Out	OfService	; S	tatu	S	•		

## 2.2.4.37 Parameter: TimeHeatUpMax

FB:	HZC	Property	Name ( <u>Server</u> ):	Ti	meHeatU	рМах				datory 🗌 ptional 🔯			
Desci	Description:												
This c	This optional configuration parameter is used as a time limit for early heating up (in the more												
DPT:	Name	DPT_Tim	nePeriodMin		DPT ID	7.006	Data	atype format	U <sub>16</sub>				
Field			Description				Sup.	Range	Unit	Default			
								0 1)	min	CS			
								165535					
Comr	nunicatio	n:				-			<del>-</del>	-			
DP /	Address:		IO Type(ID):		160 (HZC)		Prope	rty ID:	114				
(in t	he serve	r)	Start-Index:		1		N° of e	elements	1				
Pro	perty acc	ess:	Read only			Read/W	rite	$\boxtimes$					
Prot	ection		Read level				Write I	level					
Excep	otion Har	dling:	Value after Poweru	ıp:	Stored '	Value 🛚	Act Va	alue 🔲 De	fault Valu	ie 🗌			
Speci	Special Features:												
1) 0:	no early	heating u	o, start optimization	ı is	disabled								

## 2.2.4.38 Parameter: TimeEarlyHeatShutdownMax

FB:	HZC	Propert	Property Name ( <u>Server</u> ): TimeEarlyHeatShutdownMax									
Description:												
This optional configuration parameter is used as a time limit for early shutdown of the heating												
evening)												
<b>DPT:</b> Name DPT_TimePeriodMin DPT ID 7.006 Datatype format U₁								U <sub>16</sub>				
Field			Description				Sup.	Range	Unit	Default		
								0 1)	min	cs		
The state of the s							165535					
Comr	nunicatio	n:	<del>-</del>									
DP /	Address:		IO Type(ID):		160 (HZC)		Property ID:		115			
(in t	he serve	r)	Start-Index:		1		N° of	elements	1			
Pro	perty acc	ess:	Read only			Read/W	rite	$\boxtimes$				
Prot	ection		Read level				Write	level				
<b>Exception Handling:</b> Value after Powerup: Stored Value Act Value Default									fault Value	e 🗌		
Speci	Special Features:											
1) 0:	no early	shutdov	vn, stop optimizatio	n is	disabled							

# ${\bf 2.2.4.39~Diagnostic~data~TempReturnWaterHZC}$

FB:	HZC	Prop	erty	Name ( <u>Server</u> ):	To	empRetu	empReturnWaterHZC						
Desci	ription:				_							ptional 🔀	
	_	tomno	ratu	re of the heating zo	nρ								
DPT:	_				110	DPT ID	205.100	١	Dot	at ina format	1/ 7		
	Name	DP	<u> </u>	/ACTempAbs_Z		טוואטן	205.100			atype format		I D ( 11	
Field				Description					up.	Range	Unit	Default	
Temp				temperature value					M	CS	° C	cs	
Status	3										bitset		
- Faul	t			temperature corrup	ote	d, sensor	failure		M	true/false		false	
- InAla	arm			critical limit is reac	he	d			0	true/false		false	
- AlarmUnAck				alarm acknowledgement status					0	ack/unack		unack	
- all other flags not supported, fixed						to '0' NA							
Comn	nand			standard Comman	d f	ield		ì			enum		
- Aları	nAck			alarm acknowledge					0				
- all of	ther com	mands	3	not supported		NA							
Comr	nunicati	on:						=		<del>-</del>	-	-	
DP /	Address			IO Type(ID):		160 (HZC	;)	Р	rope	rty ID:	116		
(in t	he serve	r)		Start-Index:		1		Ν	° of	elements	1		
Pro	perty acc	ess:		Read only			Read/W	/rite	)				
Prot	ection			Read level				W	/rite	level			
Excep	Exception Handling: Value after Powerup: Stored Value ☐ Act Value ☐ Default Value ☐												
Special Features:													
1) opti	onal Writ	e acce	ess fo	or Alarm acknowled	lge	ment only						- <del></del>	

## 2.2.4.40 Diagnostic data TempFlowWaterSetpHZC

FB:	HZC	Property	Name ( <u>Server</u> ):	Te	empFlow\	<b>NaterSe</b>	tpł	HZC			Mandatory ☐ Optional ⊠		
Descr	iption:										<u></u>	otional 🔼	
			ataciat of the LIZC										
			setpoint of the HZC		r			-					
DPT:	Name	DPT_H\	/ACTempAbs_Z	ACTempAbs_Z   DPT ID   205.100   Datatype format   V <sub>1</sub>									
Field			Description				S	Sup.	Range	Uni		Default	
Temp			temperature value					M	cs	° C		cs	
Status	3						]			bits	et		
- OutO	OfService		=> no setpoint (e.g	. h	eating is c	off)		0	true/false			false	
- Over	ridden		external override o	f th	ne setpoin	t		0	true/false			false	
- all other flags not supported, fixed to '0' NA													
Comn	nand		standard Comman	d fi	ield		]			enu	ım		
- Over	ride & Re	elease	override and releas	de and release setpoint O									
- all of	her comn	nands	not supported					NA					
Comr	nunicatio	n:							<del>-</del>	-			
DP /	Address:		IO Type(ID):		160		F	rope	rty ID:	117	7		
(in t	he serve	r)	Start-Index:		1		N	l° of	elements	1			
Prop	perty acc	ess:	Read only			Read/V	Vrit	е	□ 1)				
Prot	ection		Read level				٧	Vrite	level				
Excep	otion Han	dling:	Value after Poweru	ıp:	Stored	Value 🗌	] A	Act Va	alue 🗵 🛮 D	efaul	t Valu	e 🗌	
		•			•	•				•	•	•	
Speci	al Featur	es:											
1) optio	onal Write	access f	or Override / Releas	se i	function or	nly				•	•		

### 2.2.4.41 Diagnostic data TempRoomAct

FB:	HZC	Property	Name ( <u>Server</u> ):	Т	empRoom	Act					datory ☐ otional ⊠
Descr	iption:	-		_							otional 🔼
			value used by the I								
-		mpRoom	input or of a hard w	vire	ed sensor v	which ma	y be	over	ridden by a	a tool for s	ervice
function					-						
DPT:	Name	DPT_H\	/ACTempAbs_Z		DPT ID	205.100			/pe format		
Field										Unit	Default
Temp			temperature value				М	CS	3	° C	cs
Status	3									bitset	
- OutC	OfService		TempRoomAct is r	not	available		0	trı	ue/false		false
- Over	ridden		override of the tem	ре	erature valu	ıe	0	trı	ue/false		false
- Faul	t		temperature corrup	d, sensor f	ailure	M true/false				false	
- InAla	arm		critical limit is reacl	he	d		0	trı	ue/false		false
- Alarr	nUnAck		alarm acknowledge	em	nent status		0	ad	ck/unack		unack
- all of	her flags		not supported, fixe	d t	to '0'		NA	<u> </u>			
Comn	nand		standard Comman	d f	field					enum	
- Over	ride & Re	elease	override and releas	temperatu	re value	0					
- Alarr	nAck		alarm acknowledge	Э			0				
- all ot	her comn	nands	not supported				NA				
Comr	nunicatio	n:									•
DP /	Address:		IO Type(ID):		160 (HZC)	)		perty		118	
(in t	he serve	r)	Start-Index:		1		N° c	of ele	ments	1	
Prop	erty acc	ess:	Read only [			Read/W	'rite		□ 1)		
Prot	ection		Read level				Writ	e lev	⁄el		
Excep	otion Har	dling:	Value after Poweru	ıp:	Stored '	Value 🗌	Act	Valu	e 🛛 De	fault Valu	e 🗌
	al Featur										
1) opti	onal Write	access for	or Alarm acknowled	Ιgε	ement only						

# 2.2.4.42 Diagnostic data TempOutsideAct

FB:	HZC	Property	Name ( <u>Server</u> ):	Т	empOutsi	deAct					andatory ∐ Optional ⊠	
Description:												
	Actual outside temperature value used by the HZC for room temperature control loop (e.g. together with a											
	heat-curve). This is the local image of the TempOutside input or a hard-wired sensor which may be											
overri	overridden by a tool for service functions											
DPT:	Name	DPT_H\	/ACTempAbs_Z		DPT ID	205.100	)	Dat	atype format	$V_{16}Z_{8}$		
Field			Description				S	up.	Range	Unit	Default	
Temp			temperature value					M	cs	° C	cs	
Status	3									bitset		
- Out	OfService		TempOutsideAct is	n	ot available	е		Ο	true/false		cs	
- Ove	ridden		override of the tem				O true/false				false	
- Faul	-		temperature corrup			failure		M	true/false		false	
- InAla	arm		critical limit is reacl	_							false	
	nUnAck		alarm acknowledge						ack/unack		unack	
	her flags		not supported, fixe				1	NΑ		ļ		
Comn			standard Comman	-						enum		
	ride & Re	lease		ase temperature value O								
- Aları			alarm acknowledge	е				0				
	her comn		not supported					NA				
	nunicatio	n:										
	Address:		IO Type(ID):		160 (HZC	)			rty ID:	119		
•	he servei		Start-Index:		1				elements	1		
_	perty acc	ess:	Read only [			Read/W			∑ ¹)			
Prot	ection		Read level				W	/rite	level			
Exce	Exception Handling: Value after Powerup: Stored Value ☐ Act Value ☐ Default Value ☐											
	al Featur											
1) opti	onal Write	access f	or Alarm acknowled	lge	ement only							

# 2.2.4.43 Diagnostic data TempOutsideAttenuat

FB:	HZC	Property	y Name ( <u>Server</u> ):	Т	FempOutsideAttenuat						datory L
Desci	ription:			_						-	
			e temperature value							itrol loop	(e.g.
			/e). Temperature at				s cor	npany specifi	C.		
This v	alue may		idden by a tool for s	er	vice functio	ns					
DPT:	Name	DPT_H	VACTempAbs_Z		DPT ID	205.100		atatype forma		$V_{16}Z_{8}$	
Field			Description				Sup	. Range		Jnit	Default
Temp			temperature value	:			М	cs	٥	С	cs
Status	3								b	oitset	
- Out	OfService		TempOutside Atte	nu	at is not av	ailable '	0	true/false			CS
- Ove	rridden		override of the ten				0	true/false			false
- Faul	t		temperature corru	pte	ed, sensor f	failure	М	true/false			false
- InAla	arm		critical limit is reached				0	true/false			false
- Aları	mUnAck		alarm acknowledgement status			0	ack/unack			unack	
- all o	ther flags		not supported, fixed to '0'				NA				
Comn	nand		standard Commar	-					е	enum	
- Ove	rride & Re	elease	override and relea		temperatu	re value	0				
- Aları	mAck		alarm acknowledg	е			0				
- all of	ther comn	nands	not supported				NA				
Comr	nunicatio	n:						_			
DP A	Address:		IO Type(ID):		160 (HZC	)		perty ID:	1	120	
(in t	he serve	r)	Start-Index:		1		N° c	of elements	1	1	
Pro	Property access: Read only ☐ Read/Write ☐ 1)										
Prot	ection		Read level				Writ	e level	-		
Exce	Exception Handling: Value after Powerup: Stored Value  Act Value  Default Value										
	Special Features:										
1) opti	onal Write	access f	for Alarm acknowled	dge	ement only						

# 2.2.4.44 Diagnostic data WindSpeedAct

FB:	HZC	Property	/ Name ( <u>Server</u> ):	W	/indSpeed	IAct				datory 🗌 otional 🔯
Desci	iption:			-					·	
			used by the HZC for							
			a hard-wired sensor	· wl	_			•		ions
DPT:	Name	DPT_W	<u>'indSpeed_Z</u>		DPT ID	203.101			$U_{16}Z_8$	
Field			Description			Sup	. Range	Unit	Default	
WindSpeed			actual wind speed value with 0.01 m/s resolution			М	cs	m/s	CS	
Status									bitset	
- Out	OfService		WindSpeedAct is r				Ο	true/false		CS
- Ove	ridden		override of the tem				Ο	true/false		false
- Faul	_		temperature corru			ailure	M	true/false		false
- InAla			critical limit is reac	_	-		Ο	true/false		false
_	nUnAck		alarm acknowledgement status			0	ack/unack		unack	
	her flags		not supported, fixed to '0'			NA		ļ		
Comn			standard Command field						enum	
	ride & Re	elease	override and relea		temperatu	re value	Ο			
- Aları			alarm acknowledg	е			0			
	her comn		not supported				NA			
	nunicatio	n:								
	Address:		IO Type(ID):		160 (HZC	)	•	erty ID:	121	
•	he serve	,	Start-Index:		1			f elements	1	
	perty acc	ess:	Read only			Read/W		∑ <sup>1)</sup>		
Prot	Protection Read level Write level									
Excep	otion Han	dling:	Value after Power	up:	Stored '	Value 🗌	Act '	Value 🛛 🛮 De	fault Valu	e 🗌
	al Featur									
1) opti	1) optional Write access for Alarm acknowledgement only									

# 2.2.4.45 Diagnostic data SunIntensityAct

FB:	HZC	Pro	perty	Name ( <u>Server</u> ):	S	unIntensit	tyAct				datory 🗌 otional 🏻
Desci	ription:				_					<u> </u>	olionai 🖂
		nsity	value	used by the HZC	for	room temp	perature o	control	loop. This is	the local ir	mage of
				a hard-wired sensc							
DPT:	Name	DP	T_Sı	ınIntensity_Z		DPT ID	203.102	Dat	atype format	U <sub>16</sub> Z <sub>8</sub>	
Field				Description				Sup.	Range	Unit	Default
SunIntensity			actual sun intensity W/m2 resolution	y v	alue with 0	.05	М	cs	W/m2	CS	
Status	3									bitset	
- OutOfService				SunIntensity is not	t av	/ailable		0	true/false		cs
- Overridden				override of the tem	npe	erature valu	ıe	0	true/false		false
- Faul	t			temperature corrup	pte	d, sensor f	ailure	M	true/false		false
- InAla	- InAlarm			critical limit is reached			0	true/false		false	
- Aları	mUnAck			alarm acknowledgement status			0	ack/unack		unack	
- all of	her flags			not supported, fixed to '0'				NA		]	
Comn	nand			standard Comman	ıd f	field				enum	
- Ove	rride & Re	eleas	е	override and relea	se	temperatu	re value	0			
- Aları	nAck			alarm acknowledg	е			0			
- all o	ther comn	nand	S	not supported				NA			
Comr	nunicatio	n:					•	-	-	•	•
DP A	Address:			IO Type(ID):		160 (HZC	)	Prope	rty ID:	122	
(in t	he serve	r)		Start-Index:		1		N° of	elements	1	
Property access:				Read only			Read/W	'rite	⊠ <sup>1)</sup>		
Protection Read level Write level											
Exce	otion Har	ndlin	g:	Value after Power	up:	Stored '	Value 🗌	Act Va	alue 🗵 🛮 De	fault Valu	e 🗌
	Special Features:										
1) opti	onal Write	acc	ess fo	or Alarm acknowled	dge	ement only					

# 2.2.4.46 Diagnostic data StatusPumpHZC

FB:	HZC	Property	Name ( <u>Server</u> ):	St	atusPum <sub>l</sub>	oHZC				datory 🗌
Desc	ription:			_					l Ot	ntioriai 🖂
	_	power of the	he pump in the heat	ting	zone					
DPT:	Name	DPT_Re	elValue_Z			U <sub>8</sub> Z <sub>8</sub>				
Field			Description				Sup	. Range	Unit	Default
RelValue			relative value				М	0100%	%	CS
Status	S								bitset	
- Out	OfService		RelValue valid / void			0	true/false		false	
- all o	ther flags		not supported, fixed to '0'			NA				
Comr	nunicatio	n:	-			-		_		
DP.	Address:		IO Type(ID):	•	160 (HZC)	)	Prop	perty ID:	123	
(in t	he serve	r)	Start-Index:		1		N° c	f elements	1	
Pro	perty acc	ess:	Read only	$\boxtimes$		Read/W	rite			
Pro	tection		Read level	-			Writ	e level		
Exce	Exception Handling: Value after Powerup: Stored Value 🗌 Act Value 🛛 Default Value 🗌									
	-									
Spec	pecial Features:									
for sv	r switched pump 0%=off, 100%=on									

# 2.2.4.47 Diagnostic data Fault

FB:	HZC	Property	Name ( <u>Server</u> ):	Fault						datory ☐ otional ⊠
Desc	ription:	-		-				=		
Some	e error in t	he HZC								
DPT:	Name	DPT_Boo	ol	DPT ID	1.002	Dat	atype form	at B	1	
Field		I	Description			Sup.	Range	Ur	nit	Default
							true/false	bo	ol	false
Comi	munication	on:				-	<del>-</del>	-		<del>-</del>
DP	Address:		IO Type(ID):	160 (HZ	(C)	Prope	rty ID:	12	:4	
(in t	the serve	r)	Start-Index:	1		N° of	elements	1		
Pro	perty acc	ess:	Read only	$\boxtimes$	Read/W	/rite				
Pro	tection		Read level			Write	level			
Exce	ption Hai	ndling:	Value after Powert	up: Store	d Value 🗌	Act Va	alue 🛛 🏻 🛭 I	Defau	lt Valu	е 🗌
Spec	ial Featu	res:					-			

# 2.2.4.48 Diagnostic data ErrorCodeHZC

FB:	HZC		Property	Name ( <u>Server</u> ):	Ε	rrorCodel	IZC					N		datory ☐ otional ⊠
Desc	ription:	<del></del>										-		
Comp	any spe	eci	fic numeri	c 16 bit error code										
DPT:	Nam	ne	DPT_Va	lue_2_Ucount		DPT ID	7.001		Dat	atype for	mat	U <sub>16</sub>		
Field				Description				Sι	ıp.	Range		Unit		Default
										full rang	je			cs
Comr	munica	tio	n:							3		<u>-</u>		
DP.	Addres	s:		IO Type(ID):		160 (HZC)	)	Pr	ope	rty ID:		125		
(in t	he serv	/er	)	Start-Index:		1		N° of elements		1				
Pro	perty a	CC	ess:	Read only	$\boxtimes$		Read/W	rite						
Pro	tection			Read level				Wı	rite	level				
Exce	ption H	an	dling:	Value after Power	up:	Stored '	Value 🗌	Ac	t Va	alue 🛚	De	fault V	'alue	e 🗌
Spec	ial Feat	ur	es:											

# 2.2.4.49 Diagnostic data StatusMorningBoost

FB:	HZC	Property	Name ( <u>Server</u> ):	St	atusMorn	ingBoos	st				datory 🗌
Desci	ription:	-		_						-	
Status	of the m	orning bo	ost function due to	oca	al optimize	r functior	١.				
		boost acti	ve								
- false	: normal	operation									
DPT:	Name	DPT_Bo	ool		DPT ID	1.002	Da	itat	ype format	B <sub>1</sub>	
Field			Description				Sup.	R	ange	Unit	Default
								tr	ue/false	bool	false
Comr	nunicatio	n:	<del></del>								
DP A	Address:		IO Type(ID):		160 (HZC)	)	Prop	erty	/ ID:	126	
(in t	he serve	r)	Start-Index:		1		N° of	ele	ements	1	
Pro	perty acc	ess:	Read only	$\boxtimes$		Read/W	rite				
Prot	ection		Read level				Write	e lev	vel		
Exce	otion Har	dling:	Value after Power	up:	Stored \	Value 🗌	Act \	/alu	ıe 🛛 De	fault Value	e 🗌
Speci	Special Features:										

### 2.3 Functional Block: Heating Individual Room Controller (HIRC)

### 2.3.1 Functional Specification

#### **2.3.1.1** Room temperature control

The Heating Individual Room Controller HIRC calculates and controls the position of the valve(s) in its heating zone in order to control the room temperature according the requested room temperature setpoint. All valves connected to the HIRC are <u>controlled together</u> by the HIRC. Usually there is only one heating zone per room, i.e. within one room, all valves VA are usually controlled in parallel. In some cases Subzoning for Valves in the same room is necessary (e.g. combined floor heating and radiator heating). In this case two or more heating controllers (HIRC, HZC) are controlling each one Subzone of the room. Support of Room- Subzones is an optional feature of the HIRC.

The method of calculation of the valve position (setpoint) in the HIRC is **company-specific**.

For HIRC control loop mechanism the current room temperature value, the effective HVAC Mode and a set of room temperature setpoints (for the different HVAC Modes) or the effective Room Temperature Setpoint are mandatory inputs. The outside temperature, sun intensity and wind speed may also be used for more sophisticated room temperature control.

Optionally the HIRC may incorporate local functions like morning boost, start/stop optimization, ECO-function etc. These optimization functions are company specific and not part of the HIRC specification

### The RSMHD provides necessary information for the HIRC as:

-	'HVACModeEff'	Contains the present/active 'H	HVACMode'	which may depend on

automatic time schedule, local user operation (MMI) presence

detection, window status, comfort prolongation etc.

- 'HVACModeEffNext' Contains the effective next 'HVACMode' and the delay time

until the change of HVACMode (according to advanced

scheduling information, local user operation etc.) => used in the HIRC for local optimiser functionality

- 'TempRoomSetpSetHeatEff(4)' The effective temperature setpoints for heating for 'Comfort',

'Standby', 'Economy' and 'BuildingProtection' (set of setpoints).

- 'TempRoomSetpHeatEff' The effective room temperature setpoint for heating.

### Interaction with an external HVAC Optimizer: see also chapter 2.1.5

- 'HVACModeOptim' Contains the optimzed 'HVACMode' to be used in the HIRC

instead of the 'HVACModeEff'

- 'TempRoomSetpOptimHeatShift delta correction value to be added in the HIRC to the actual room

temperature setpoint

#### 2.3.1.2 Room heat demand

The HIRC uses the actual room temperature setpoint, the actual room temperature value, the valve position etc. to determine a room heat demand parameter that is sent to the Room Demand Manager HRDM.

The room heat demand can be expressed as (see also chapter 2.1.2):

TempRoomDemAbsHeat room temperature demand (based on the actual room temperature

setpoint which may be corrected by an offset depending on an internal

demand calculation algorithm)

ActPosDemAbsHeat or the actuator position (set point), see EIB ObIS model [13] "Supply

Water Temperature Controller based on Evaluation of Valve Positions"

Calculation of the room heat demand is company-specific and not part of this specification. Either TempRoomDemAbsHeat or ActPosDemAbsHeat must be provided by the HIRC.

The emergency demand 'EmergDem' attribute which was originally introduced for VAC application is also supported in the HIRC heat demand signal (optional feature). This attribute can be set by the HIRC to indicate a critical heat demand for frost protection, e.g. if the room- and/or outside temperature is below a critical value and no heat is provided by the heat production system (e.g. because boiler is in 'summer mode' or manually switched off).

If supported by the heat production system (HPM), the attribute 'EmergDem'=true will activate heat production in any case (override of e.g. local 'summer mode')

### 2.3.1.3 Usage of StatusHPM by the HIRC

The signal StatusHPM which is provided from the HPM via HDTRT informs the HIRC e.g. if the heat production is on and is able do provide energy. This information may be used in the HIRC for optimization purpose and "learning-functions". These functions are company-specific.

#### 2.3.1.4 Usage of LockSignHPM by the HIRC

Locking signals can be used in HIRC, but normally without big effect because the heat consumption is already reduced before the HIRC system (e.g. in a pre-controller).

If the HIRC receives a critical locking signal from the HPM the HIRC will reduce the flow according to the % reduction factor in any case.

If the HIRC receives a uncritical locking signal from the HPM the HIRC will reduce the flow according to the % reduction factor if the HIRC has not requested load priority.

IMPORTANT: LockSignHPM must NOT have an influence on the calculation of the flow temperature demand signal (otherwise system may "oscillate")

Usage of LockSignHPM is an optional feature of the HIRC. See also document [09].

### 2.3.1.5 Usage of ForceSignHPM by the HIRC

Forcing signals of the type 'Protection' or 'Oversupply' are only accepted by the HIRC if either the attribute 'RoomHMax' or 'RoomHComf' is set (activate room heating).

- If the HIRC receives a critical forcing signal (type 'Protection') it will <u>react in any case</u> (unconditional load). If 'RoomHMax' attribute is set the HIRC will open the valve (100% flow). If 'RoomHComf' attribute is set the room heating shall be temporarily activated with 'Comfort' room temperature setpoint (HVACMode = Comfort)
- If the HIRC receives a uncritical forcing signal (type 'Oversupply') it <u>may react or may ignore</u> the signal (conditional load). Forcing signal could e.g. be ignored if the HIRC is in an energy saving mode. If the signal is accepted, the reaction is the same as for type 'Protection', see above

If the HIRC receives a forcing signal with the type 'Overrun' immediately after load shutdown it will temporarily keep the last flow temperature setpoint (used before shutdown) for control loop (pump overrun). So remaining energy in the heat producer is efficiently used after load shutdown.

IMPORTANT: Forcing signals must NOT have an influence on the calculation of the heat demand signal of the HIRC or HDTRT (otherwise system may "oscillate")

The implementation of forcing signals is an optional feature of the HIRC. See also document [09].

### 2.3.1.6 Usage of received LockSignHFDM in the HIRC

same procedure as for LockSignHPM, see clause 2.3.1.4

### 2.3.1.7 Usage of received ForceSignHFDM in the HIRC

same procedure as for ForceSignHPM, see clause 2.3.1.5

### 2.3.1.8 Load Priority Management

Absolute or shift load priority can be requested by the HIRC by setting the attributes 'AbsLoadPriority' or 'ShiftLoadPriority' in the TempRoomDemAbsHeat or ActPosDemAbsHeat signal.

Load Priority between the consumers within a Heat Distribution Segment is controlled by the HFDM according to priority attributes in the received heat demand signals. If <u>absolute load priority</u> is requested by one or a class of consumers, the HFDM will send a 'uncritical' locking signal LockSignHFDM with 100% power reduction to the consumers in the Heat Distribution Segment

If the HFDM can not provide the requested flow temperature (e.g. in a heat-exchanger) and if a consumer requests shift load priority the HFDM will send an 'uncritical' locking signal with X % power reduction to the consumers in the Heat Distribution Segment. See also [08] and [09]

If the heat production system can not provide the requested boiler- / flow temperature and if a consumer requests shift load priority the HPM will send an 'uncritical' locking signal LockSignHPM with X % power reduction. See also [07] and [09].

#### 2.3.1.9 Sensors and actuators

The HIRC uses the actual room temperature and optionally the outside temperature (and in some cases wind speed and sun intensity) for the room temperature control loop mechanism. These sensors may be hard-wired to the device containing the HIRC or may be received as external inputs from the bus. If one of these sensors is connected locally to the device containing the HIRC, the corresponding Functional Block is activated.

The HIRC controls one ore multiple valves HVA. The valves are either hard wired or connected via bus. Within one room, all valves VA are usually controlled together by the HIRC. In some cases Subzoning for Valves in the same room is necessary (e.g. combined floor heating and radiator heating). See also chapter 2.1.2

#### 2.3.2 Constraints

The LTE zone 'Subzone' can be configured on the HIRC if two or more heating zones within one room are supported (e.g. floor heating combined with radiator heating). This is an optional feature of the HIRC. If 'Subzone' is not configurable => internal value '1', see clause 2.1.2

In the standard HIRC application model all outside sensors are located in the same LTE zone (only one zoning parameter). Manufacturer specific parameters shall be used if different outside sensor zones have to be supported.

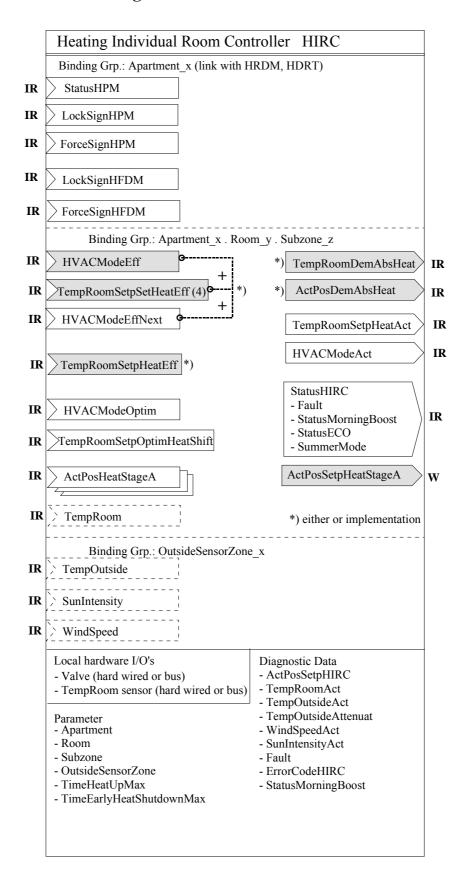
This Individual Room Control application model is only applicable if all room heating circuits of one Apartment are connected to the same Heat Distribution Segment (mainly residential buildings). See also chapter 2.1.2

The usage of HVACModeEff/HVACModeEffNext + TempRoomSetpSetHeatEff[4] for optimized room temperature control is restricted to LTE implementations only since the the necessary compound HVAC DPT for runtime-interworking are not yet available in Standard Mode.

In Standard Mode implementations, the HIRC room temperature control mechanism is based on the TempRoomSetpHeatEff information only (simplified model used in EIB ObIS [13]). In this case more sophisticated functions like start/stop optimization in the HIRC can not be implemented.

For non LTE-HEE implementations using the shared variable model the number of valves HVA connected to the HIRC is limited (max. number to be defined at design time of a product) because for every valve status information input (ActPosHeatStageA, t.b.d. in standard mode) one separate group object and group address must be assigned.

### 2.3.3 Functional block diagram



# 2.3.4 Datapoint description

### **2.3.4.1** Overview

Data Point	Description	Data Point Type	DPT N°
Outputs			
TempRoomDemAbsHeat	Heating room temperature demand to the allocated HRDM / LTE and S-interface	DPT_TempRoomDemAbs DPT_Value_Temp	209.101 9.001
ActPosDemAbsHeat	Heating actuator position demand to the allocated HRDM / LTE and S-interface	DPT_ActPosDemAbs DPT_Scaling	207.104 5.001
TempRoomSetpHeatAct	Actual room temperature setpoint of the HIRC zone / LTE and S-interface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001
HVACModeAct	Actual active HVAC mode used by the HIRC / LTE and S-interface	DPT_HVACMode_Z DPT_HVACMode	201.100 20.102
StatusHIRC	Status attributes of HIRC	DTP_StatusRHC	21.102
- Fault	failure, some error in the HIRC (S-interface)	DPT_Bool	1.002
- StatusMorningBoost	morning boost function active (S-interface)	DPT_Bool	1.002
- StatusECO	ECO function active (S-interface)	DPT_Bool	1.002
- SummerMode	HIRC is in summer mode (S-interface)	DPT_Bool	1.002
ActPosSetpHeatStageA	Actuator position set point to be written to the connected valve(s) HVA / LTE and S-interface	DPT_RelValue_Z DPT_Scaling	202.001 5.001
Inputs			
StatusHPM	Status information from 'Producer Manager'	DPT_StatusHPM	209.100
ForceSignHPM	Forcing signal from HPM due to overheat, to force the consumers to consume energy	DPT_ForceSign	21.100
LockSignHPM	Locking signal from HPM due to boiler overload, to force the consumers to reduce energy consumption	DPT_LockSign	207.101
ForceSignHFDM	Forcing signal from allocated HFDM in the Heat Distribution Segment	DPT_ForceSign	21.100
LockSignHFDM	Locking signal from allocated HFDM in the Heat Distribution Segment	DPT_LockSign	207.101
HVACModeEff	present/active 'HVACMode' from RSMHD	DPT_HVACMode_Z	201.100
TempRoomSetpSetHeatEff [4]	set of 4 effective temperature setpoints for heating 'Comfort', 'Standby', 'Economy' and 'BuildingProt'	DPT_RoomSetpSet[4]	213.100
HVACModeEffNext	next 'HVACMode' and time until next mode from RSMHD	DPT_HVACModeNext	206.100
TempRoomSetpHeatEff	The effective actual temperature setpoint for heating / LTE and S-interface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001
HVACModeOptim	optimized HVAC Mode from external HVAC Optimizer	DPT_HVACMode_Z	201.100
TempRoomSetpOptimHeatShift	room temp. setpoint shift from external HVAC Optimizer / LTE and S-interface	DPT_TempHVACRel_Z DPT_Value_Tempd	205.101 9.002
ActPosHeatStageA	Status of the connected heating valve(s) HVA / LTE and S-interface	DPT_StatusAct DPT_??? t.b.d.	207.105 ???
TempRoom	Current room temperature value / LTE and S-interface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001
TempOutside	Current outside temperature / LTE and S-interface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001

Data Point	Description	Data Point Type	DPT N°
WindSpeed	Current wind speed value / LTE and S-interface	DPT_WindSpeed_Z DPT_Value_Wsp	203.101 9.005
SunIntensity	Current sun intensity value W/m²/ LTE and S-interface	DPT_SunIntensity_Z DPT_PowerDensity	203.102 9.022
Parameters			
Apartment	LTE zone: Apartment number	DPT_UcountValue8_Z	202.002
Room	LTE zone: Room number	DPT_UcountValue8_Z	202.002
Subzone	LTE zone: Subzone number	DPT_UcountValue8_Z	202.002
OutsideSensorZone	LTE zone for external Outside temperature sensor	DPT_UcountValue8_Z	202.002
TimeHeatUpMax	Maximum heat-up time for local start optimization	DPT_TimePeriodMin	7.006
TimeEarlyHeatShutdownMax	maximum advanced shutdown time for local stop optimization	DPT_TimePeriodMin	7.006
Diagnostic Data			
ActPosSetpHIRC	Actual calculated actuator position setpoint	DPT_RelValue_Z	202.001
TempRoomAct	Actual room temperature used by the HIRC	DPT_TempHVACAbs_Z	205.100
TempOutsideAct	Actual outside temperature used by the HIRC	DPT_TempHVACAbs_Z	205.100
TempOutsideAttenuat	Actual attenuated outside temperature used by the HIRC	DPT_TempHVACAbs_Z	205.100
WindSpeedAct	Actual wind speed value used by the HIRC	DPT_WindSpeed_Z	203.101
SunIntensityAct	Actual sun intensity value used by the HIRC	DPT_SunIntensity_Z	203.102
Fault	failure, some error in the HIRC	DPT_Bool	1.002
ErrorCodeHIRC	company specific numeric error code	DPT_Value_2_Ucount	7.001
StatusMorningBoost	Status of morning boost function	DPT_Bool	1.002

<sup>\*)</sup> Implementation of Properties using standard DPT see clause 1.3.2

			STANDARD MODE	EXTEN MO	
		Basic FB	S-Mode	Standard Mode Interface	LTE-Mode
Outputs	TempRoomDemAbsHeat	$\mathbf{GO_b}^{-1)}$	GO 1)	GO 1)	M 1)
	ActPosDemAbsHeat	$\mathbf{GO_b}^{-1)}$	GO 1)	GO 1)	M 1)
	TempRoomSetpHeatAct	$(GO_b)$		(GO)	О
	HVACModeAct	$(GO_b)$		(GO)	О
	StatusHIRC	NA	NA	NA	О
	- Fault	$(GO_b)$		(GO)	О
	- StatusMorningBoost	$(GO_b)$		(GO)	О
	- StatusECO	$(GO_b)$		(GO)	О
	- SummerMode	(GO <sub>b</sub> )		(GO)	NA
	ActPosSetpHeatStageA	$GO_b$	GO	GO	M
Inputs	StatusHPM	<b>NA</b> 2)	NA	NA	О
	ForceSignHPM	<b>NA</b> 2)	NA	NA	О
	LockSignHPM	<b>NA</b> 2)	NA	NA	О
	ForceSignHFDM	<b>NA</b> 2)	NA	NA	О
	LockSignHFDM	<b>NA</b> 2)	NA	NA	О
	HVACModeEff	<b>NA</b> 4)	NA	NA	M 3)
	TempRoomSetpSetHeatEff [4]	<b>NA</b> 2)	NA	NA	M 3)
	HVACModeEffNext	<b>NA</b> 2)	NA	NA	O 3)
	TempRoomSetpHeatEff	<b>GO</b> <sub>b</sub> <sup>3)</sup>	GO	GO	M 3)
	HVACModeOptim	<b>NA</b> 4)	NA	NA	О
	TempRoomSetpOptimHeatShift	(GO <sub>b</sub> )		(GO)	О
	ActPosHeatStageA	t.b.d.			О
	TempRoom	(GO <sub>b</sub> )		(GO)	О
	TempOutside	(GO <sub>b</sub> )		(GO)	О
	WindSpeed	(GO <sub>b</sub> )		(GO)	О
	SunIntensity	(GO <sub>b</sub> )		(GO)	О

 $^{1)}\ Either\ implementation\ of\ TempRoomDemAbsHeat\ or\ ActPosDemAbsHeat$ 

Table 4: HIRC Runtime Interworking - dependence on Configuration Modes

<sup>&</sup>lt;sup>2)</sup> the information is NA in the Basic FB and all other modes because the datapoint type is <u>today</u> not yet available in standard mode. Splitting of DPT is not possible because of necessary data consistency

<sup>&</sup>lt;sup>3)</sup> Either implementation of { HVACModeEff + TempRoomSetpSetHeatEff [4] (+ HVACModeEffNext) } or { TempRoomSetpHeatEff }

<sup>&</sup>lt;sup>4)</sup> Implementation of HVACModeEff or HVACModeOptim inputs only without TempRoomSetpSetHeatEff [4] does not make sense

		Support
Parameter	Apartment	M
	Room	M
	Subzone	О
	OutsideSensorZone	О

**Table 5: HIRC LTE specific Properties** 

		Support
Parameter	TimeHeatUpMax	О
	TimeEarlyHeatShutdownMax	О
Diagnostic Data	ActPosSetpHIRC	О
	TempRoomAct	О
	TempOutsideAct	О
	TempOutsideAttenuat	О
	WindSpeedAct	О
	SunIntensityAct	О
	Fault	О
	ErrorCodeHIRC	О
	StatusMorningBoost	О

Table 6: HIRC Standard Properties of Interface Objects (or memory mapped DP)

# 2.3.4.2 Output TempRoomDemAbsHeat

### **Standard Mode**

DP Name:	TempRoomDemAbsHeat	Abbr.:				Manda	atory 1)	$\geq$	Ӡ
FB Name:	HIRC					Can be	e intern	al	
Description									
see LTE-HEE	mode, only temperature valu	e, no load	priority a	attribut	es etc.				
<b>Datapoint Ty</b>									
DPT_Name:	DPT_Value_Temp								
DPT Format:	F <sub>16</sub>				DPT_ID:				
Field	Description				Supp.	Range	Unit	Default	
	<u> </u>	see LTE-H	EE mod	<u>e</u>					
Access Type									
♦ Output									
this $\rightarrow$ M									
Spontaneo		Δ-Value:			n repetitio	n period:	10s		
	Cyclic 🖂	Period:	15 Mir	1					
Request									
Communicat									
	ject Datapoint					Mandator	y: 🛛		
	oup Address:								
Dynamics									
Power dov									
Power up:	Value: No initialisa				ılt value:				
	Saved valu	_				ot for input			
	Transmit on bus (only fo	r output):		Read	from bus	(only for ir	nput):		
<b>Exception Ha</b>	ndling								
Special Featu									
1) Either imple	mentation of TempRoomDem	AbsHeat o	or ActPos	sDem/	AbsHeat				

FB: HIRC	LTE	Serve	er Output Name: TempRoomDemAbsHeat Mandatory 🔯 '' Optional 🗌								
Description:	on: It signal contains the room heating temperature demand (absolute value, expressed as a										
temperature set the room temp	etpoint eratur	value e dem	s the room heating  e) of the HIRC which  nand: method is co  est load priority: se	ch mp	is sent to the	ne HRD ic. See	M in t	the san	ne apartm		
DPT: Name			npRoomDemAbs			209.10	1 [	atatyp	e format	V <sub>16</sub> B <sub>8</sub>	
Field		Des	cription			Sup.	Ran		Unit	COV	Default
TempRoomDe	mAbs	requ valu	uested temperature e	e s	etpoint	M	full		°C	0.2	cs
Attributes - DemValid		(fals	dity of TempRoom se means also "no nand")			М	true/	false	bool	Y	false
- AbsLoadPrio	rity	set i	if absolute load pri lested by the HIRO		ty is	0	true/	false	bool	Y	false
- ShiftLoadPric	ority	set i	if shift load priority he HIRC		requested	0	true/	false	bool	Y	false
- EmergDem		eme	ergency heat dema t protection	ınd	I for room	0	true/	false	bool	Y	false
Communicati	on:	<del>_</del>	•						<u> </u>	-	
Binding Gro	up:										
Class			Туре					Defa			
Geographic Application	Speci	⊠ fic∐	Apartment.Room	.Sı		· · · · · · · · · · · · · · · · · · ·		1.1.1			
Unassigned			Broadcast		Configura						
DP Address			IO Type(ID):		167 (HIRC			perty II		51	
LTE-Service InfoReport (LTE Read-	-Respo	⊠ onse	COV 🗵 Output per defaul		/linRepTime ommunicat			sec ding G	Hear roup Wild	tbeat: card allov	15 min
polling of th		ut	Tx Prio:		High 🗌		N	lormal	$\boxtimes$	Low	
shall always be supported) Transm after Powerup: Stored Value ☐ Act Value ☐ Default Value ☐											
Property-Se (individual a		s):	Read only	$\boxtimes$		Read/V	Vrite				
<b>Exception Ha</b>	ndling	): 	-						Save	at Power	down
		-									
	pecial Features:										
1) Either impler	ither implementation of TempRoomDemAbsHeat or ActPosDemAbsHeat										

# 2.3.4.3 Output ActPosDemAbsHeat

### **Standard Mode**

DP Name:	ActP	osDemA	bsHeat		Abbr.:					Manda	tory 1)		$\boxtimes$
FB Name:	HIR	3								Can be	e interr	nal	
Description													
see LTE-HEE		e, only %	value, n	o load p	oriority at	tributes	etc.						
<b>Datapoint Ty</b>	ре												
DPT_Name:		T_Scalin	g					_					
DPT Format:	U <sub>8</sub>							DPT_ID	):	5.001			
Field	De	scription						Supp.	Rar	nge	Unit	Defa	ult
				S	ee LTE-l	HEE mod	de						
<b>Access Type</b>	<del>)</del>												
♦ Output													
this $\rightarrow$ M		]	this $\rightarrow$	1									
Spontaneo	ous		OV:		Δ-Value	: 5%	Mi	n repetit	ion pe	eriod:	10s		
			/clic		Period:	15 M	in						
Request													
Communicat	tion T	уре											
♦ Group Ob	oject [	Datapoint							Mai	ndator	y:   🗵	1	
Default Gr	oup A	Address:											
Dynamics													
Power dov	vn:	Save:					-						
Power up:		Value:	No ii	nitialisat	ion:			ılt value:					
				ed value				ıl value (ı				1	
		Transmit	on bus	only for	output):		Read	from bu	s (onl	y for in	put):		
<b>Exception Ha</b>	andliı	ng											
Special Feat													
1) Either imple	ement	ation of 1	empRoc	mDem/	AbsHeat	or ActPo	sDem	AbsHeat					

FB: HIRC	;	LTE Server Output Name: ActPosDemAbsHeat Mandatory Optional Optional											
Description	n:												
This output absolute va Calculation	signa lue) of th	of the e valv	HIRO e pos	the heating actua C which is sent to sition demand: me est load priority: se	the tho	HRDM in od is compa	the san	ne a	parti	ment.			etpoint,
<b>DPT</b> : Na	me	DPT_	ActF	PosDemAbs		DPT ID	207.10	4	Data	atype	format	U <sub>8</sub> B <sub>8</sub>	
Field				cription			Sup.		nge		Unit	COV	Default
ActPosDem	Abs			olute actuator posi point, valve lineariz			M	01	100%	6	%	5	cs
Attributes - DemValid			(false	dity of ActPosDem e means also "no and")		at	М	true	e/fals	se	bool	Y	false
- AbsLoadPriority set if absolute load priority is requested by the HIRC O true/false bool Y false													
- ShiftLoadPriority set if shift load priority is requested by the HIRC bool Y false													
- EmergDem emergency heat demand for room O true/false bool Y false frost protection								false					
Communic	ation	า:					-	•				<u> </u>	
Binding G	3rou	p:											
Class				Туре						Defau	ılt		
Geograp Applicati Unassigi	ion S	<del>.</del>		Apartment.Room.  Broadcast	.Su	ibzone Configura	ble 🔲			1.1.1.			
DP Addre				IO Type(ID):		167 (HIRC				rty ID		52	
LTE-Serv			, _	COV 🛛		linRepTime		1(	0 se	:C	Hear	tbeat:	15 min
InfoRepo (LTE Re	ad-R	espor		Output per defaul	t c		ing				•	card allov	ved 🗌
polling o			ıt	Tx Prio:		High 🗌			Norr	mal 🏻	<u> </u>	Low	
shall alw supporte	eď)			Transm after Pow	/eri	up: Stored	Value		Ac	t Valı	ue 🛛 🏻 🗈	Default Va	alue 🗌
Property- (individua			•	Read only	$\boxtimes$		Read/V	Vrite	)				
Exception	Hand	dling:									Save	at Power	down
	cial Features:												
<sup>1)</sup> Either imp	leme	entatio	n of	TempRoomDemA	bs	Heat or Ac	tPosDe	mAl	bsHe	eat			

# 2.3.4.4 Output TempRoomSetpHeatAct

### **Standard Mode:**

same as in HZC, see clause 2.2.4.2

FB: H	HIRC LTE Server Output Name: Ter						SetpHe	eatA	Act			datory 🗌 otional 🔯
Descri	ption:				-						-	
Actual	room ten	nperat	ure s	etpoint of the HIR	RC (r	nainly use	ed for vi	sua	lisation)			
DPT:	Name	DPT.	_Tem	npHVACAbs_Z		DPT ID	205.10	0	Datatype	e format		
Field			Des	cription			Sup.	Ra	ange	Unit	COV	Default
Temp			tem	perature setpoint	valu	е	M	ful	l	°C	0.2	cs
Status			stan	dard Status attrib	utes	3						
	fService			value: setpoint ne			M		ıe/false	bool	Υ	true
- Overr				oint overridden tr	ue /	false	0	tru	ıe/false	bool	Υ	true
- all oth	er flags			supported			<u> </u>	ļ				
Comma				dard Command, v								
- Overr			over	ride and release	setp	oint	0					
Releas							l					
- all oth			not s	supported			NA					
comma							<u> </u>					
	unicatio											
	ing Grοι	ıp:	:	Γ					1			
Class			<u> </u>	Туре					Defa	ult		
	graphica			Apartment.Room	ı.Sul	bzone			1.1.1			
	lication S	Specifi										
	ssigned		Ш	Broadcast		Configura						
	ddress:	,		IO Type(ID):		167 (HIRC			roperty ID		53	
	Services			COV ⊠		inRepTim		1	0 sec	Heart	beat:	15 min
(LTE	Report E Read-F	Respo		Output per defau	ılt cc	ommunica	ting	В	_	oup Wildo	ard allov	ved 🗌
	ing of the		ut	Tx Prio:		High 🗌			Normal [	$\boxtimes$	Low	
sup	ll always ported)			Transm after Po	weru	ıp: Stored	d Value		Act Val	ue 🛛 D	efault Va	alue 🗌
	erty-Ser ⁄idual ad		):	Read only			Read/V	Vrite	e 🗵	1 1)		
Except	tion Han	dling:								Save a	t Power	down
	l Featur											
				for Override / Rel	lease	e function	only. If	'Ov	erridden'	the HIRC	uses the	e override
valu	e for roo	m terr	npera	ture control								

# 2.3.4.5 Output HVACModeAct

### **Standard Mode:**

same as in HZC, see clause 2.2.4.4

FB:	HIRC	LTE S	Serve	r Output Name: HVACModeAct Mandato Option							
Desc	ription:				_						
Actua	I HVAC M	lode of	the	room heating zone	e (which may	also de	pend	d on inter	nal optimi	iser fund	tions in
				visualisation)							
DPT:	Name	DPT	_	ACMode_Z	DPT ID	201.10			format		
Field				cription			Rar	nge	Unit	COV	Default
	CMode			al HVAC Mode		М	[14	4] <sup>1)</sup>		Υ	cs
Status				dard Status attribu							
	rridden			mode overridden	rtrue / false	0	true	e/false	bool	Υ	false
	ther flags			supported			ļ				
Comr				dard Command, v							
	rride &		over	ride and release s	setpoint	0					
Relea			not (	supported		NA					
comm			TIOUS	supported		INA					
Comr	municatio	n:				<u>L</u>				L	<u>l</u>
	ding Grou										
Clas				Туре				Defau	ılt		
Ge	eographica	al	$\boxtimes$	Apartment.Room	.Subzone			1.1.1			
Ap	plication S	Specifi	с								
	nassigned			Broadcast	Configura						
	Address:			IO Type(ID):	167 (HIRC		Pr	operty ID		54	
	-Services			COV 🛛	MinRepTim		10	sec	Heart	beat:	15 min
	foReport TE Read-F		NSA	Output per defau	It communica	ting	Biı	nding Gro	oup Wildc	ard allov	wed 🗌
	lling of the			Tx Prio:	High 🗌			Normal [	<u> </u>	Low	
sh	all always		-	Transm after Pov		d Value		Act Val		efault Va	
	pported)			Transmatter rov	verup. Otoret	- Value		7 tot van		Cladit V	
	perty-Ser lividual ad		:	Read only [		Read/V	Vrite		2)		
Exce	ption Han	dling:		-					Save a	t Power	down
	ial Featur										
<sup>2)</sup> writ		is option	onal;	ed for Override / Rele ture control	ease function	only: if	'Ove	erridden'	the HIRC	uses the	e override

# 2.3.4.6 Output StatusHIRC

### **Standard Mode**

Separate datapoints Fault, StatusMorningBoost, StatusECO, SummerMode

### LTE-HEE mode:

FB:	HIRC	LTE Serv	ver Output Name:	StatusHIRC						datory 🗌
Descr	iption:		-						•	
Inform	ation pro	vided by t	he HIRC mainly for	visualization	& monit	oring e.	g. on an	end-us	er MMI	(e.g.
room ı										
DPT:	Name	DPT_Sta	atusRHC	DPT ID	21.102		tatype fo			
Field			Description		Sup.	Range		nit	COV	Default
- Fault			HIRC has a failure		M	true/fal		ol	Υ	false
- Statu	ısECO		ECO status; tempo	rary energy	0	true/fal	se bo	ol	Υ	false
			saving mode							
			e.g. due to high roo							
			temperature or high	n outside						
_			temperature		_			_		
- Tem	pFlowLim	it	Flow temperature li active (max. or min		0	true/fal	se bo	ol	Y	false
Tomi	pReturnLi	imit	Return temperature		0	true/fal	so bo	ol	Υ	false
- 16111	preturil	11111	active (max. or min			liue/iai	36   00	,01	'	iaise
- Stati	ısMorning	nRoost	morning boost activ		0	true/fal	se bo	nol	Υ	false
Otati	JOIVIOITIIII	JDOOSt	for monitoring)	C (mainly		li de/idi	30 00	,01	•	iaisc
- Statu	ısStartOp	tim	start optimization a	ctive(mainly	0	true/fal	se bo	ol	Υ	false
			for monitoring)	, ,						
- Statu	ısStopOp	tim	stop optimization ac	ctive (mainly	0	true/fal	se bo	ol	Υ	false
_			for monitoring)		_					
- Sum	merMode		room heating is dis-		0	true/fal	se bo	ol	Υ	false
_			local summer/winte	r mode	L	<u> </u>				
	nunicatio									
	ling Groເ	ıb:	T <del>_</del>			1	D ( 11			
Clas		. 57	Туре	0.1			Default			
	ographica		Apartment.Room.	Subzone			1.1.1			
		Specific	Due a de set	0						
	assigned Address:		Broadcast	Configura		Drope	wtv ID:	E	E	
		(event):	IO Type(ID): COV ⊠	167 (HIRC MinRepTime		10 se	erty ID:	5 Hearth		15 min
	-Services oReport		Output per defaul			10 80	<del>2</del> C	пеан	beat.	13 111111
		⊠ Response		t communica	urig	Bindir	ng Group	Wildca	ard allov	ved 🗌
	ling of the		Tx Prio:	High 🗌		Nor	mal 🖂		Low	
	all always			<u> </u>						
	oported)		Transm after Pow	erup: Stored	value	A0	ct Value	⊠ De	efault Va	alue 🔛
Prop (indi	erty-Ser ividual ad	vice ccess):	Read only		Read/V	Vrite				
	tion Han							Save at	t Power	down
Speci	al Featur	es:								

# 2.3.4.7 Output Fault

### **Standard Mode**

same as in HZC, see clause 2.2.4.6

LTE-HEE mode: NA

# 2.3.4.8 Output StatusMorningBoost

### **Standard Mode**

same as in HZC, see clause 2.2.4.7

LTE-HEE mode: NA

### 2.3.4.9 Output StatusECO

**Standard Mode** 

same as in HZC, see clause 2.2.4.8

LTE-HEE mode: NA

# 2.3.4.10 Output SummerMode

**Standard Mode** 

same as in HZC, see clause 2.2.4.9

LTE-HEE mode: NA

# ${\bf 2.3.4.11~Output~ActPosSetpHeatStageA}$

### **Standard Mode**

DP Name:	ActPosSetpHeatStageA	Abbr.:				Manda	tory	$\boxtimes$
FB Name:	HIRC					Can be	interna	al 🖂
Description								
This datapoin	t contains the percent setpoir	nt value for	the actua	ator po	osition.			
<b>Datapoint Ty</b>	pe							
DPT_Name:	DPT_Scaling							
DPT Format:	U <sub>8</sub>				DPT_ID:	5.001		
Field	Description				Supp.	Range	Unit	Default
						0100%	%	CS
Access Type								
♦ Output								
this $\rightarrow$ M	$\boxtimes$ 1) this $\rightarrow$ 1							
Spontaneo	ous 🛛 COV:	Δ-Value:	5%	Mi	n repetitic	n period:	10s	
	Cyclic ⊠	Period:	15 Mir	า				
Request								
Communicat	ion Type							
	ject Datapoint					Mandatory	<i>r</i> : 🛛	
	oup Address:							
Dynamics								
Power dov	n: Save:							
Power up:	Value: No initialis	ation:		Defau	ılt value:			
	Saved value			Actua	I value (n	ot for input)	: 🛛	
	Transmit on bus (only for	or output):		Read	from bus	(only for in	put):	
<b>Exception Ha</b>	indling							
Special Feat								
1) one or mult	iple valves can be controlled	in parallel						

FB:	HIRC	LTE Client Output Name: ActPosSetpHeatStageA								datory 🛚 otional 🔲
Descr	ription:			-						
			ns the actuator posit							
			of a room). Normally							
			so sub-zoning is pos	ssible (e.g. N	radiator	valve	s in a s	subzone ai	nd one f	loor
	,	See claus								
	7		osition setpoint: me							
DPT:	Name	DPT_Re	elValue_Z	DPT ID	202.00			format l		
Field			Description		Sup.	Rang		Unit	COV	Default
RelVa			Actuator position s	etpoint %	M	0100		%	5	CS
	MAND					enum				
	nalWrite				M					
	ther comn		not allowed		NA	<u> </u>				
	nunicatio									
	ding Groւ	ıp:					1			
Clas		. 5	Туре				Defau		. 1)	
Ge	ographica	al 🖂	Apartment.Room				1.1.*	or 1.1.	1 ''	
<u>-</u>			Apartment.Room	.Subzone 7			<del></del>			
	plication S	Specific	]	06						
	assigned	Ш	Broadcast	Configura		D	ID		4	
	Address:		IO Type(ID):	352 (HVA)			erty ID			4.F
	-Services		COV 🖂	MinRepTime		10 9	sec	Hearth	beat:	15 min
Wr	ne		Output per defau	it communica	ting	Bind	ing Gro	oup Wildca	ard allov	ved 🖂
	Tx Prio: High \( \square\) Normal \( \square\) Low \( \square\)									
			Transm after Pov	ver-up: Stored	d Value		Act Val	ue 🛛 🛛 De	efault Va	alue 🗌
Excep	otion Han	dling:	•					Save a	t Power	down
Speci	al Featur	es:								
1) dep	epending whether all valves in the room or only in a room subzone are controlled together									

# 2.3.4.12 Input StatusHPM

### **Standard Mode**

Not applicable

FB:	HIRC	LTE Client	t Input Name:	Sta	atusHPM						atory	
					Op:	tional	$\boxtimes$					
	iption:											
			s status informa									al
			HIRC as well as									
			nal was routed b	by the							2.3.1.3	3
DPT:	Name	DPT_Stat	,		DPT ID	209.100	)	Datatyp	e format			
Field			Description						Sup.	Unit	Defa	ult
Temp	FlowProd	SegmH	common flow t segment	empe	erature of	heat prod	luct	tion	M	°C	cs	
Attribu												
	pFlowVali	id	validity of Tem						M	bool	fals	-
- Faul	t		one or more be						M	bool	fals	е
			monitoring); m HIRC	anufa	acturer spe	ecific read	ctio	n in the				
- Sum	merMode	!	boiler / boiler s						0	bool	fals	е
			summer/winter									
- OffP	erm		boilers are per	mane	ently off (m	nanual sw	/itch	n or	0	bool	fals	е
			failure)						_			
- NoH	eatAvaila	ble	boiler / boiler s	eque	ence is tem	nporary n	ot p	producing	g   O	bool	fals	е
_			heat									
	nunicatio											
	ling Groເ	ıp:	г				_					
Clas			Туре					fault				
	ographica		Apartment.*.*				1.*	: * :				
	plication S	Specific										
	assigned		Broadcast		Configura							
	Address:		IO Type(ID):		136 (HPM		Pr	roperty II	D:	51		
	-Service	· —	InfoReport Sn	iffer	on Binding				<b></b>			
	oReport		Timeout:			31	Miı	n				
	- <b>Service</b> ad – Res <sub>l</sub>	<b>(polling):</b> ponse⊡	Read Wildcard		<u> </u>	on Bindir	ng (	Group:				
Value	after Pov	werup:	Defa	ault V	/alue ⊠				•	Stored Val	ue 🗌	
Excep	tion Han	dling:						S	Save at Po	werdown		
Speci	al Featur	es:								_		

# 2.3.4.13 Input LockSignHPM

### **Standard Mode**

Not applicable

FB:	HIRC	LTE Clien	t Input Name:	LockSignHPM					ndatory 🗌
								C	optional 🖂
	ription:								
			ause 2.3.1.4 and						
This s	signal was	routed by	the HDTRT to its	Apartment zone					
DPT:	Name	DPT_Loc		DPT ID 20	7.101	Datatyp	e format	U <sub>8</sub> B <sub>8</sub>	
Field			Description				Sup.	Unit	Default
PwrR	eduction			er-consumption re	duction	n	M	%	cs
			– 0 % no redu						
			– 100% max. re					<u> </u>	
Attrib	utes		Bitset containin	<u> </u>					
– Loc	kRequest			er reduction is nec	essary	(validity	M	bool	false
			of PwrReductio						
– Typ	e			d critical/uncritical;	value i	is only	M	bool	uncritical
			meaningful if Lo	ockRequest=true					
Com	municatio	n:							
Bin	ding Grou	ıp:							
Clas	SS		Туре			efault			
Ge	eographic	al 🛛	Apartment.*.*		1	* *			
Ap	plication	Specific [							
Ur	nassigned		Broadcast	Configurable [					
DP	Address:		IO Type(ID):	136 (HPM)		Property II	D:	54	
LTE	-Service	(event):		ffer on Binding Gro	oup:				
In	foReport	$\boxtimes$	Timeout: 1)		7 N	1in			
LTE	-Service	(polling):	Dood Wildoord	/ Doop Spiffor on F	Dinding	Croup:			
	ead – Res		Read Wildcard	/ Resp Sniffer on E	siriairig	Group.			
Value	after Po	werup:	Defa	ult Value 🛚				Stored V	′alue 🗌
Exce	ption Har	ndling:				S	ave at Po	owerdow	'n 🗌
Spec	ial Featur	es:							
1) The	signal is	received or	n event and perio	odically (if no COV	occurr	ed) as lon	g as the	LockRed	uest
attrib	ute is true	. When the	overload condition	on in the HPM disa	appear	s, the Locl	Request	t attribute	e changes
to fals	se and the	signal will	be repeated by t	he HPM with the h	eartbe	at-period	during 9 ı	minutes	(3
mess	ages). Aft	erwards re-	transmission is	stopped until a new	v overl	oad condit	ion appe	ars (this	procedure
reduc	es unnece	essary bus-	-load)					•	

# 2.3.4.14 Input ForceSignHPM

### **Standard Mode**

Not applicable

FB:	HIRC	LTE Clie	nt Input Name:	Fo	orceSignHF	M				ndatory 🗌 ptional 🏻
Desc	ription:			_					<u> </u>	<u>,                                    </u>
		IRC: see c	lause 2.3.1.5 a	nd do	cument [09]	1.				
			the HDTRT to							
DPT:		DPT Fo			DPT ID	21.100	Dataty	pe format	B <sub>8</sub>	
Field	<u> </u>	_	Description					Sup.	Unit	Default
Attrib	utes		Bitset containir	ng sta	tus info			•		
- Ford	eReques	t	indicates overh			he HPM	(validity of	M	bool	false
- Prot	ection			naining attributes) icates that overheat is critical, too high boiler M bo						
			temp			_				
- Ove	rsupply		indicates that of is much higher					M	bool	false
- Ove	rrun		indicates that r	emair	ning energy			М	bool	false
- DHV	VNorm <sup>2)</sup>		boiler(s) after le Load DHW to '			case of o	verheat	NA	bool	false
	2)		('Protection' or							
- DHV	VLegio <sup>2)</sup>		Load DHW to ' overheat ('Prot					NA	bool	false
			supported	CCIIOI	I OI OVEISI	uppiy ) =>	1101			
- Roo	mHComf		Load Room He	ating	to 'Comfort	' Level in	case of	М	bool	false
			overheat ('Prot	ection	n' or 'Oversi	upply')				
- Roo	mHMax		Load Room He					e M	bool	false
0	<del>-</del>		of overheat ('P	rotect	ion or Ove	rsuppiy)				<u> </u>
	municatio									
	ding Grou	ıp:	Tuna			1	Default			
Clas		al [7]	Type				Default 1.*.*			
	eographic		Apartment.*.*				1."."			
		Specific	Droodoost I		Configural					
	nassigned		Broadcast		Configurat		Duanantu	ID.	<b>F</b> 0	
	Address:		IO Type(ID):	:cc	136 (HPM		Property	ID:	53	
	-Service		InfoReport S	nimer	on Binding		N 41			
	oReport	( <u> </u>	Timeout: 1)				Min			
	: <b>-Service</b> ead – Res	(polling):	Read Wildca	rd / R	esp Sniffer	on Bindin	ng Group:			
	after Po		De	fault '	Value 🖂			-	Stored V	alue 🗌
	ption Har						,	Save at Po		
										<del></del>
Spec	ial Featur	es:								
			n event and pe	riodic	ally (if no C	OV occu	rred) as lo	ng as the	ForceRe	quest
			e forcing conditi							
			l be repeated b							
			e-transmission i							
reduc	es unnece	essary bus	s-load)	•			_		, ,	
<sup>2)</sup> HPI	M with hig	her function	nality may indi	cate v	vhether DH	W or Roc	m Heating	should be	e activate	ed in case
of ove	HPM with higher functionality may indicate whether DHW or Room Heating should be activated in case f overheat. The flags for DHW are not considered in the HIRC									

# 2.3.4.15 Input LockSignHFDM

# **Standard Mode**

Not applicable

FB: HIRC	LTE Clien	t Input Name:	e: LockSignHFDM							Mandatory ☐ Optional ⊠			
Description:	-		-						-				
Usage in the F	IIRC: see cla	ause 2.3.1.6 and	docu	ment [09]	].								
This signal wa	s routed by	the HDTRT to its	; Apar	tment zo	ne								
<b>DPT</b> : Name	DPT_Loc			OPT ID	207.10	1	Datatyp	e format	U <sub>8</sub> B <sub>8</sub>				
Field		Description						Sup.	Unit	Default			
PwrReduction		Requested pow			n reduct	ion		M	%	cs			
		– 0 % no redu											
		– 100% max. re							<b></b>				
Attributes		Bitset containin				,			l				
<ul><li>LockReques</li></ul>	t	indicates if pow of PwrReductio		luction is	necessa	ary (	validity	M	bool	false			
– Type		type of overload		ie is only	meaning	aful	if	$M^{2)}$	bool	uncritical			
LockRequest=true													
Communication:													
Binding Gro	up:												
Class		Туре					fault						
Geographic	al 🗵	Apartment.*.*				1.*	.*						
Application	Specific												
Unassigned		Broadcast		onfigurat									
DP Address		IO Type(ID):		44 (HFD		Pr	operty I	D:	52				
LTE-Service		InfoReport Snit	ffer or	n Binding									
InfoReport		Timeout: 1)			7	Mir	1						
LTE-Service Read – Res		Read Wildcard	/ Resp	p Sniffer	on Bindiı	ng C	Group:						
Value after Po		Defa	ult Val	lue 🖂					Stored V	′alue □			
Exception Ha	ndling:						S	Save at Po	owerdow	/n 🔲			
							<u> </u>			<del></del>			
Special Featu	res:												
1) The signal is	received or	n event and perio	dicall	y (if no C	OV occi	ırre	d) as lon	ig as the l	LockRed	uest			
attribute is true	attribute is true. If LockRequest attribute changes to false, the signal is still repeated by the preceding												
		period during 9 m							ission is	stopped			
		on appears (this											
		ually the type 'ur											
		ckSignHFDM are			n principl	e it	is allowe	ed to impl	ement 'c	critical			
ock>lon=+11	viano ine H	iku shali teact a	חווויו ווו	ar ic HV									

# 2.3.4.16 Input ForceSignHFDM

### **Standard Mode**

Not applicable

FB:	HIRC	LTE Clie	nt Input Name:		Mandatory ☐ Optional ☒				
Desc	ription:			-			1 0	tional 🖂	
		IRC: see c	lause 2.3.1.7 and	document [09].					
				s Apartment zone					
DPT:	<del></del> ,			DPT ID 21.101	Datatyp	e format	B <sub>8</sub>		
Field	1	12	Description	12	12 citally p	Sup.	Unit	Default	
Attrib	utes								
	eReques	t	indicates if forced (validity of the re-	d power consumption is	necessary	М	bool	false	
- Prot	ection		indicates that over	М	bool				
- Ove	rsupply		exchanger indicates that over	bool					
- Ove	rrun		indicates that ren	an requested by heat on the contract of the co		М	bool		
- DH\	VNorm 2)		Load DHW to 'No	after load shutdown ormal' Level in case of o		NA	bool	false	
- DH\	VLegio <sup>2)</sup>		Load DHW to 'Le	Oversupply') =>not suppegioProtect' Level in cas	se of	NA	bool	false	
_			supported	etion' or 'Oversupply') =					
- R00	mHComf			ing to 'Comfort' Level in tion' or 'Oversupply')	n case of	M	bool	false	
- Roo	mHMax		Load Room Heat	ting with valve 100 % o tection' or 'Oversupply'		М	bool	false	
Com	municatio	n:	01 0101110011 (1110	estion of oversupply	,				
	ding Gro								
Clas		-  -	Туре		Default				
	eographic	al 🛛	Apartment.*.*		1.*.*				
	plication	<u></u>							
	nassigned		Broadcast	Configurable					
	Address:		IO Type(ID):	144 (HFDM)	Property II	D:	53		
LTE	-Service	(event):		ffer on Binding Group:					
	foReport	` 🖄	Timeout: 1)	7					
LTE	-Service	(polling):	Dood Wildoord	/ Doon Cniffor on Dindi	na Craun:				
	ead – Res		Read Wildcard	/ Resp Sniffer on Bindi	ng Group:				
Value	after Po	werup:	Defa	ult Value 🛛		(	Stored Va	lue 🗌	
Exce	ption Har	dling:			S	ave at Po	werdown		
					•				
Spec	ial Featur	es:							
	The signal is received on event and periodically (if no COV occurred) as long as the ForceRequest								
				n in thể ĤFDM disappea					
to fals	se and the	signal wil	be repeated by t	he HFDM with the hear	rtbeat-period	during 9	minutes	(3	
				stopped until a new force					
		essary bus		ate whether DHW or R	oom Heating	a should h	ne activate	ed in	
case	HFDM with higher functionality may indicate whether DHW or Room Heating should be activated in case of overheat. The flags for DHW are not considered in the HIRC								

# 2.3.4.17 Input HVACModeEff

# **Standard Mode**

Not applicable

FB: HIRC	LTE CI	ientInput Name:	HVACModeEff Mandatory \(\sigma_1^{1}\)									
			Optional									
Description:												
		ne RSMHD and defir				perating i	mode of t		g zone			
	PT_HV/	ACMode_Z	DPT ID	201.100	)	Datatype	e format	$N_8Z_8$				
Field		Description					Sup.	Unit	Default			
HVACMode		Actual HVAC Mode		.4] 2)			M	enum.	cs			
Status		standard Status att										
<ul> <li>Overridden</li> </ul>		HVACMode overric	dden true /	false			0	bool	false			
- all other flags		not supported					NA	Α				
Communication:												
Binding Group:	Binding Group:											
Class		Туре				fault						
Geographical		Apartment . Room	. SubZone		1.1	.1						
Application Spe	cific											
Unassigned		Broadcast	Configura									
DP Address:		IO Type(ID):	100 (RSM		Pr	operty IE	):	51				
LTE-Service (ev	ent):	InfoReport Sniffer	on Binding	g Group:								
InfoReport	$\boxtimes$	Timeout:		31	Mir	1						
LTE-Service (po Read – Respon		Read Wildcard / Re	esp Sniffer	on Bindir	ng G	Group:						
Value after Power	-up:	Default \	/alue ⊠			<del>-</del>	;	Stored Val	ue 🗌			
<b>Exception Handli</b>	ng:					S	ave at Po	werdown				
<b>Special Features:</b>												
If the signal HVACModeOptim is received from an external Optimizer, the HIRC will ignore the signal												
HVACModeEff from the RSMHD and use the optimised HVAC Mode instead. See also chapter 2.1.5												
		{HVACModeEff + T			leat	tEff [4] (+	- HVACIV	lodeEffNe	xt)} or			
	{TempRoomSetpHeatEff}. This input can be device-internal											
<sup>2)</sup> value 0='Auto' is	value 0='Auto' is not allowed => to be ignored by the HIRC => use default value											

# 2.3.4.18 Input TempRoomSetpSetHeatEff [4]

# **Standard Mode**

Not applicable

FB: HIRC	LTE Clien	Input Name:	nput Name: TempRoomSetpSetHeatEff [4]						
Description:						<u></u>	tional		
This input is pro			ontains the four effecti	ve (after cor	rections)	heating ro	om		
temperature set	points which	ch are valid for th	e controller.						
<b>DPT</b> : Name	DPT_Ten	npRoomSetpSet[	[4] DPT ID 213.100	Datatyp	e format	V <sub>16</sub> V <sub>16</sub> V <sub>16</sub>	$V_{16}$		
Field Description S						Unit	Default		
TempSetpComf		Comfort setpoin			M	°C	CS		
TempSetpStdby	/	Standby setpoir			0	°C	CS		
TempSetpEco		Economy setpo			M	°C	CS		
TempSetpBPro	t	<b>Building protect</b>	ion setpoint heating		M	°C	CS		
Communicatio	n:				<del>.</del>	=	=		
Binding Grou	ıp:								
Class		Type		Default					
Geographica	al 🖂	Apartment . Roo	om . SubZone	1.1.1					
Application S	Specific								
Unassigned		Broadcast	Configurable						
DP Address:		IO Type(ID):	100 (RSMHD)	Property II	D:	53			
LTE-Service	(event):	InfoReport Snif	fer on Binding Group:						
InfoReport	$\boxtimes$	Timeout:	31	Min					
LTE-Service ( Read – Resp		Read Wildcard	Resp Sniffer on Bindir	ng Group:					
Value after Pov	wer-up:	Defau	ult Value ⊠	-	,	Stored Val	lue 🗌		
Exception Handling: Save at P									
Special Features:									
1) Either implem	entation of	{HVACModeEff	+ TempRoomSetpSeth	HeatEff [4] (-	HVACIV	lodeEffNe	xt) } or		
{TempRoomS	Either implementation of {HVACModeEff + TempRoomSetpSetHeatEff [4] (+ HVACModeEffNext) } or {TempRoomSetpHeatEff}. This input can be device-internal								

# 2.3.4.19 Input HVACModeEffNext

### **Standard Mode**

Not applicable

# LTE-HEE Mode:

FB: HI	RC	LTE CI	ientInput Name:	ntInput Name: HVACModeEffNext							
Descript	ion:	<del>-</del>									
			ne RSMHD and defin						time to it.		
This info	rmation is	used by	the HIRC for local	optimiser fun	ctions,	e.g. start/	stop optimi	sation			
DPT:	Name D	PT_HVA	ACMode_Next	DPT ID 2	206.100	Dataty	pe format	U <sub>16</sub> N <sub>8</sub>			
Field			Description				Sup.	Unit	Default		
DelayTin	ne		Time to next HVAC				М	min	0		
				HVAC Mode available <sup>2)</sup>							
[						M	enum.	CS			
			and [0] = Mode Un	defined 2)							
Commu	nication:										
Bindin	g Group:										
Class			Туре			Default					
Geog	raphical		Apartment . Room	Apartment . Room . SubZone 1.1.1							
Applic	cation Spe	ecific									
Unass	signed		Broadcast	Configurable	е 🗌						
DP Add	dress:		IO Type(ID):	100 (RSMH	ID)	Property	ID:	52			
LTE-Se	ervice (ev	ent):	InfoReport Sniffer	on Binding (	Group:						
InfoRe	eport	$\boxtimes$	Timeout:		31	Min					
	ervice (po – Respor		Read Wildcard / Re	esp Sniffer or	n Bindir	ng Group:					
Value af	ter Powe	r-up:	Default \	Value ⊠				Stored Val	lue 🗌		
Exception	n Handli	ng:					Save at Po	werdown			
Special	Special Features:										
1) Either i	mplemen	tation of	{ HVACModeEff + 7	TempRoomS	etpSetl	heatEff [4]	(+ HVACN	/lodeEffNe	xt) } or		
{ Temp	{ TempRoomSetpHeatEff }. This input can be device-internal										
	encoding of special conditions, see table below										

# Interpretation of Time and HVACMode fields

Time	HVACMode	
= 0 (Undefined)	= 0 (Undefined)	the content of the datapoint is void / undefined => no next HVAC Mode available for an undefined time period
= 0 (Undefined)	= {14}	defined and valid next HVACMode but the delay time is undefined (unknown) => in case of manually selected HVACModeUser ≠ 'Auto' (i.e. next HVACMode = current HVACModeEff)
> 0	= 0 (Undefined)	undefined (unknown) HVACMode during a defined delay time => in practice this combination is useless and is interpreted like Time=0 / HVACMode=0 (default value)
> 0	= {14}	defined and valid HVACMode and delay time

# 2.3.4.20 Input TempRoomSetpHeatEff

# **Standard Mode**

same as in HZC, see clause 2.2.4.21

FB:	HIRC	LTE Clien	t Input Name: TempRoomSetpHeatEff							Mandatory 🛚 1) Optional 🗌		
Descr	iption:									-		
			ne RSMHD and o								t which	
	d for the c		his information is	s use				ons (heat	ting only).			
DPT:	Name	DPT_Ten	pHVACAbs_Z		DPT ID	205.10	0	Datatyp	e format			
Field			Description						Sup.	Unit	Default	
	erature		room temperatu			ue			M	°C		
Status			standard Status		ibutes				M	bitset		
	OfService		void setpoint va						M	bool	false	
	ridden		setpoint value overridden true / false O							bool	false	
- all other flags not supported NA								NA	bool			
	nunicatio											
Bind	ling Groເ	ıp:										
Clas	S		Туре				De	fault				
	ographica		Apartment . Roo	om .	SubZone		1.1	l <u>.1</u>				
		Specific				<u></u>	ļ					
	assigned		Broadcast		Configural							
	Address:		IO Type(ID):		100 (RSM			roperty II	D:	55		
	-Service		InfoReport Snif	fer	on Binding							
	Report	$\boxtimes$	Timeout:			31	Mi	n				
	- <b>Service</b> ad – Res	(polling): ponse	Read Wildcard	/ Re	sp Sniffer	on Bindi	ng (	Group:				
Value	after Po	werup:	Defa	ult V	alue 🛚			•	;	Stored Va	lue 🗌	
Excep	tion Han	dling:						S	ave at Po	werdown		
In cas	n case of missing input data (timeout) or value 'OutOfService' the HIRC will have a company specific											
behav	behaviour											
	al Featur											
			{ HVACModeEff				hea	ntEff [4] (	+ HVACN	lodeEffNe	ext) } or	
{ Tem	pRoomSe	etpHeatEff ]	. This input can	be d	evice-inter	nal						

# 2.3.4.21 Input HVACModeOptim

# **Standard Mode**

Not applicable

FB:	HIRC	LTE C	lientInput Name:	entInput Name: HVACModeOptim									
Desc	ription:			-					Ор	tional 🔀			
		a provided	d by an external HVA	\C Ontimie	ar and de	ofines	the ont	timised F	1\/\C one	rating			
		ating zone		C Optimis	er ariu ue		ше ор	iiiiiseu i	IVAC ope	alling			
DPT:			ACMode Z	DPT ID	201.100	0 D:	atatyne	format	N <sub>8</sub> Z <sub>8</sub>				
Field	ITTAITIC	101 1_110	Description	ווטן	201.100	0   0	atatype	Sup.	Unit	Default			
	Mode		optimised HVAC M	lode, range	[14] or	0 1)		M	enum.	0			
Status			standard Status att		11111111111			M		<u>-</u>			
	OfService		void value => no o		VAC Mod	de ava	ilable	M	bool	true			
- all o	ther flags		not supported					NA	M bitset M bool true				
Communication:							•						
Bine	Binding Group:												
Clas	SS		Туре			Defa	ult						
Ge	eographica	ı 🛛	Apartment . Room	. SubZone		1.1.1							
Ap	plication S	Specific								<b>.</b>			
Ur	nassigned		Broadcast	Configura									
	Address:		IO Type(ID):	115 (HVA		Prop	erty ID	):	51				
	-Service (		InfoReport Sniffer	on Binding	g Group:		-						
Inf	oReport	$\boxtimes$	Timeout:		31	Min							
	-Service (		Read Wildcard / Re	aen Sniffar	on Rindii	na Gra	oun.						
Re	ead – Resp	onse	Tread Wildcard / Tre	esp offilier	on bindi	ing Oil	Jup.						
Value	after Pov	ver-up:	Default \	Value ⊠				;	Stored Va	lue 🗌			
Exce	otion Han	dling:					Sa	ave at Po	werdown				
	ial Featur												
			Status 'OutOfService										
			ORTANT, if this signa										
			ill ignore the signal F		Eff from	the RS	SMHD	and use	the optimi	sed			
H\	HVAC Mode instead if HVACModeOptim is ≠ 'Auto												

# 2.3.4.22 Input TempRoomSetpOptimHeatShift

### **Standard Mode:**

same as in HZC, see clause 2.2.4.23

### **LTE-HEE Mode Interface:**

FB:	HIRC	LTE Clien	-	TempRoomSetpOptimHeatShift							datory 🔲
		Input Nam	ne:							0	ptional 🛚
Desc	ription:										
			rom an exterr					a corre	ction value	to the ac	tual room
tempe	erature se	tpoint. This	shift value is	used e	.g. for more	ning boo	st.				
DPT:	Name	DPT_Ten	npHVACRel_2	Z	DPT ID	205.10°	1	Dataty	pe format	$V_{16}Z_{8}$	
Field		Description Sup. Ur							Unit	Default	
Temp	erature		room tempe	rature setpoint shift value M					M	K	0
Statu	S		standard Sta	itus attr	ributes				M	bitset	
- all fl	ags		not supporte	d, can	be ignored				NA	bool	
Communication:											
Bin	ding Gro	ıp:									
Clas	SS	_	Туре				Default				
Ge	eographic	al 🖂	Apartment .	Room .	SubZone		1.1	.1			
Ap	plication	Specific									
Ur	nassigned		Broadcast [	]	Configurat	ole 🗌					
DP	Address:		IO Type(ID):		115 (HVA	COPT)	Pr	operty	ID:	52	
LTE	-Service	(event):	InfoReport S	Sniffer	on Binding	Group:					
Int	foReport		Timeout:			31	Mir	า			
LTE	-Service	(polling):	Read Wildca	rd / Do	en Sniffer	on Rindii	oa (	Proup:			
Re	ead – Res	ponse	Read Wilde	iiu / Ne	sp Sillier	JII BIIIUII	ig c	oroup.			
Value	after Po	wer-up:	D	efault V	′alue 🛚					Stored Va	alue 🔲
Exce	Exception Handling:								Save at Po	owerdowr	n 🔲
		-						•			
Spec	ial Featur	es:						_	_		_

### 2.3.4.23 Input ActPosHeatStageA

Standard Mode: t.b.d.

In Standard Mode the number of HVA connected to the HIRC will limited (max. number to be defined at design time of a product) because for every valve status input signal one group object and separate group addresses must be assigned (shared variable model). N instances of this object must be implemented

FB:	HIRC	LTE Clie	nt Input Name:	Input Name: ActPosHeatStageA							ndatory 🗌 ptional 🔯
	ription:	I.									,
This i	nput cont	ains statu	information of th	е со	nnected h	eating va	lve(s)	) HVA			
DPT:	Name	DPT_St	atusAct		DPT ID	207.105	5 C	atatype	format	$U_8B_8$	
Field			Description						Sup.	Unit	Default
ActPo	os		actual actuator 0% = fully clos						M	%	0%
Attrib	utes									bitset	
- Failı			actuator has a		-				M	bool	
							bool				
, , , , , , , , , , , , , , , , , , ,											
- ValveKick valve is currently executing a valve kick O							bool	false			
	Communication:										
	ding Gro	up:									
Clas	SS		Туре					Defau	M bool false O bool false O bool false O bool false or 1.1.1 1)		
Ge	eographic	al 🖂	Apartment.Roo					1.1.*	or 1.1	1.1 <sup>1)</sup>	
		<u></u>	Apartment.Roo	m.S	ubzone ''						
		Specific _				<u></u> -					
Ur	nassigned		Broadcast		Configu						
	Address		IO Type(ID):		352 (HVA		Pro	perty ID	:	55	
	-Service	· <u>-</u>	InfoReport Sn	iffer	on Binding				-		
Int	foReport		Timeout:			31	Min				
	<b>-Service</b> ead – Res	(polling): sponse	Read Wildcard	/ Re	sp Sniffer	on Bindir	ng Gr	oup: -	-		
Value	after Po	werup:	Defa	ult V	/alue ⊠				Ţ,	Stored V	alue 🗌
Exception Handling: Save at Pow					owerdow	n 🔲					
Spec	ial Featu	res:									
1) der	pending w	hether all	valves in the rooi	n or	only in a r	oom subz	zone	are cont	trolled to	gether.	
			ted HVA are all re								ited by
	heir source individuall address (of the sending HVA)										

### 2.3.4.24 Input TempRoom

### **Standard Mode:**

same as in HZC, see clause 2.2.4.24

FB:	HIRC	LTE Clien	t Input Name:	Name: TempRoom							datory ∐ otional ⊠
Desc	ription:										otional 🔼
		anal from a	room temperatu	re s	ensor RTS	contain	s th	e current	room te	mperature	e of the
	ng zone	g									
DPT:	Name	DPT_Ten	npHVACAbs_Z		DPT ID	205.10	0	Datatype	format	$V_{16}Z_{8}$	
Field	•	_	Description					•	Sup.	Unit	Default
Temp	Room		current room te	mpe	rature valu	ıe			M	°C	<u> </u>
Statu	S		standard Status	is attributes N						bitset	
- Out	OfService		void sensor val	ue tr	ue / false				M	bool	false
- Fault sensor failure true / false						M	bool	false			
- Overridden sensor value overridden true / false O						bool	false				
- InAl			sensor value al						0	bool	false
	- AlarmUnAck alarm acknowledgement status ack / unack O bool unack										
	- all other flags not supported NA bool										
	municatio										
	ding Groເ	ıp:									
Clas			Туре			1)		fault			
	eographic		Apartment . Ro	om .	SubZone	') 	1.1	.1			
	plication	Specific				· · · · · · · · · · · · · · · · · · ·					
	nassigned		Broadcast		Configural		_				
	Address:	, ,	IO Type(ID):		321 (RTS			roperty ID	:	51	
	-Service		InfoReport Snit	ter	on Binding			-	_		
	oReport		Timeout:			31	Mi	n			
	-Service ead – Res		Read Wildcard	/ Re	sp Sniffer	on Bindi	ng (	Group: 2	)		
Value	after Po	werup:	Defa	ult V	′alue ⊠			_		Stored Va	alue 🗌
Exce	ption Han	dling:						Sa	ive at Po	owerdowr	
The F	IIRC will u	ise a comp	any specific defa	ult v	alue after	power-u	p or	in case c	of comm	unication	failure, if
no se	no sensor data is received.										
	ial Featur										
		e internal									
$\int_{0}^{1}$ The	e RTS ma	y also send	I on the zone A.F	₹.* (	one senso	r per roo	m)				
<sup>2)</sup> The	e HIRC ma	ay support	the calculation o	f the	mean val	ue from	diffe	erent room	ı temper	rature ser	isors.
			j. have different s						the HIR	C is a sni	ffer for
ro	room temperature values from different zones (company specific feature)										

### 2.3.4.25 Input TempOutside

#### **Standard Mode**

See description in document [07], functional Block BOC

FB: HIRC	LTE Clien	Client Input Name: TempOutside						Mandatory ☐ Optional ⊠		
Description:	L		_						Į Op	tional Z
	erature from	a remote outside	e tem	nperature	sensor ca	an be	e used fo	r flow te	mperature	esetpoint
		CO Mode mecha							•	•
<b>DPT</b> : Name	DPT_Ten	npHVACAbs_Z		DPT ID	205.100	) [	Datatype	format	$V_{16}Z_{8}$	
Field		Description					•	Sup.	Unit	Default
TempOutside		temperature va	lue					M	°C	
Status		standard Status	attr	ibutes			•	М	bitset	
- OutOfService	- OutOfService void sensor value true / false M bool false							false		
- Fault		sensor failure tr	nsor failure true / false M bool false							
<ul> <li>Overridden</li> </ul>		sensor value ov	or value overridden true / false O bool false							
- InAlarm		sensor value al	arm	true /false				0	bool	false
<ul> <li>AlarmUnAck</li> </ul>		alarm acknowle	dge	ment statu	s ack / u	nack	(	0	bool	unack
- all other flags	6	not supported						NA	bool	
Communicati	on:	•						=	=	=
Binding Gro	oup:									
Class		Туре				Def	ault			
Geographic	cal 🔲									
Application	Specific⊠	OutsideSensor2	Zone	)		1				
Unassigne	d 🔲	Broadcast		Configural	ole 🗌					
DP Address		IO Type(ID):		320 (OTS	)	Pro	perty ID	:	51	
LTE-Service		InfoReport Snit	ffer	on Binding	Group:		-	-		
InfoReport	$\boxtimes$	Timeout:			31	Min				
LTE-Service Read – Re		Read Wildcard	/ Re	sp Sniffer	on Bindir	ng G	roup: -	-		
Value after Po	owerup:	Defa	ult V	alue 🛚			<u> </u>	;	Stored Va	lue 🗌
<b>Exception Ha</b>	ndling:						Sa	ve at Po	werdown	
The HIRC will	use a comp	any specific defa	ult v	alue after	power-u	o or	in case c	f comm	unication f	ailure, if
no sensor data	a is received	. The outside ter	nper	ature valu	e from ai	noth	er OTS (	different	zone) ma	y also be
used (compan	y specific be	ehavior)								
Special Featu	ires:									
This input can	nis input can be internal									

# 2.3.4.26 Input WindSpeed

#### **Standard Mode**

same as in HZC, see clause 2.2.4.26

FB:	HIRC	LTE Client	t Input Name:	Wii	ndSpeed						datory 🔲
										Op	otional 🛚
	iption:										
This p			wind speed sen	sor \	WSS conta			nt wind	speed in		
DPT:	Name	DPT_Win	dSpeed_Z		DPT ID	203.10°	1 D	atatype	format	$U_{16}Z_8$	_
Field			Description						Sup.	Unit	Default
WindS	3		current wind sp			0.01 m/s	s resc	lution	M	m/s	
Status			standard Status						M	bitset	
	)fService		void sensor valu						M	bool	false
						false					
				nsor value overridden true / false O bool false							
- InAla			sensor value alarm true /false  O bool false								
_	nUnAck										
	her flags		not supported						NA	bool	
	nunicatio										
	ling Grou	ір:	Γ				5.	14			
Class		. –	Туре				Defa	ıult			
	ographica										
		Specific X	OutsideSensor			· <del></del>	1				
	assigned		Broadcast		Configurat					= 4	
	Address:		IO Type(ID):		347 (WSS	,	Pro	perty ID	):	51	
	Service		InfoReport Snit	ter	on Binding		N 4°	•	<b>-</b>		
	Report		Timeout:			31	Min				
	ad – Resp	(polling): conse	Read Wildcard	/ Re	sp Sniffer	on Bindii	ng Gr	oup: -			
Value	after Pov	werup:	Defa	ult V	′alue 🛚			•	;	Stored Va	alue 🗌
Excep	Exception Handling: Save at Powerdown										
			any specific defa	ult v	alue after	power-u	p or ir	n case o	of comm	unication	failure, if
no sen	sor data	is received									
	al Featur										
This in	is input can be internal										

# 2.3.4.27 Input SunIntensity

#### **Standard Mode**

Same as in HZC, see clause 2.2.4.27

FB: HIRC L	TE Client	Input Name:			datory 🗌 otional 🖂				
Description:			-					tional 🔼	
This process sign						n intensity ir	nformation	າ in W/m²	
=> not to be confi									
	DPT_Sun	Intensity_Z	DPT ID	203.102	2 Dataty	/pe format	$U_{16}Z_{8}$		
Field		Description				Sup.	Unit	Default	
SunIntensity		current sun inte resolution	ensity value wit	h 0.05 W	//m²	M	W/m <sup>2</sup>		
						bitset			
- OutOfService void sensor value true / false M bool false									
							false		
- Overridden		sensor value ov	verridden true	false		0	bool	false	
- InAlarm		sensor value ala	arm true /false			0	bool	false	
<ul> <li>AlarmUnAck</li> </ul>		alarm acknowle	edgement statu	ıs ack / u	ınack	0	bool	unack	
- all other flags		not supported	_			NA	bool		
Communication	:							_	
Binding Group	):								
Class		Type			Default				
Geographical									
Application Sp	ecific⊠	OutsideSensor2	Zone		1				
Unassigned		Broadcast	Configura	ble 🗌					
DP Address:		IO Type(ID):	348 (SIS)		Property	ID:	51		
LTE-Service (e		InfoReport Snif	ffer on Binding						
InfoReport	$\boxtimes$	Timeout:		31	Min				
LTE-Service (p Read – Respo		Read Wildcard	/ Resp Sniffer	on Bindiı	ng Group:				
Value after Power	alue after Powerup: Default Value ⊠ Stored Value □								
<b>Exception Hand</b>	ling:					Save at Po	werdown		
The HIRC will use		any specific defa	ault value after	power-u	p or in cas	e of commi	unication	failure, if	
no sensor data is	received.	·							
Special Features	s:								
This input can be	nis input can be internal								

# 2.3.4.28 Parameter Apartment

FB:	HIRC	Prope	rty Name ( <u>Server</u> )	: A	partment						datory 🛚
Desc	ription:	<u>.</u>		_					<u></u>		
LTE z	one: Apart	ment nu	umber								
DPT:	Name	DPT_U	lcountValue8_Z		DPT ID	202.002	Da	tatype forma	at U	<sub>8</sub> Z <sub>8</sub>	
Field			Description				Sup.	Range	Ur	nit	Default
Coun	terValue		Apartment number	er			М	1126			1
Status							bit	set			
	OfService		zone active /inact				0	true/false			false
	ther flags		not supported, fix	ed t	:o '0'		NA				
Comr									en	ıum	
	malWrite						M				
	DSV & Res		set zone inactive	/ac	tive		О				
- all o	ther comma	ands	not supported				NA				
Comi	nunicatior	ո։									
DP	Address:		IO Type(ID):		167 (HIRC	C)		erty ID:	10	)1	
(in t	he server)		Start-Index:		1		N° of	elements	1		
Pro	perty acce	ss:	Read only			Read/W	rite	$\boxtimes$			
Pro	tection		Read level				Write	level			
Exce	ption Hand	dling:	Value after Powe	rup:	Stored	Value 🛚	Act \	/alue 🔲 🏻 🗈	Defau	ılt Valu	e 🗌
-											
Spec	ial Feature	es:									
HIRC	DP's are n	ot LTE	communicating if zo	one	is 'OutOfS	ervice'. If	f Apar	ment is 'Out	tOfSe	ervice' a	also the
corres	IIRC DP's are not LTE communicating if zone is 'OutOfService'. If Apartment is 'OutOfService' also the orresponding Room and Subzone is 'OutOfService' (common flag)										

### 2.3.4.29 Parameter Room

FB:	HIRC	Proper	ty Name ( <u>Server</u> ):	R	loom					datory 🛚
Desc	ription:									- t. c
LTE z	one: Room	numbei	ſ							
DPT:	Name	DPT_U	countValue8_Z		DPT ID	202.002	Da	tatype forma	t U <sub>8</sub> Z <sub>8</sub>	
Field			Description				Sup.	Range	Unit	Default
Count	terValue		Room number				M	163		1
Status	3								bitset	
- OutOfService zone active /inactive					0	true/false		false		
- all o	ther flags		not supported, fixe	d t	to '0'		NA			L
Comn	nand								enum	
- Norr	nalWrite						M			
	OSV & Res		set zone inactive /	ac	tive		О			
- all o	ther comma	ands	not supported				NA			
Comr	nunication	<b></b>								
DP A	Address:		IO Type(ID):		167 (HIRC)	)		erty ID:	102	
(in t	he server)		Start-Index:		1		N° of	elements	1	
Pro	perty acce	ss:	Read only			Read/W	rite	$\boxtimes$		
Prof	tection		Read level				Write	level		
Exce	otion Hand	lling:	Value after Poweru	ıp:	Stored V	∕alue ⊠	Act V	alue 🔲 D	efault Valu	e 🗌
Speci	ial Feature	s:								
HIRC	IIRC DP's are not LTE communicating if zone is 'OutOfService'. If Apartment is 'OutOfService' also the									
corres	orresponding Room and Subzone is 'OutOfService' (common flag)									

### 2.3.4.30 Parameter Subzone

FB:	HIRC	Proper	ty Name ( <u>Server</u> ):	S	ubzone					datory 🗌 otional 🖂
Desc	ription:								<u> </u>	
LTE z	one: Subz	one num	ber within the Apart	me	ent.Room.					
Subzo	one value is	s a parar	meter used or fixed	val	lue '1' => s	ee remar	rk in ch	apter 2.1.2		
DPT:	Name	DPT_U	countValue8_Z		DPT ID	202.002	Dat	atype format	$U_8Z_8$	
Field			Description				Sup.	Range	Unit	Default
CounterValue Subzone number						M	115		1	
Status								bitset		
	OfService		zone active /inactiv	-			Ο	true/false		false
	ther flags		not supported, fixe	d to	o '0'		NA			
Comn									enum	
	nalWrite						M			
	SV & Res		set zone inactive /	act	tive		0			
	ther comm		not supported				NA			
	nunicatior	1:								
	Address:		IO Type(ID):		167 (HIRC	;)		rty ID:	103	
•	he server)		Start-Index:		1			elements	1	
	perty acce	ss:	Read only [			Read/W		$\boxtimes$		
	ection		Read level				Write			
Exce	otion Hand	lling:	Value after Poweru	ıp:	Stored \	Value ⊠	Act V	alue 🔲 De	efault Value	e 🗌
	al Feature									
			communicating if zor			ervice'. If	Apartr	ment is 'OutC	ofService' a	also the
corres	rresponding Subzone is 'OutOfService' (common flag)									

### 2.3.4.31 Parameter OutsideSensorZone

FB:	HIRC	Property	Name ( <u>Server</u> ):		datory ∐ otional ⊠					
Desci	ription:			-						
		nber for th	ne link with an Outsi	de	Temperat	ure Sens	or, Wir	nd Speed sen	sor and S	un
Intens	ity Senso	r. Only on	ie zone parameter is	s st	tandardise	ed for all o	outside	sensors, see	remark in	chapter
2.3.2										-
DPT:	Name	DPT_U	countValue8_Z		DPT ID	202.002	Dat	atype format	$U_8Z_8$	
Field			Description				Sup.	Range	Unit	Default
CounterValue Outside sensor zone number						М	131		1	
Status	3								bitset	
- Out	OfService		zone active /inactiv	⁄e			0	true/false		false
- all of	ther flags		not supported, fixe	d to	o '0'		NA			
Comn									enum	
- Norr	nalWrite						M			
- SetC	SV & Re	setOSV	set zone inactive /	act	tive		Ο			
- all of	ther comn	nands	not supported				NA			
Comr	nunicatio	n:								
DP /	Address:		IO Type(ID):		167 (HIRC	C)	Prope	erty ID:	105	
(in t	he serve	r)	Start-Index:		1		N° of	elements	1	
Pro	perty acc	ess:	Read only			Read/W	rite	$\boxtimes$		
Prot	ection		Read level				Write	level		
Excep	otion Han	ndling:	Value after Poweru	ıp:	Stored	Value 🛚	Act V	alue 🔲 🏻 De	fault Valu	e 🗌
Speci	al Featur	es:								
<b>HIRC</b>	IIRC is not using external outside sensor (s) if zone is 'OutOfService'									

<b>2.3.4.32 Parameter: T</b>	TimeHeatU	pMax
------------------------------	-----------	------

FB:	HIRC	Property	Name ( <u>Server</u> ):	TimeHea	tUpMax				datory 🗌 otional 🖂
Desci	ription:							<u> </u>	
This c	ptional co	onfiguratio	n parameter is used	d as a time	limit for ea	arly heat	ting up (in the	morning)	ı
DPT:	Name	DPT_Tir	nePeriodMin	DPT ID	7.006	Dat	atype format	U <sub>16</sub>	
Field			Description			Sup.	Range	Unit	Default
							0 1)	min	CS
							165535		
Comr	nunicatio	n:				-	-	-	
DP /	Address:		IO Type(ID):	167 (HI	C)	Prope	rty ID:	114	
(in t	he serve	r)	Start-Index:	1		N° of	elements	1	
Pro	perty acc	ess:	Read only [		Read/V	√rite	$\boxtimes$		
Prot	ection		Read level			Write	level		
Excep	otion Har	dling:	Value after Poweru	ıp: Store	ed Value 🗵	Act V	alue 🔲 🏻 De	fault Valu	e 🗌
Speci	al Featur	es:				•			
1) 0:	0 = no early heating up, start optimization is disabled								

# ${\bf 2.3.4.33\ Parameter:\ Time Early Heat Shutdown Max}$

FB:	HIRC	Property	Name ( <u>Server</u> ):	Tin	neEarlyH		datory 🗌 otional 🗵				
Descr	ription:			-							
This o	•	onfiguratio	n parameter is us	ed a	is a time li	imit for ea	rly shut	down of the h	neating (in	the	
DPT:	Name	DPT_Tir	nePeriodMin		DPT ID	7.006	Dat	atype format	U <sub>16</sub>		
Field Description Sup. Range Uni						Unit	Default				
								0 1)	min	CS	
	165535										
Comn	nunicatio	n:				•		-			
DP /	Address:		IO Type(ID):		167 (HIR	C)	Prope	rty ID:	115		
(in t	he serve	r)	Start-Index:		1		N° of	elements	1		
Prop	perty acc	ess:	Read only			Read/W	rite	$\boxtimes$			
Prot	ection		Read level				Write	level			
Excep	otion Han	dling:	Value after Powe	rup:	Stored	Value 🖂	Act Va	alue 🔲 De	fault Value	e 🗌	
	<del></del>										
Speci	al Featur	es:									
1) 0=	0 = no early shutdown, stop optimization is disabled										

### 2.3.4.34 Diagnostic data ActPosSetpHIRC

FB:	HIRC	Property	Name ( <u>Server</u> ): ActPosSetpHIRC							datory 🗌 otional 🖂	
Desc	ription:	-		-							
Actua	l calculate	ed actuato	r position setpoint: t	his local	valu	ie is the	source	of the ActPo	osSetpHeat	StageA	
outpu	t										
DPT:	Name	DPT_Re	elValue_Z	DPT	ID	202.001	Dat	atype forma	at $U_8Z_8$		
Field Description Sup. Range							Range	Unit	Default		
RelVa	alue		relative value				M	0100%	%	cs	
Status	3								bitset		
- Out	OfService		RelValue valid / vo				0	true/false		false	
- all o	ther flags		not supported, fixed	d to '0'			NA				
Comr	nunicatio	n:									
DP A	Address:		IO Type(ID):	167 (I	HIRC	C)	Prope	rty ID:	117		
(in t	he serve	r)	Start-Index:	1			N° of	elements	1		
Pro	perty acc	ess:	Read only	$\leq$		Read/W	/rite				
Prof	tection		Read level				Write	level			
Exce	xception Handling: Value after Powerup: Stored Value ☐ Act Value ☒ Default Value ☐										
Speci	ial Featur	es:									
for sv	or switched pump 0%=off, 100%=on										

### 2.3.4.35 Diagnostic data TempRoomAct

FB:	HIRC	<b>Property</b>	Name ( <u>Server</u> ):	Te	empRoom	Act			Man	datory 🔲
									Op	otional 🛚
Desci	iption:								•	
			value used by the I							
image	of the Te	empRoom	input or of a hard w	vire	ed sensor v	which ma	y be o	verridden by a	tool for s	ervice
function	ons									
DPT:	Name	DPT_H\	/ACTempAbs_Z		DPT ID	205.100	Da	tatype format	$V_{16}Z_{8}$	
Field			Description				Sup.	Range	Unit	Default
Temp			temperature value				М	cs	° C	CS
Status										
- OutOfService TempRoomAct is not available O true/false							false			
- Overridden			override of the tem	nperature value O true/false oted, sensor failure M true/false						false
- Fault			temperature corrup	oted, sensor failure M true/false						false
- InAlarm			critical limit is reacl	hed O true/false						false
- AlarmUnAck			alarm acknowledge	em	ent status		0	ack/unack		unack
- all of	her flags		not supported, fixe	d to	o '0'		NA			
Comn	nand		standard Comman	d fi	ield				enum	
- Ove	ride & Re	elease	override and releas	se '	temperatu	re value	0			
- Aları	nAck		alarm acknowledge	е			0			
- all of	her comn	nands	not supported				NA			
Comr	nunicatio	n:				-				
DP /	Address:		IO Type(ID):		167 (HIRC	C)	Prope	erty ID:	118	
(in t	he serve	r)	Start-Index:		1		N° of	elements	1	
	perty acc	ess:	Read only			Read/W	'rite	∑ <sup>1)</sup>		
Prot	ection		Read level				Write	level		
Excep	otion Har	ndling:	Value after Poweru	лр:	Stored '	Value 🗌	Act V	alue 🗵 🏻 De	fault Valu	e 🗌
Speci	Special Features:									
1) opti	onal Write	access f	or Alarm acknowled	lge	ment only					

# 2.3.4.36 Diagnostic data TempOutsideAct

FB:	HIRC	Property	Name ( <u>Server</u> ):	Т	empOutsi	deAct				datory ∐ ptional ⊠
Desci	iption:								<u> </u>	
Actua	l outside t	emperatu	ire value used by th	e l	HIRC for ro	om temp	eratur	e control loop	(e.g. toge	ther with
a heat	t-curve). 🛚	This is the	local image of the	Te	mpOutside	input or	a hard	d-wired sensor	which ma	ay be
overri	dden by a	tool for s	ervice functions							
DPT:	Name	DPT_H	VACTempAbs_Z		DPT ID	205.100	Da	tatype format	$V_{16}Z_{8}$	
Field			Description				Sup.	Range	Unit	Default
Temp			temperature value				M	cs	° C	cs
Status	3								bitset	
- Out	OutOfService TempOutsideAct is not available O true/false cs									
- Ove	Overridden override of the temperature value O true/false false									
- Fault temperature corrupted			ed, sensor f	ailure	M	true/false		false		
- InAlarm			critical limit is reac	ched O true/false						false
- AlarmUnAck		alarm acknowledge	em	nent status		0	ack/unack		unack	
- all of	her flags		not supported, fixe	d t	to '0'		NA			
Comn	nand		standard Comman	d 1	field				enum	
- Ove	ride & Re	elease	override and release	se	temperatu	re value	0			
- Aları	nAck		alarm acknowledge	е			0			
- all of	her comn	nands	not supported				NA			
	nunicatio	n:	-					-	-	
DP /	Address:		IO Type(ID):		167 (HIRC	C)		erty ID:	119	
(in t	he serve	r)	Start-Index:		1		N° of	elements	1	
Property access: Read only ☐ Read/Write ☐ 1)										
Prot	ection		Read level				Write	elevel		
Excep	otion Han	dling:	Value after Power	Jp:	Stored '	Value 🗌	Act \	/alue 🗵 🏻 De	fault Valu	e 🗌
	Special Features:									
1) opti	optional Write access for Alarm acknowledgement only									

# 2.3.4.37 Diagnostic data TempOutsideAttenuat

FB:	HIRC	Property	Name ( <u>Server</u> ):	Т	empOutsi	deAttenu		Mandatory ∐ Optional ⊠			
Desc	ription:								-	•	
			e temperature value							rol loo	p (e.g.
			e). Temperature att				s cor	npany specific	<b>:</b> .		
This v	alue may	be overri	dden by a tool for se	er\	vice functio	ns					
								<sub>16</sub> Z <sub>8</sub>			
Field			Description				Sup	. Range	Un		Default
Temp			temperature value				М	cs	° C		cs
Status	3								bits	set	
- Out	OutOfService TempOutside Attenuat is not available O true/false cs										
- Ove	Overridden override of the temperature value O true/false false										
- Faul	t		temperature corrup	ote	ed, sensor f	failure	M	true/false			false
- InAlarm			critical limit is reac	ched O true/false						false	
- AlarmUnAck			alarm acknowledge				Ο	ack/unack			unack
- all o	ther flags		not supported, fixe				NA		1		
Comn	nand		standard Comman	-	l field er			en	um		
- Ove	rride & Re	elease	override and releas		temperatu	re value	Ο				
- Aları	mAck		alarm acknowledge	е			Ο				
- all o	ther comn	nands	not supported				NA				
Comr	nunicatio	n:						<u>-</u>	_		
DP A	Address:		IO Type(ID):		167 (HIRC	C)		perty ID:	12	0	
(in t	he serve	r)	Start-Index:		1		N° c	of elements	1		
Pro	Property access: Read only ☐ Read/Write ☐ 1)										
Prof	tection		Read level				Writ	e level			
Exce	Exception Handling: Value after Powerup: Stored Value 🗌 Act Value 🔯 Default Value 🗌										
	Special Features:										
1) opti	onal Write	access f	or Alarm acknowled	lge	ement only						

### 2.3.4.38 Diagnostic data WindSpeedAct

FB:	HIRC	Property	Name ( <u>Server</u> ):	W	/indSpeed	IAct						datory ☐ otional ⊠	
Descr	iption:			_						<u> </u>	<u> </u>		
			used by the HIRC f										
the W	indSpeed	input or a	a hard-wired sensor	w	hich may b	e overrid	der	ı by	a tool for se	rvice	functi	ons	
DPT:	Name	DPT_W	indSpeed_Z		DPT ID	203.101		Dat	atype format	t U <sub>16</sub>	$Z_8$		
Field			Description				Sι	ıр.	Range	Uni	t	Default	
WindS	Speed		actual wind speed resolution	va	lue with 0.	01 m/s	Ν	Л	cs	m/s		CS	
Status	,									bits	et		
- OutOfService WindSpeedAct is not available O true/false								CS					
- Overridden override of the temperature value					(	)	true/false			false			
			temperature corrup	rrupted, sensor failure eached				Л	true/false			false	
- InAlarm			critical limit is reacl							false			
- Alarr	- AlarmUnAck		alarm acknowledge					)	ack/unack		local image of the functions  J <sub>16</sub> Z <sub>8</sub> nit Default /s cs  tset cs false false false unack		
- all ot	her flags		not supported, fixe				N	Α		<u></u>			
Comm	nand		standard Comman	d f	ield					enu	m		
- Over	ride & Re	lease	override and releas	se	temperatu	re value		)					
- Alarr	nAck		alarm acknowledge	е			-	0 0					
- all ot	her comn	nands	not supported				Ν	Α					
Comn	nunicatio	n:				•				· <u>·</u>			
DP A	Address:		IO Type(ID):		167 (HIRC	C)	Pr	ope	rty ID:	121			
(in t	he serve	·)	Start-Index:		1		N°	of e	elements	1			
	Property access: Read only ☐ Read/Write ☐ 1												
Prot	ection		Read level				Wı	rite I	level				
Excep	tion Han	dling:	Value after Poweru	ıp:	Stored	Value 🗌	Ac	t Va	alue 🗵 🛮 De	efault	Value	e 🗌	
	al Featur												
1) optio	optional Write access for Alarm acknowledgement only												

### 2.3.4.39 Diagnostic data SunIntensityAct

FB:	HIRC	Property	/ Name ( <u>Server</u> ):	S	unIntensit	yAct						datory ☐ otional ⊠	
Descr	iption:									<u> </u>	<u> </u>		
Actua	sun inter	nsity value	e used by the HIRC	foi	r room tem	perature	cor	ntrol	loop. This is	s the	local i	mage of	
the Su	ınIntensit	y input or	a hard-wired senso	r w	hich may l	oe overrio	dde	n by	a tool for s	ervice	e func	tions	
DPT:	Name	DPT_St	unIntensity_Z		DPT ID	203.102		Dat	atype forma	t U <sub>16</sub>	$_{5}Z_{8}$		
Field			Description				Sι	ıp.	Range	Uni	t	Default	
SunIn	tensity		actual sun intensity W/m2 resolution	y va	alue with 0	.05	Λ	Λ	cs	W/r	n2	CS	
Status	,									bits	et		
- OutOfService SunIntensity is not available O true/false cs							CS						
- Overridden override of the temperature value O true/false							false						
- Faul	t		temperature corrup	pte	d, sensor f	ailure	Λ	Λ	true/false			false	
- InAlarm			critical limit is reac								false		
- AlarmUnAck			alarm acknowledge				_		ack/unack		unac		
- all ot	her flags		not supported, fixe				N	Α			una		
Comm	nand		standard Comman	ıd f	ield		O enum			ım			
- Over	ride & Re	elease	override and relea		temperatu	re value	C	)					
- Alarr	nAck		alarm acknowledg	е			0 0						
- all ot	her comn	nands	not supported				N	Α					
	nunicatio	n:											
DP A	Address:		IO Type(ID):		167 (HIRC	<b>(</b> )			rty ID:	122	2		
(in t	he serve	r)	Start-Index:		1		N°	of e	elements	1			
	perty acc	ess:	Read only			Read/W	rite		⊠ <sup>1)</sup>				
Prot	ection		Read level				Wı	rite	level				
Excep	tion Har	dling:	Value after Power	up:	Stored '	Value 🗌	Ac	t Va	alue 🗵 🛮 De	efault	: Value	e 🗌	
	Special Features:												
1) optio	optional Write access for Alarm acknowledgement only												

### 2.3.4.40 Diagnostic data Fault

FB:	HIRC	Property	Name ( <u>Server</u> ):	F	ault					ndatory 🗌 Optional 🖂
Desci	ription:	3							-	
Some error in the HIRC										
DPT:	Name	DPT_Bc	ool		DPT ID	1.002	Dat	atype format	B <sub>1</sub>	
Field			Description				Sup.	Range	Unit	Default
								true/false	bool	false
Comr	nunicatio	n:					-			_
DP A	Address:		IO Type(ID):		167 (HIR	C)	Prope	rty ID:	124	
(in t	he serve	r)	Start-Index:		1		N° of e	elements	1	
Pro	perty acc	ess:	Read only	$\boxtimes$		Read/W	rite/			
Prot	tection		Read level				Write	level		
Exce	otion Har	ndling:	Value after Power	up:	Stored	Value 🗌	Act Va	alue 🛛 🏻 De	fault Val	ue 🗌
Speci	ial Featur	es:								

### 2.3.4.41 Diagnostic data ErrorCodeHIRC

FB:	HIRC	Property	Name ( <u>Server</u> ):	ErrorCodel	HIRC				ndatory ☐ Optional ⊠
Desc	ription:	-						-	
Comp	oany spec	ific numeri	c 16 bit error code						
DPT:	Name	DPT_Va	lue_2_Ucount	DPT ID	7.001	Dat	atype forma	at U <sub>16</sub>	
Field			Description			Sup.	Range	Unit	Default
							full range		cs
Comi	municatio	on:				<u>-</u>	-		-
DP.	Address:		IO Type(ID):	167 (HIRC	C)	Prope	rty ID:	125	
(in t	the serve	r)	Start-Index:	1		N° of	elements	1	
Pro	perty acc	ess:	Read only	$\boxtimes$	Read/W	rite/			
Pro	tection		Read level			Write	level		
Exce	ption Har	ndling:	Value after Poweru	up: Stored	Value 🗌	Act Va	alue 🛛 🏻 🏻 🗈	Default Va	lue 🗌
Spec	ial Featu	res:				•	-	•	

### 2.3.4.42 Diagnostic data StatusMorningBoost

HIRC	Property	Name ( <u>Server</u> ):	S	tatusMori	ningBoos	st		Mar	ıdatory 📙
								0	ptional 🛚
ription:	-								
s of the m	orning boo	ost function due to	loc	al optimize	er function	٦.			
: morning	boost acti	ve							
e: normal	operation								
Name	DPT_Bc	ool		DPT ID	1.002	Dat	atype format	B <sub>1</sub>	
		Description				Sup.	Range	Unit	Default
							true/false	bool	false
municatio	on:								
Address:		IO Type(ID):		167 (HIR	C)	Prope	rty ID:	126	
the serve	r)	Start-Index:		1		N° of e	elements	1	
perty acc	ess:	Read only	$\boxtimes$		Read/W	rite/			
tection		Read level				Write	level		
ption Har	ndling:	Value after Power	up:	Stored	Value 🗌	Act Va	alue 🛛 🛮 De	fault Valu	ıе 🗌
ial Featui	res:								
	ription: s of the m : morning e: normal Name Munication Address: the serve perty accordection ption Har	ription: s of the morning boost active: normal operation Name DPT_Boomunication: Address: the server) perty access:	ription: s of the morning boost function due to : morning boost active e: normal operation  Name DPT_Bool  Description  munication: Address: IO Type(ID): Start-Index: Perty access: Read only tection ption Handling: Value after Power	ription: s of the morning boost function due to loce: morning boost active e: normal operation  Name DPT_Bool  Description  munication: Address: IO Type(ID): start-Index: perty access: Read only tection  ption Handling: Value after Powerup	ription: s of the morning boost function due to local optimizes: morning boost active e: normal operation  Name DPT_Bool DPT ID  Description  munication: Address: IO Type(ID): 167 (HIRO the server) Start-Index: 1 perty access: Read only Description  perty access: Read level ption Handling: Value after Powerup: Stored	ription: s of the morning boost function due to local optimizer function: morning boost active e: normal operation  Name DPT_Bool DPT ID 1.002  Description  munication: Address: IO Type(ID): 167 (HIRC) the server) Start-Index: 1 perty access: Read only March Read/Watection Read level ption Handling: Value after Powerup: Stored Value	ription: s of the morning boost function due to local optimizer function. : morning boost active e: normal operation  Name DPT_Bool DPT ID 1.002 Dat  Description Sup.  munication: Address: IO Type(ID): 167 (HIRC) Prope the server) Start-Index: 1 N° of expertly access: Read only Read/Write tection Read level Write ption Handling: Value after Powerup: Stored Value Act Value	ription: s of the morning boost function due to local optimizer function. : morning boost active e: normal operation  Name DPT_Bool DPT ID 1.002 Datatype format  Description Sup. Range true/false  munication:  Address: IO Type(ID): 167 (HIRC) Property ID: the server) Start-Index: 1 N° of elements  perty access: Read only ⊠ Read/Write □ tection Read level Write level  ption Handling: Value after Powerup: Stored Value □ Act Value ☑ De	ription: s of the morning boost function due to local optimizer function. : morning boost active e: normal operation  Name DPT_Bool DPT ID 1.002 Datatype format B1  Description Sup. Range Unit true/false bool  munication:  Address: IO Type(ID): 167 (HIRC) Property ID: 126 the server) Start-Index: 1 N° of elements 1  perty access: Read only Read/Write Default Value More Powerup: Stored Value Act Value Default Value

### 2.4 Functional Block: Heating Room Demand Manager (HRDM)

#### 2.4.1 Functional Specification

The function of the heating room demand manager HRDM is to collect the room heating demand values from the individual room controllers HIRC of all rooms in the apartment. The HRDM calculates a resulting maximum room heating demand. There is only one HRDM per apartment. See also chapter 2.1.3

Room Heating Control

2 calculation methods are supported by the system

- In the existing EIB solution, the valve positions are used for the calculation of the room heating demand. From each HIRC the valve position (setpoint) is collected in the HRDM and the max. valve position is calculated which is then sent to the HDTACT. See EIB ObIS model [13] "Supply Water Temperature Controller based on Evaluation of Valve Positions"
- In the second solution, room temperature setpoints are used for the calculation of the room heating demand. From each HIRC the actual room temperature setpoint is collected in the HRDM and the max. room temperature setpoint is calculated, which is then transmitted directly to the HDTRT. This mechanisms is in its simplest form only a control system without control-loop function.

#### **HRDM** shall support both mechanisms:

- Handling of both mechanisms in the HRDM is done in parallel and separately. If the HRDM does not receive a value of one type of the demand inputs it will not send out the corresponding MaxDem output value.
- In practice, a mix of both methods within one apartment is not allowed. This shall be ensured by the installer. In a properly installed system the HRDM will send out either max valve position or max room temperature demand.
- if both TempRoomDemAbsHeat and ActPosDemAbsHeat signals occur, the HRDM will generate both corresponding output signals (NO priority of mechanisms)

#### **2.4.1.1** Calculation of the resulting room demand (illustrative example)

Choice of the maximum demand (expressed as a room temperature setpoint or valve position setpoint) is today the standard mechanism in the HRDM. In the future other mechanisms could be possible (e.g. calculation of weighted mean value).

The following section is an **illustrative example for LTE implementations** which describes heat demand collection and calculation of the resulting heat demand in the HRDM. This example is introduced for better understanding of the functionality of a HRDM. The HRDM mechanism is quite complex and may incorporate other manufacturer specific solutions.

The calculation of the resulting room demand output depending on heat demand signal inputs is not part of the KNX certification.

The HRDM acts a data collector of "many" TempRoomDemAbsHeat or ActPosDemAbsHeat signals received in the same Apartment. In the LTE-HEE implementation the HRDM is a 'Sniffer' within the Apartment.

Out of these signals the resulting maximum heat demand is calculated. The received and the resulting heat demand signals have the following content:

Data field	Description
TempRoomDemAbsHeat	room temperature demand (setpoint)
or	or
ActPosDemAbsHeat	Actuator position (setpoint)
Attributes	
- DemValid	Validity of TempRoomDem or ActPosDemAbs
- AbsLoadPriority	absolute load priority if one or more consumer(s) request all available power
- ShiftLoadPriority	shift load priority: set e.g. if HIRC has load priority in case of boiler overload
- EmergDem	set if one or more HIRC have emergency heat demand for room frost protection,
	e.g. if the room- and/or outside temperature is below a critical value and no heat
	is provided by the heat production system (e.g. because boiler is in 'summer
	mode' or manually switched off)

#### Plug & Play mechanism in the LTE-HEE implementation:

Remark: This mechanism is only possible in LTE-HEE implementations.

In the shared variable model (e.g. S-mode) implementation all "partners" of the HRDM have to be linked and separate Group Addresses must be assigned for each Demand input signal. The number of "partners" has to be defined at design time of the product.

The HRDM does not need to know which and how many HIRC are allocated in the same Apartment. The HRDM has no complete list of all HIRC connected to it (no directory). Therefore adding or removing of "partners" is simple.

It is not necessary to store TempRoomDemAbsHeat or ActPosDemAbsHeat signals (data image) from **all** connected HIRC s in the HRDM in order to calculate the resulting room demand. Due to the "heartbeat" repetition of the demand signals, it is sufficient to have a dynamic process image of the N temporary "**most relevant**" demands.

The dynamic data image consists of a main list and two attributes lists because the resulting room demand signal is a "mixture" of some of the received signals.

Out of this dynamic data image the entry of the main list with the highest priority is taken for the calculation of the resulting demand signal. In addition the attributes of other signals are also considered according to the attributes lists.

#### Structure of the Main List (recommendation, manufacturer specific solution)

Handling of TempRoomDemAbsHeat and ActPosDemAbsHeat is done separately. I.e. in the HRDM there could be two separate Main Lists or one Main List containing both types of entries.In practice mix of TempRoomDemAbsHeat and ActPosDemAbsHeat within one Apartment is not allowed.

	Demand List									
Entry	TempRoomDemAbsHeat	Attrib:	Source FB	Source	Timeout					
N°	or	- DemValid	HIRC	Individual						
	ActPosDemAbsHeat		Instance	Addr						
1										
2										
•••										
$N \ge 4$										

Besides the value of the °C or % demand, the list entry contains also the attribute 'DemValid'

Each entry contains also the source functional block (HIRC instance) and the source individual address of the sender in order to have an unique identifier.

Also a receiver timeout must be handled for each entry independently. In case of removal of a device from the system its relevant heat demand should not remain forever in the list!

The HRDM will use the default value ,no demand' and default individual address of the sender in the dynamic list if there are no valid demand signals or after power-up or in case of communication failure, if no data is received.

The min. size of the list  $N \ge 4$ 

The probability that the N most relevant demand signals change to "no demand" at the same time is very low => in this case, resulting demand would be "no demand for a short period until the new dynamic process image is built up with the N most relevant demand from other devices.

**Criteria for a new entry in the Main List:** (recommendation, manufacturer specific solution) Each received signal is checked if it is relevant enough to become an entry of the list. The steps are as follows:

- 1. first check if there is already an entry in the list with the same sender (source individual addr). If Yes: delete the entry in the list (in the next steps the new data will be entered instead)
- 2. check **DemValid** attribute Signals with **DemValid** = false ("no demand") are ignored and not further processed If **DemValid** = true: If there is still free space in the list (void entries) the signal is inserted in the list
- 3. The following rule applies if the new signal has **DemValid** = true and all entries in the list are valid. One of the entries may be replaced in the following case:
  - Check the **TempRoomDemAbsHeat** or **ActPosDemAbsHeat** value. The higher the value the more relevant the signal is. Both types of demand signals shall be checked separately.
  - An existing entry in the list with the <u>lowest</u> **Demand** value will be removed by a signal having a <u>higher</u> **Demand** value only

#### Handling of the Attributes Lists: (recommendation, manufacturer specific solution)

For each of the attributes

- AbsLoadPriority
- ShiftLoadPriority
- EmergDem

a separate list exists with the following structure

	List for Attribute										
Entry N°	Attrib value true/false	Source FB HIRC Instance	Source Individual Addr	Timeout							
1		1115001100	11001								
2											
$N \ge 4$											

A void entry in the list is marked with the attribute value = false

Each entry contains also the instance number of the HIRC and the source individual address of the sender in order to have an unique identifier.

Also a receiver timeout must be handled for each entry independently. In case of removal of a device from the system the attribute should not remain forever in the list!

The HRDM will use the default attribute value = false and default individual address of the sender in the dynamic list if there are no signals with the attribute value = true or after power-up or in case of communication failure, if no data is received.

#### Mechanisms for new entries in Attribute lists: (recommendation, manufacturer specific solution)

- 1. first check if there is already an entry in the list with the same sender (source individual addr). If Yes: delete the entry in the list if the attribute is now false otherwise the entry is unchanged => no further action.
- 2. check the attribute value of the received signal

Signals with attribute value = false are ignored and not further processed

Signals with attribute value = true: if there is still free space in the list (void entries) the signal is inserted in the list.

#### **Resulting Attribute from each list:** (recommendation, manufacturer specific solution)

- calculation: logical OR of the attribute value of each entry
- if the resulting attribute is true this means that at least one of the Demand signals has the attribute value = true

#### This means for:

- AbsLoadPriority: at least one heat consumer wants absolute load priority

- ShiftLoadPriority: at least one heat consumer wants shift load priority in case of overload at least one heat consumer has emergency heat demand for room frost

protection

Calculation of the resulting heat demand out of the dynamic lists: (recommendation, manufacturer specific solution)

First extract the most relevant entry out of the Main List.

- 1. From all entries take the one with the <u>highest</u> valid **Demand** value Both types of demand signals shall be handled separately.
  - 2. If no entries with a valid demand => no demand

The resulting value\*) out of this procedure is inserted in the **TempRoomDemAbsHeatMax** or **ActPosDemAbsHeatMax** signal

#### Example:

	Main List									
Entry N°	TempRoomDemAbsHeat	Attrib:  – DemValid	Source FB HIRC Instance	Source Individual Addr	Timeout					
1	22 °C	true	(1)							
2	20 °C	true								
3	24 °C	true								
4		false	••••	••••						

TempRoomDemAbsHeatMax signal will contain the value of entry 3.

In addition for each attribute out of the **Attributes Lists** the resulting value is separately calculated (logical OR) and the corresponding value \*) is inserted in the resulting demand signal.

The following combinations are allowed.

Feature	AbsLoadPriority	ShiftLoadPriority
A	false	false
В	false	true
C	true	false
	true	true
	THIS COMBINATION	N IS NOT ALLOWED

If demand signals with ShiftLoadPriority and AbsLoadPriority occur at the same time then AbsLoadPriority has higher priority => Feature C

It shall be allowed in implementations of the HRDM that propagation of individual attributes (except 'DemValid') in the resulting Demand signal may be suppressed or activated according to parameter settings.

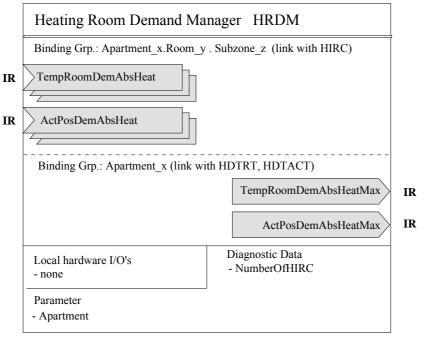
#### 2.4.2 Constraints

For non LTE-HEE implementations using the shared variable model the number of partners of the HRDM is limited (max. number to be defined at design time of a product) because for every Demand input one separate group object and group address must be assigned.

For non LTE-HEE implementations load priority functionality is not supported.

<sup>\*)</sup> It shall be allowed in implementations of the HRDM that individual attributes (except 'DemValid') in the resulting Demand signal are not supported => default value 'false'

### 2.4.3 Functional block diagram



### 2.4.4 Datapoint description

#### **2.4.4.1** Overview

Data Point	Description	Data Point Type	DPT N°
Outputs			
TempRoomDemAbsHeatMax	Resulting maximum heating room temperature demand => sent to the allocated HDTRT / LTE and S-interface	DPT_TempRoomDemAbs DPT_Value_Temp	209.101 9.001
ActPosDemAbsHeatMax	Resulting maximum heating actuator position demand => sent to the allocated HDTACT / LTE and S-interface	DPT_ActPosDemAbs DPT_Scaling	207.104 5.001
Inputs			
TempRoomDemAbsHeat	Heating room temperature demand from various HIRC / LTE and S-interface	DPT_TempRoomDemAbs DPT_Value_Temp	209.101 9.001
ActPosDemAbsHeat	Heating actuator position demand from various HIRC / LTE and S-interface	DPT_ActPosDemAbs DPT_Scaling	207.104 5.001
Parameters			
Apartment	LTE zone: Apartment number	DPT_UcountValue8_Z	202.002
Diagnostic Data			
NumberOfHIRC	Number of linked HIRC sending TempRoomDemAbsHeat or ActPosDemAbsHeat	DPT_Value_1_Ucount	5.010

			STANDARD MODE		NDED DDE
		Basic FB	S-Mode	Standard Mode Interface	LTE-Mode
Outputs	TempRoomDemAbsHeatMax	$GO_b$	GO	GO	M
	ActPosDemAbsHeatMax	$GO_b$	GO	GO	M
Inputs	TempRoomDemAbsHeat	$GO_b$	GO	GO	M
	ActPosDemAbsHeat	$GO_b$	GO	GO	M

**Table 7: HRDM Runtime Interworking - dependence on Configuration Modes** 

		Support
Parameter	Apartment	M

**Table 8: HRDM LTE specific Properties** 

		Support
Parameter		
Diagnostic Data	NumberOfHIRC	О

Table 9: HRDM Standard Properties of Interface Objects (or memory mapped DP)

### 2.4.4.2 Output TempRoomDemAbsHeatMax

### **Standard Mode**

DP Name:	TempRoomDemAbsHeatMax   Abbr.:	Mandatory	$\boxtimes$									
FB Name:	HRDM	Can be internal	$\boxtimes$									
Description												
see LTE-HEE	mode, only temperature value, no load priority attributes etc.											
<b>Datapoint Ty</b>												
DPT_Name:	DPT_Value_Temp											
DPT Format:	F <sub>16</sub> DPT_ID:	9.001										
Field		Range Unit Defau	ult									
	see LTE-HEE mode											
Access Type												
♦ Output												
this $\rightarrow$ M	$ \qquad \qquad$	<u> </u>										
Spontaneous   COV:   Δ-Value:   0.2 K   Min repetition period:   10s												
	Cyclic Period: 15 Min											
Request												
Communicat												
		Mandatory: ⊠										
	oup Address:											
Dynamics												
Power dov												
Power up:	Value: No initialisation: Default value:											
	Saved value: Actual value (not											
	Transmit on bus (only for output): Read from bus (	only for input):	<u> </u>									
<b>Exception Ha</b>												
	not sent spontaneously if there are no TempRoomDemAbsHeat i	nput signals										
Special Featu	ires											

FB:	HRDM	LTE Nam		er Output	Tem	pRoomDer	nAbsH	eatl	Max			datory 🛚
Descr	Description:											
This output signal contains the calculated maximum room heating temperature demand (absolute value) of the Apartment zone which is sent to the HDTRT in the same apartment. Calculation of the max. room temperature demand: method is company specific. Sclause 2.4.1.1											n the	
DPT:	Name	DPT_	Tem	pRoomDemAl	os	DPT ID	209.10	1	Datatype	e format	V <sub>16</sub> B <sub>8</sub>	
Field				cription			Sup.	Ra	nge	Unit	COV	Default
TempF	RoomDem		requ valu	ested tempera e	ture s	etpoint	M	full		°C	0.2	cs
Attribu												
- Dem'	Valid		(fals	dity of TempRo e means also " and")			M	true	e/false	bool	Y	false
- AbsL	oadPriority			f absolute load ested by one c			0	true	e/false	bool	Y	false
- Shiftl	₋oadPriorit	y	set i	f shift load prione or more HIF	rity is		0	true	e/false	bool	Y	false
- Emei	rgDem		set it	f emergency he n frost protection ne or more HIF	eat de on is re		0	true	e/false	bool	Y	false
Comm	nunication		Бу С	ne or more rin								
	ing Group											
Class		-		Туре					Defa	ult		
Ge	ographical		X	Apartment.*.*					1.*.*			
	olication S											
	assigned	· · · · · · · · · · · · · · · · · · ·		Broadcast 🗌		Configura	ble 🔲					
DP A	ddress:			IO Type(ID):		170 (HRDI	<b>Л</b> )	Pı	roperty II		51	
	Services	(even	t):	COV 🛛		/linRepTime		10	0 sec	Heart	beat:	15 min
(LT	Report E Read-R	espor		Output per de	fault c	ommunicat	ing	Bi		oup Wildo	ard allov	ved 🗌
	ling of the		t	Tx Prio:		High 🗌			Normal	$\boxtimes$	Low	
sup	all always b ported)			Transm after F	Power	up: Stored	Value		Act Va	lue 🛛 D	efault Va	alue 🗌
	erty-Serv vidual acc		:	Read only			Read/V	Vrite	e [	]		
	tion Hand										t Power	
		t sent	spor	ntaneously if th	ere a	re no Temp	Room	Dem	AbsHeat	input sign	als with	n the
	nent zone											
Specia	al Feature	s:										

### 2.4.4.3 Output ActPosDemAbsHeatMax

### **Standard Mode**

DP Name:	ActPosDemAbsHeatMax	Abbr.:			Mandatory		$\boxtimes$					
FB Name:	HRDM				Can be inter	nal	$\boxtimes$					
Description												
	corresponds to the VPmax o											
see LTE-HEE mode, only % value, no load priority attributes etc.												
<b>Datapoint Ty</b>												
DPT_Name:	DPT_Scaling											
DPT Format:	U <sub>8</sub>				5.001							
Field	Description			Supp. Ra	nge Unit	Defau	ult					
	Ş	see LTE-H	IEE mode									
Access Type												
♦ Output												
this $\rightarrow$ M		$\boxtimes$										
Spontaneo	Spontaneous   COV:   Δ-Value:   5%   Min repetition period:   10s											
	Cyclic	Period:	15 Min									
Request												
Communicat	on Type											
	ject Datapoint			Ma	ındatory: 🛛 🖸							
	oup Address:											
Dynamics												
Power dov	/n: Save:											
Power up:	Value: No initialisa			It value:								
	Saved value			l value (not fo		<u> </u>						
	Transmit on bus (only fo	r output):	Read	from bus (on	ly for input):							
Exception Ha												
	not sent spontaneously if ther	e are no A	ActPosDemAbs	Heat input si	gnals							
Special Feat	ires											

FB:	HRDM	LTE S Name	Server Output :	ActPosDem	AbsHe	atMax			Mandatory 🛛 Optional	
Desc	ription:	=		-				<u>U</u>		
valve apartr	This output signal contains the calculated maximum heating actuator position demand (exp valve position setpoint, absolute value) of the HRDM which is sent to the HDTACT in the s apartment. Calculation of the maximum valve position demand: method is company specific. See clau									
DPT:										
Field	INAITIC		Description	טו ו וטן	Sup.	Range	Unit	COV	Default	
	sDemAbs	Α	absolute actuator pos setpoint, valve lineari			0100%	%	5	CS	
Attrib	utes				1					
- Dem	nValid	(f	'alidity of ActPosDem false means also "no emand")		М	true/false	bool	Y	false	
- Absl	LoadPriorit	y s	et if absolute load pri		0	true/false	bool	Υ	false	
- Shift	tLoadPriori	ty s	et if shift load priority y one or more HIRC		0	true/false	bool	Y	false	
- Eme	ergDem	s	et if emergency heat com frost protection i y one or more HIRC		0	true/false	bool	Y	false	
Comi	nunication		y one or more rince							
	ding Grou									
Clas		γ	Туре			Def	ault			
Ge Ap	eographica pplication S nassigned		Apartment.*.*	Configura	able [	1.*.				
	Address:		IO Type(ID):	170 (HRD		Property	ID:	52		
	-Services	(event)		MinRepTim		10 sec	Hear	tbeat:	15 min	
(L	oReport TE Read-R		se 🔲	It communica	ting	Binding (	Group Wild	card allov	ved 🗌	
	lling of the		Tx Prio:	High 🗌		Norma	I 🛛	Low		
su	all always   pported)		Transm after Pov	verup: Stored	d Value	☐ Act V	alue 🗵 🏻 [	Default Va	alue 🗌	
	perty-Serv ividual ac		Read only	$\boxtimes$	Read/V	Vrite [				
	ption Hand							at Power		
	output is no ment zone	t sent s	spontaneously if there	e are no ActP	osDem/	AbsHeat inp	out signals	within the	<b>)</b>	
	ial Feature	es:								

# ${\bf 2.4.4.4} \quad Input \ TempRoomDemAbsHeat$

### **Standard Mode**

DP N	Name:	Tem	pRoomDem	AbsHe	eat	Abbr.:					N	/landa	atory		
FB N	lame:	HRD	M								C	Can be	e intern	al	
Desc	Description														
This input signal contains the room heating temperature demand (absolute value, expressed as a															
temperature setpoint value) of <u>one</u> HIRC. It is used in the HRDM to calculate the maximum demand;															
only temperature value, no load priority attributes etc.															
Datapoint Type															
	DPT_Name: DPT_Value_Temp														
	Format:	F <sub>16</sub>								T_ID:		.001			
Field Description Supp. Range Unit											Defa	ult			
see LTE-HEE mode															
Access Type															
<b>♦</b> I	nput														
Ν	$I \rightarrow this$		] 1	$\rightarrow$ thi	is	$\boxtimes$									
Spontaneous   Cyclically:   Time-out:   31 min															
R	lequest				Polling	:				Perio	d:				
Com	nmunicati	on T	уре												
<b>♦</b> (	Group Ob	ject [	Datapoint								Man	dator	y: 🛛 🖂		
D	efault Gro	oup A	Address: -	-											
Dyna	amics														
P	ower dow	'n:	Save:												
P	ower up:		Value:	No in	itialisat	ion:		Defau	ılt va	alue:			$\boxtimes$		
				Save	d value	:		Actua	l va	lue (no	ot for	input	):		
			Transmit on	bus (d	only for	output):		Read	fror	n bus	(only	for in	iput):		
Exce	eption Ha	ndlir	ng												
	cial Featu														
			the number of												t
			oduct) becau												
addr	esses mu	st be	assigned (s	hared	variabl	e model	). N insta	ances o	f thi	s obje	ct mu	ust be	impler	nente	d.

FB:	HRDM	LTE Cli-	ent Input	Те	mpRoomD	emAbsl	Hea	t			latory ⊠ tional □
Descr	iption:	•		_						<del></del>	
This in	nput signal	contains	the room heating	ten	nperature d	lemand (	(abs	olute va	lue, expre	essed as a	3
			e) of the HIRC in							signals of	multiple
HIRC	HIRC are collected and the resulting max. demand is calculated. See clause 2.4.1.1										
DPT:	Name	DPT_Te	mpRoomDemAbs		DPT ID	209.10	1	Datatype	e format	$V_{16}B_{8}$	
Field			Description						Sup.	Unit	Default
Temp	RoomDem	Abs	requested temp	era	ture setpoir	nt value			M	°C	cs
Attribu	ıtes										
- Dem	Valid		Validity of Temp						M	bool	false
			(false means als								
- Absl	_oadPriority	/	set if absolute lo	oad	priority is r	equested	d by	the	0	bool	false
			HIRC								
	LoadPriorit	:y	set if shift load p						0	bool	false
- Eme	rgDem		set if emergency heat demand for room frost						0	bool	false
			protection is requested by the HIRC								
	nunication										
	ding Group	): 	1								
Clas	_		Туре					fault			
Ge	ographical	$\boxtimes$	Apartment. Roo	m(1	1n).		1.n	.n			
			SubZone(1n)								
	plication S	pecific	 - <u> </u>								
	assigned		Broadcast		Configurat		L		_		
	Address:		IO Type(ID):		167 (HIRC	,	Pr	operty IE		51	
	-Service (e		InfoReport Snif	ter	on Binding				Room an	d Subzon	e
	oReport		Timeout:			31	Mir	1			
	- <b>Service (բ</b> ad – Resp		Read Wildcard	/ Re	esp Sniffer	on Bindii	ng G	Group:			
Value	after Pow	erup:	Defa	ılt ∖	/alue ⊠					Stored Val	lue 🗌
Excep	otion Hand	lling:						S	ave at Po	werdown	
See c	lause 2.4.1	.1									
Speci	al Feature	s:									

# 2.4.4.5 Input ActPosDemAbsHeat

### **Standard Mode**

DP	Name:	ActF	PosDemAbsH	leat	Abbr.:				Mandatory			$\boxtimes$
FB	FB Name: HRDM Can be int											
	Description											
	This input signal contains the heating actuator position demand (expressed as valve position setpoint,											
absolute value)of one HIRC. It is used in the HRDM to calculate the maximum demand;												
only % value, no load priority attributes etc.												
Datapoint Type												
	T_Name:		PT_Scaling									
	T Format:	U <sub>8</sub>						PT_ID:	5.001			
Fie	eld	De	scription					pp. Ra	inge	Unit	Defau	ılt
see LTE-HEE mode												
Ac	cess Type											
<b>♦</b>	Input											
	$N \rightarrow this$			$\rightarrow$ this								
	Spontaneo	us		Cyc	lically:	$ \boxtimes $		Time-out	:	31 mir	ı	
	Request			Pol	ling:			Period:				
Co	mmunicat	ion T	Гуре									
<b>♦</b>	Group Ob	ject [	Datapoint					Ma	andatory	y: 🛛		
	Default Gro	oup A	Address: -	-								
Dy	namics											
	Power dow	vn:	Save:									
	Power up:		Value:	No initiali	sation:		Default v					
				Saved va	lue:		Actual va	lue (not fo	or input	): 🗌		
			Transmit on	bus (only	for output):		Read from	m bus (on	ly for in	put):		
Ex	ception Ha	andli	ng									
	ecial Featu											
			the number of									
			oduct) becau									
ad	dresses mu	ıst be	e assigned (s	hared var	able model)	. N insta	nces of th	is object r	nust be	implem	nented	

FB:	HRDM	LTE Clie	nt Input	Act	PosDemA	bsHeat		Mandatory 🔀						
		Name:								Op	tional 🗌			
	iption:													
			he heating actua											
			C in the same ap						ınals of m	ultiple HIF	RC are			
			max. demand is	cald		e clause	2.4							
DPT:	Name	DPT_ Act	PosDemAbs		DPT ID	207.104	4	Datatyp	e format	U <sub>8</sub> B <sub>8</sub>				
Field			Description		Sup. U						Default			
ActPo	sDemAbs		Absolute actuate			nand			M	%	cs			
			(setpoint, valve	line	arized)									
Attribu	ites													
- Dem	Valid		Validity of ActPo	sDe	em				M	bool	false			
			(false means als											
- AbsL	.oadPriorit	y	set if absolute load priority is requested by the O								false			
			HIRC											
	LoadPriori	ty	set if shift load p						0	bool	false			
- Eme	rgDem		set if emergency heat demand for room frost O								false			
			protection is rec	ues	ted by the	HIRC								
Comn	nunication	<b>า</b> :												
Bind	ling Grou	p:												
Clas	S		Type	Default										
Ge	ographical		Apartment. Roo	m(1	n).		1.n	ı.n						
			SubZone(1n)											
Ар	plication S	pecific												
Un	assigned		Broadcast		Configurat	ole 🗌								
DP A	Address:		IO Type(ID):		167 (HIRC	;)	Pr	operty II	D:	52				
LTE-	Service (	event):	InfoReport Snif	fer	on Binding	Group:			Room an	d Subzon	е			
	Report	$\boxtimes$	Timeout:			31	Mir	n						
LTE-	-Service (	polling):	Read Wildcard	·Dα	en Sniffer	on Rindir	na (	2roup:						
Re	ad – Resp	onse 🗌	Neau Wildcard	116	sp Sillier (	ווטווום ווכ	iy (	oloup.						
Value	after Pow	erup:	ılt V	alue 🛚			-	(	Stored Val	lue 🗌				
Excep	tion Hand	lling:						S	ave at Po	werdown				
See cl	ause 2.4.1	.1												
Speci	al Feature	s:												

### 2.4.4.6 Parameter Apartment

FB:	HRDM	Proper	ty Name ( <u>Server</u> ):	Apartmen	t				datory 🛚		
Desc	ription:	<u> </u>							<u> </u>		
		ment nu	mber. The HRDM is	a "Sniffer"	on all Roor	n & Su	bzones with	in the Apa	rtment.		
DPT:	Name		countValue8_Z	ountValue8_Z DPT ID 202.002 Datatype format							
Field			Description			Sup.	Range	Unit	Default		
Coun	terValue		Apartment number	ment number M 1126							
Status	3							bitset			
- Out	OfService		zone active /inactiv	true/false		false					
- all o	ther flags		not supported, fixe								
Command								enum			
- Norr	nalWrite					M					
- SetC	OSV & Res	etOSV	set zone inactive /	Ο							
- all o	ther comm	ands	not supported	NA NA							
Com	nunicatio	n:	<del>-</del>				<del>-</del>	-	_		
DP.	Address:		IO Type(ID):	170 (HR	DM)	Prope	rty ID:	101			
(in t	he server	)	Start-Index:	1		N° of	elements	1			
Pro	perty acce	ess:	Read only [		Read/W	rite	$\boxtimes$				
Pro	tection		Read level			Write	level				
<b>Exception Handling:</b> Value after Powerup: Stored Value ⊠ Act Value □ Defau								efault Valu	e 🗌		
						•		•			
Spec	ial Feature	es:									
HRDI	I DP's are	not LTE	communicating if zo	one is 'OutO	OfService'.	•					

### 2.4.4.7 Diagnostic data NumberOfHIRC

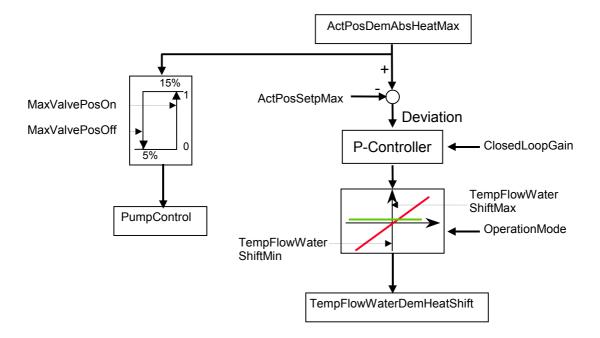
FB:	HRDM	Propert	y Name ( <u>Server</u> ):	NumberO	fHIRC				Mand	datory 🗌			
									Op	otional 🛚			
Desc	ription:												
Total	number of	HIRC linl	ked to the HRDM wi	hich are se	nding Te	mpRoor	nDemAbs	Неа	t or				
ActPo	ActPosDemAbsHeat												
DPT:	Name	DPT_Va	/alue_1_Ucount DPT ID 5.010 Datatype format U										
Field			Description			Unit	Default						
							full			0			
Comi	Communication:												
DP Address:			IO Type(ID):	170 (HF	170 (HRDM) Property ID: 1				110				
(in the server)			Start-Index:	1		N° of	elements	1					
Property access:			Read only		Read/V	Vrite							
Pro	tection		Read level			Write	level						
	ption Hand	lling:	Value after Poweru	p: Store	d Value ∑	<b>□</b> 1)		Act	Value	Default			
Value													
	aviur after												
		calculate	d staring from 0. Th	e value is	stable if al	I connec	ted HIRC	hav	e sent the	е			
	nd signal												
			o 15 minutes)										
- the	value is sto	ored in no	on volatile memory										
	ial Feature												
This o	diagnostic v	alue can	only be made avail	able if the	HRDM ha	is a com	plete list of	of co	nnected I	HIRC			
(direc	tory). The i	mplemer	itation of a short dyr	namic list a	is describe	ed in cha	apter 2.4. <sup>2</sup>	1.1 is	s not suffi	cient.			

# **2.5** Functional Block: Heating Demand Transformer Actuator Position (HDTACT)

### 2.5.1 Functional Specification

The Functional Block HDTACT gets the max. heating actuator position demand value ActPosDemAbsHeatMax from the Heating Room Demand Manager HRDM in the same apartment and calculates the resulting heating flow temperature demand delta value for the HDTRT functional block (Heat Demand Transformer Room Temperature) in the same apartment.

The HDTACT uses a control loop mechanism to calculate a delta flow temperature demand. See description in EIB ObIS model [13] "Supply Water Temperature Controller based on Evaluation of Valve Positions".



If the HDTACT does not get a valid demand from the HRDM it will set the flow temperature demand delta value to zero.

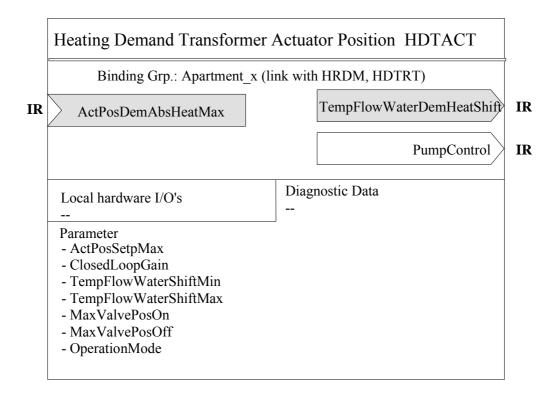
The current maximum valve position ActPosDemAbsheatMax can be used to control a circulation pump. The signal PumpControl is created using a hysteresis function. Below the value MaxValvePosOff the circulation pump may be switched off due to approximately no heat demand. Above the value MaxValvePosOn the circulation pump should run due to actual heat demand. The signal PumpControl may be used to switch a circulation pump directly or the value is used in the HDTRT to calculate the SystemPumpReq attribute in the Flow Temperaure Demand signal.

See also description of HDTRT functional block.

#### 2.5.2 Constraints

ActPosDemAbsHeatMax signal from HRDM may contain optional load priority and emergency heat demand information which is not considered in the HDTACT. See clause2.1.3

### 2.5.3 Functional block diagram



# 2.5.4 Datapoint description

### **2.5.4.1** Overview

Data Point	Description	Data Point Type	DPT N°
Outputs			
TempFlowWaterDemHeatShift	Resulting heating flow temperature demand delta value / LTE and S-interface	DPT_TempHVACRel_Z DPT_Value_Tempd	205.101 9.002
PumpControl	This signal may be used to switch off a pcirculation pump if there is almost no heat demand	DPT_Switch	1.001
Inputs			
ActPosDemAbsHeatMax	Resulting maximum heating actuator position demand from HRDM / LTE and S-interface	DPT_ActPosDemAbs DPT_Scaling	207.104 5.001
Parameters			
Apartment	LTE zone: Apartment number	DPT_UcountValue8_Z	202.002
ActPosSetpMax	Set point for position control algorithm 0 -100%	DPT_Scaling	5.001
ClosedLoopGain	Closed-loop gain of the controller. Permitts the utilization of the full range of the supply water temperature as a function of the installed heating system (e.g. underfloor heating). 0.1 - 10 K/%	DPT_KelvinPerPercent	9.023
TempFlowWaterShiftMin	Lower limit of flow temperature demand shift	DPT_TempHVACRel_Z	205.101
TempFlowWaterShiftMax	Upper limit of flow temperature demand shift	DPT_TempHVACRel_Z	205.101
OperationMode	Used to limit the influence of actuator position on flow temperature demand delta. Used to adjust for various heating circuits.	DPT_Mode_Boiler	3.009
MaxValvePosOn	Above this value the circulation pump should run due to actual heat demand.	DPT_Scaling	5.001
MaxValvePosOff	Below this value the circulation pump may be switched off due to approximately no heat demand.	DPT_Scaling	5.001
Diagnostic Data			

<sup>\*)</sup> Implementation of Properties using standard DPT see clause 1.3.2

			STANDARD MODE	EXTER MO	
		Basic FB	S-Mode	Standard Mode Interface	LTE-Mode
Outputs	TempFlowWaterDemHeatShift	GO <sub>b</sub>	GO	GO	M
	PumpControl	(GO <sub>b</sub> )		(GO)	О
Inputs	ActPosDemAbsHeatMax	$GO_b$	GO	GO	M

Table 10: HDTACT Runtime Interworking - dependence on Configuration Modes

		Support
Parameter	Apartment	M

**Table 11: HDTACT LTE specific Properties** 

		Support
Parameter	ActPosSetpMax	О
	ClosedLoopGain	0
	TempFlowWaterShiftMin	0
	TempFlowWaterShiftMax	0
	OperationMode	0
	MaxValvePosOn	0
	MaxValvePosOff	0
Diagnostic Data		

Table 12: HDTACT Standard Properties of Interface Objects (or memory mapped DP)

### 2.5.4.2 Output TempFlowWaterDemHeatShift

### **Standard Mode**

	TempFlowWaterDemHeatShift   Abbr.:		Mandat	ory	$\bowtie$						
FB Name:	HDTACT		Can be								
Description											
This output signal contains a correction value to the heating flow temperature setpoint in the HDTRT. This											
shift value is provided by the HDTACT in order to have an optimal flow temperature according to the											
valve position of the connected HIRC.											
This value is calculated using PID control loop mechanism according to the ActPosDemAbsHeatMax											
input. For further details see OBIS [13].											
<b>Datapoint Typ</b>											
DPT_Name:	DPT_Value_Tempd										
DPT Format:	F <sub>16</sub>	DPT_ID:	9.002								
Field	Description		ange	Unit	Default						
		-	10 + 30	K	0						
			1)								
<b>Access Type</b>											
♦ Output											
this $\rightarrow$ M	$\boxed{\qquad \qquad   \text{this} \rightarrow 1 \qquad   \boxtimes \qquad }$										
Spontaneo		n repetition p	period:	10s							
	Cyclic Period: 15 Min										
Request											
Communicati	on Type										
♦ Group Ob	ect Datapoint	M	andatory	': X							
Default Gro	oup Address:										
Dynamics											
Power dow	n: Save:										
Power up:	Value: No initialisation: Defau	ılt value:									
	Saved value: Actua	I value (not f	for input)	: 🛛							
		from bus (or									
<b>Exception Ha</b>		,									
Special Featu	res										
	tion only in mixed installations with bus controlled valv	es and stand	d alone v	alves.							
	full temperature range is allowed.										
	· · · · · · · · · · · · · · · · · · ·										

FB:	HDTACT	LTE Nar		rver Output	Tem	pFlowWat	erDeml	Heat	Shift			datory 🔯 ptional 🔲			
Desci	ription:	-									<del>- </del>	-			
shift v	This output signal contains a correction value to the heating flow temperature setpoint in the HDTRT. This shift value is provided by the HDTACT in order to have an optimal flow temperature according to the value position of the connected HIRC in the same apartment.														
valve position of the connected HIRC in the same apartment.  This value is calculated using PID control loop mechanism according to the ActPosDemAbsHeatMax															
input. For further details see OBIS [13].															
If all HIRC have no heat demand (e.g. ActPosDemAbsHeatMax is below a certain limit) the															
TempFlowWaterDemHeatShift output has the status 'OutOfService'. This indicates that no heat is															
	requested.														
DPT:	Name [	DPT_	Tem	pHVACRel_Z		DPT ID	205.10	)1	Datatype	e format	$V_{16}Z_{8}$	$V_{16}Z_{8}$			
Field	<u> </u>		Desc	cription			Sup.		nge	Unit	COV	Default			
				temperature se	etpoir	nt shift	М	-10	0 + 30 <sup>1)</sup>	K	2	cs			
Attribu	utes		value	<del>.</del>											
- Out	OfService	1	false	= shift value is			М	true	e/false	bool	Y	true			
			/ al a .a.	heat is requ	este	1									
				nand)	ام ام										
		- ['	ue	shift value is no heat dem	,										
	ther flags	١.	not o	supported	ianu		NA								
	nunication:		HOL S	supported			INA	<u> </u>				-			
	ding Group														
Clas		•		Туре					Defa	ılt					
	eographical	Г	$\exists$	Apartment.*.*					1.*.*	uit					
	plication Sp	<del>-</del>		Apartinent											
	iassigned	COILIC	녹나	Broadcast		Configur	able 🗀								
	Address:			IO Type(ID):		169 (HDT		Pı	roperty IC	).	51				
	-Services (	oveni		COV 🖂		MinRepTim			0 sec		tbeat:	15 min			
	oReport		7.   	Output per det								-			
	ΓΕ Read-Re				auit	Jonninanice	ating	Bi	inding Gr	oup Wildo	card allov	ved 🗌			
	lling of the o		<u> </u>	Tx Prio:		High 🗌			Normal [	$\overline{\mathbf{X}}$	Low	,			
	all always be		-						_						
	pported)			Transm after F	owe	rup: Store	d Value	Ш	Act Val	ue 🖂 L	Default V	alue 🔲 📗			
Pro	perty-Servic			Read only	$\boxtimes$		Read/\	Vrite	e 🗆						
Exce	otion Handl	ing:	•							Save	at Power	down			
										1					
Speci	al Features	<b>S</b> :													
			in m	nixed installation	ns w	ith bus con	trolled v	/alve	es and sta	and alone	valves.				
Ot	herwise the	full te	empe	erature range is	s allo	wed.									

# 2.5.4.3 Output PumpControl

### **Standard Mode**

DF	DP Name:   PumpControl   Ab							-	Mandatory							
FB	Name:	HDT	ACT										Can be	interna	al	$\boxtimes$
De	Description															
	This signal indicates if a circulation pump may be switched off due to very low heat demand (if all valves															
	are almost closed)															
	Datapoint Type															
	PT_Name:	DF	PT_Sw	ritch												
	PT Format:	B <sub>1</sub>									DPT_ID:		1.001			
Fie	eld	De	escripti	on							Supp.	Ra	nge	Unit	Defau	ult
															or	1
Ac	Access Type															
•	♦ Output															
	this $\rightarrow$ M		$\square \qquad \text{this} \to 1 \qquad \square$													
	Spontaneous   COV:							<del>)</del> :		Min	RepTime:			10s		
				Cyclic	;	$\boxtimes$	Period:		15 Mi	n						
	Request		$\square$													
Co	ommunicati	on 1	Гуре													
•	Group Ob	ject l	Datapo	oint								Ма	andatory	<i>r</i> :   🛛		
	Default Gro	oup A	Addres	ss:	=											
Dy	namics															
	Power dow	'n:	Save													
	Power up:		Value	):	No initi	alisa	ation:			Defau	ult value:			$\boxtimes$		
					Saved	valu	e:			Actua	al value (n	ot fo	r input)	):		
Transmit on bus (only for							r output)			Read	from bus	(on	ly for in	put):		
Ex	ception Ha	ndli	ng													
Sp	ecial Featu	ıres				·										

FB:	HDTACT	LTE Nar		rver Output	Pum	oContro	I							datory ☐ ptional ⊠
Desci	ription:	-												
			a cir	culation pump	may b	e switch	ed	off due	e to	very lov	w he	at den	nand (if a	ll valves
are al	most closed	)												
DPT:	Name [	DPT_	Swit	ch		DPT ID		1.001		Dataty	pe fo	rmat	B <sub>1</sub>	
Field			Desc	cription				Sup.	Ra	nge	U	nit	COV	Default
											bo	ool		on
Comr	nunication:							-	•				-	
Bind	ding Group:	:												
Clas	S			Туре						Def	ault			
Ge	ographical		$\triangleleft$	Apartment.*.*						1.*.	*			
Ap	plication Sp	ecific												
	assigned	]		Broadcast		Configu	ıra	ble 🔲						
DP /	Address:			IO Type(ID):		169 (HD	TΑ	CT)	Pi	roperty	ID:		52	
LTE	-Services (e	even	t):	COV 🛛	N	1inRepTi	me	<b>)</b> :	1	0 sec		Hea	rtbeat:	15 min
	oReport ΓΕ Read-Re	∑ spon		Output per de	fault c	ommunio	cat	ing	Bi	inding (	Grou	o Wild	card allov	wed
	lling of the o		t i	Tx Prio:		High [				Norma	I 🛛		Low	
	all always be pported)	е		Transm after F	Power	up: Stor	ed	Value		Act V	alue	⊠ I	Default V	alue 🗌
	perty-Service ividual acce			Read only	$\boxtimes$			Read/V	Vrite	)				
Excep	otion Handl	ing:										Save	at Power	down
Speci	al Features	:: ::												
													-	

## 2.5.4.4 Input ActPosDemAbsHeatMax

### **Standard Mode**

DH	Name:	ActPosDemAt	osHeatMax	Abbr.:				Manda	itory	
FB	Name:	HDTACT						Can be	e internal	$\boxtimes$
De	escription									
Th	is signal fro	m HRDM cont	ains the maxii	mum heati	ng actua	tor posi	ition dema	nd of the I	inked HIRC	
ex	pressed as	linearized valv	e position set	point (abso	olute valu	ie). It is	used in th	ne HDTAC	T to calculate	e the
de	Ita flow tem	perature dema	and TempFlow	/WaterDen	nHeatSh	ift;				
		no load priority								
Th	is datapoin	corresponds t	to the VPmax	object in the	he ObIS	[13]				
Da	tapoint Ty	pe								
DF	PT_Name:	DPT_Scaling	g							
DF	PT Format:	U <sub>8</sub>					DPT_ID:	5.001		
Fiε	eld	Description					Supp.	Range	Unit Defa	ult
				see LTE-	HEE mo	de				
Ac	cess Type									
<b>♦</b>	Input									
	$N \rightarrow this$		1 → this							
	Spontaneo	us 🛛	Cycl	lically:			Time-	out:	31 min	
	Request		Polli				Period	d:		
Co	mmunicat	ion Type		J						
•		ject Datapoint						Mandator	y: 🛛	
		oup Address:						•		
D۷	namics									
	Power dow	n: Save:								
	Power up:	Value:	No initialis	ation:		Defau	ılt value:			
		1	Saved val		₹			ot for input		
		Transmit	on bus (only f					(only for in		
Ex	ception Ha					1100.0		(crit) ter in	p =,-	
		<u>9</u>								
Sn	ecial Featu	ıres								
<u> </u>										

FB:	HDTACT	LTE CI	ent Input ActPosDemAbsHeatMax						latory 🛚
		Name:						Op <sup>r</sup>	tional 🔲
Desc	ription:	-						<del>-</del>	
This s	signal from H	RDM co	ntains the maxim	um heating actua	ator pos	ition dema	nd of the	HIRC in t	he same
			nearized valve po				s used in	the HDTA	\CT to
calcul	ate the delta	flow ten	nperature deman	d TempFlowWate	erDemH	leatShift			
DPT:	Name D	PT_ActF	PosDemAbs	DPT ID 20	07.104	Datatype	format	U <sub>8</sub> B <sub>8</sub>	
Field			Description				Sup.	Unit	Default
ActPo	sDemAbs		Absolute actuate	or position demar	nd		М	%	cs
			(setpoint, valve	linearized)					
Attrib	utes								
- Dem	nValid		Validity of ActPo				M	bool	false
	(false means also "no heat demand")								
- Absl	LoadPriority			oad priority is requ	uested b	by the	0	bool	false
			HIRC						
	tLoadPriority			priority is requeste			0	bool	false
- Eme	ergDem			y heat demand fo		frost	0	bool	false
			protection is req	uested by the HII	RC				
	munication:								
	ding Group:								
Clas			Туре			efault			
	eographical		Apartment. *. *			* *			
	plication Spe	ecific			. <u></u>				
	nassigned		Broadcast	Configurable					
	Address:		IO Type(ID):	170 (HRDM)		Property ID		52	
	-Service (ev			fer on Binding G			Room an	d Subzon	<u>e</u>
	oReport		Timeout:		31 N	1in			
	-Service (po		Read Wildcard /	Resp Sniffer on	Binding	Group: -			
	ead – Respor			·				M 1 \ / - 1	
	after Powe		Detal	ılt Value ⊠		10		Stored Val	ue 💹
Exce	ption Handli	ng:				Sa	ave at Po	werdown	
	:-!								
	ial Features		mand) the Ctatus	A ++ =: h - + + - + (O - + O + (O + )	Comico'	in and in th	t t		
			mand) the Status Shift. This indicat						
			adPriority' and 'Er						Lucually
		JIIIILU	aur nonly and El	nergoeni amibu	ites ale	not releval	וג וטו חט	IACT AIR	usually
		nternal							
ignore This i	ed nput can be i	nternal.							

## 2.5.4.5 Parameter Apartment

FB:	<b>HDTACT</b>	Prop	erty Name ( <u>Server</u> ):	Apartmen	t			Mar	idatory 🔯
								0	ptional 🗌
Desc	ription:	•		-				<del>-</del>	
LTE z	one: Aparti	ment nu	mber						
DPT:	Name	DPT_U	countValue8_Z	DPT ID	202.002	Da	atatype format	t U <sub>8</sub> Z <sub>8</sub>	
Field			Description			Sup.	Range	Unit	Default
Count	terValue		Apartment number			М	1126		1
Status	3							bitset	
- Out	OfService		zone active /inactive			0	true/false		false
- all o	all other flags Command		not supported, fixed to '0'			NA			
Comn	nand							enum	T
- Norr	nalWrite			M					
- SetC	OSV & Res	etOSV	set zone inactive / active						
- all o	ther comma	ands	not supported NA						
Comr	nunication	n:	-		-		<u>-</u>	-	-
DP A	Address:		IO Type(ID):	169 (HDT)	ACT)	Prop	erty ID:	101	
(in t	he server)		Start-Index:	1		N° o	felements	1	
Pro	perty acce	ss:	Read only		Read/W	rite	$\boxtimes$		
Prof	ection		Read level			Write	e level		
Exce	otion Hand	lling:	Value after Powerup	: Stored \	Value 🛚	Act \	/alue 🔲 De	efault Valu	ie 🗌
		•		•		•		•	
Special Features:									
HDTA	CT DP's a	re not L	ΓE communicating if z	one is 'Out	OfService	e'.			•

### 2.5.4.6 Parameter ActPosSetpMax

FB:	HDTACT	Prope	rty Name ( <u>Server</u> ):	ActPosSe	etpMax				datory 🗌 tional 🖂
Desci	ription:	-						<del></del>	
param	neter depend	ls on th	alve position is optimi e kind of the used rad	diator valve	es resp. th				
			e.g. condensing tech ds to the VPSmax pa			[13]			
DPT:	Name D	PT_Sc	aling	DPT ID	5.001	Dat	atype format	U <sub>8</sub>	
Field			Description			Sup.	Range	Unit	Default
							1100 %	%	50%
Comr	nunication:								
DP /	Address:		IO Type(ID):	169 (HDT	ACT)	Prope	rty ID:	110	
(in t	he server)		Start-Index:	1		N° of	elements	1	
Pro	perty acces	s:	Read only		Read/W	rite	$\boxtimes$		
Prot	ection		Read level			Write	level		
Excep	otion Handli	ing:	Value after Powerup	: Stored	Value 🛚	Act Va	alue 🔲 🏻 De	fault Value	e 🗌
Speci	al Features	:							

## 2.5.4.7 Parameter ClosedLoopGain

FB: H	HDTACT	Pro	oer	ty Name ( <u>Server</u> ):	Closed	Lo	opGain				datory ☐ otional ⊠
Descri	ption:										
				ntroller. Permitts the					of the supply	water ter	nperature
				ed heating system (e							
This da	tapoint co	rrespo	nd	s to the CLG param	<u>eter in th</u>	ne (	ObIS [13]				
DPT:	Name	DPT_k	٩	/inPerPercent	DPT II	)	9.023	Dat	atype format	F <sub>16</sub>	
Field				Description				Sup.	Range	Unit	Default
									0.1 - 10	K/%	0.5
Comm	unication	:					,	=			-
DP A	ddress:			IO Type(ID):	169 (H	DT	ACT)		rty ID:	111	
(in th	e server)			Start-Index:	1			N° of	elements	1	
Prope	erty acces	ss:		Read only			Read/W	/rite	$\boxtimes$		
Prote	ction			Read level				Write	level		
Except	ion Hand	ling:	\	/alue after Powerup	: Stor	ed	Value 🛚	Act V	alue 🔲 🏻 De	fault Valu	e 🗌
Specia	I Feature	s:									

## ${\bf 2.5.4.8} \quad {\bf Parameter\ TempFlowWaterShiftMin}$

FB:	HDTACT	Prope	erty Name ( <u>Server</u> ):	1		datory ☐ otional ⊠			
Descr	iption:	<u>L</u>							zionai 🔼
Lower Exam withou to ens	limit of delta ple: In a give ut RTC will n ure heat sup	en insta ot be d oply for	y water temperature of Ilation there are room etected. Thus this pa all rooms. ds to the LLdTsw par	ns equipped rameter lim	d with and nits the de	d witho ecrease	ut RTC's. Hea		
DPT:	Name D	PT_Te	mpHVACRel_Z	DPT ID	205.101	Da	tatype format	$V_{16}Z_{8}$	
Field	<u> </u>		Description		•	Sup.	Range	Unit	Default
Temp			flow temperature set	M	cs	K	-10		
	s OfService ther flags		no min. limitation not supported, fixed	to '0'		O NA	true/false	bitset	false
Comn		OSV						enum	
- all ot	her commar	nds	not supported			NA			
Comn	nunication:	-			•		•		-
	Address: he server)		IO Type(ID): Start-Index:	169 (HDT 1	ACT)		erty ID: elements	112 1	
Prop	perty acces	s:	Read only		Read/W	rite/	$\boxtimes$		
Prot	ection		Read level			Write	level		
Excep	otion Handli	ing:	Value after Powerup	: Stored	Value 🛚	Act V	alue 🔲 De	fault Valu	e 🗌
Special Features:									

## 2.5.4.9 Parameter TempFlowWaterShiftMax

FB: HDTACT Property Name ( <u>Server</u> ): TempFlowWater							hift <b>l</b> \	Лах	(		datory 🔲
										Op	otional 🛚
Desc	ription:	-								<del>-</del>	
Uppe	r limit of de	lta supp	y '	water temperature t	o ensure co	ontrol acc	curai	ncy	(to avoid ove	ershoot).	
This c	latapoint co	rrespon	ds	to the ULdTsw par	ameter in th	ne ObIS	[20				
DPT:	Name	DPT_Te	em	pHVACRel _Z	DPT ID	205.101		Dat	atype format	$V_{16}Z_{8}$	
Field	<u>.</u>		Г	escription			Su	p.	Range	Unit	Default
Temp			fl	ow temperature set	point shift v	alue	M		cs	K	30
Status	3		Ī							bitset	
- Out	OfService		n	o min. limitation			0	)	true/false		false
- all o	all other flags			ot supported, fixed	to '0'		N/	4			
Comn	Command									enum	
- Norr	nalWrite										
- SetC	OSV & Res	etOSV		et parameter inactiv	e / active		0	)			
- all o	ther comma	ands	n	ot supported			N/	4			
Comr	nunication	1:									
DP A	Address:			IO Type(ID):	169 (HDT/	ACT)	Pro	ре	rty ID:	113	
(in t	he server)			Start-Index:	1		N°	of e	elements	1	
Pro	perty acce	ss:		Read only		Read/W	rite		$\boxtimes$		
Prof	ection			Read level			Wr	ite I	level		
Exce	otion Hand	lling:	٧	alue after Powerup	Stored \	√alue 🛚	Act	t Va	alue 🔲 De	fault Valu	e 🗌
Speci	al Feature	s:									

### 2.5.4.10 Parameter MaxValvePosOn

FB:	HDTACT	Prope	rty Name (Server):	MaxValve	PosOn			Man	datory
		•	,,					0	ptionál 🗵
Desc	ription:			-				<del>-</del>	
Abov	e this value	the circu	lation pump should r	un due to a	actual hea	at dema	and.		
This	datapoint co	rrespond	s to the MaxVPon p	arameter ir	the Obl	S [13]			
DPT:	Name	DPT_Sca	aling	DPT ID	5.001	Dat	atype format	U <sub>8</sub>	
Field			Description			Sup.	Range	Unit	Default
			•			-	1100 %	%	15%
Com	munication	<u>.</u>				-		•	<del>-</del>
DP	Address:		IO Type(ID):	169 (HDT	ACT)	Prope	rty ID:	115	
(in t	the server)		Start-Index:	1		N° of	elements	1	
Pro	perty acces	ss:	Read only		Read/W	/rite	$\boxtimes$		
Pro	tection		Read level			Write	level		
Exce	ption Hand	ling:	Value after Powerup	: Stored	Value 🛚	Act Va	alue 🔲 De	efault Valu	ie 🗌
Spec	ial Features	S:							

### 2.5.4.11 Parameter MaxValvePosOff

FB:	HDTACT	Prope	rty Name ( <u>Server</u> ):	MaxValvePosOff	i			datory 🗌 otional 🖂
Desci	ription:	-					<u>-</u>	
			ation pump may be			mately no hea	at demand	l.
This d	latapoint cori	espond	s to the MaxVPoff p	arameter in the Ob	oIS [13]			
DPT:	Name D	PT_Sca	aling	DPT ID 5.001	Dat	atype format	U <sub>8</sub>	
Field			Description		Sup.	Range	Unit	Default
						1100 %	%	5%
Comr	nunication:				<del></del>	-	-	-
DP /	Address:		IO Type(ID):	169 (HDTACT)	Prope	erty ID:	116	
(in t	he server)		Start-Index:	1	N° of	elements	1	
Pro	perty access	<b>S</b> :	Read only	Read/	Write	$\boxtimes$		
Prot	ection		Read level		Write	level		
Excep	otion Handli	ng:	Value after Powerup	: Stored Value	Act V	alue 🔲 🏻 De	fault Valu	e 🗌
Speci	al Features:							

## 2.5.4.12 Parameter OperationMode

FB:	HDTACT	Prope	rty Name ( <u>Server</u> ):	Operation	nMode				datory 🗌 otional 🖂
Desc	ription:	-		-				-	
See b	elow								
This o	datapoint cor	respond	ls to the BC paramet	er in the O	bIS [13]				
DPT:	Name [	PT_Mo	de_Boiler	DPT ID	3.009	Da	tatype format	$B_1B_3$	
Field			Description			Sup.	Range	Unit	Default
Com	nunication:	_					<del>-</del>	-	
DP	Address:		IO Type(ID):	169 (HDT	ACT)	Prop	erty ID:	114	
(in t	he server)		Start-Index:	1		N° of	elements	1	
Pro	perty acces	s:	Read only		Read/W	'rite	$\boxtimes$		
Pro	tection		Read level			Write	elevel		
Exce	ption Handl	ing:	Value after Powerup	: Stored	Value 🗵	Act \	/alue □ De	fault Valu	e 🗌
Spec	ial Features	<b>:</b>							

### Description:

7	6	5	4	3	2	1	0
0	0	0	0	setpoint mode 0=fixed 1=calculated	Mode 2	Mode 1	Mode 0
					Mod	e of Opera	ation

Boiler control is a "write only" parameter in which only bits 0 to 2 can be modified. Bit 3 of the DPT is unused in this context. Bits 4 to 7 are always zero.

Setpoint Mode: unused, always zero

#### Mode of Operation

- 1 Mode of Operation "0": the electronic heat demand control is not active (horizontal curve); the supply water temperature is determined by the heating curve, the circulation pump is ON (mode "0" is offered to enable outdoor temperature controlled supply water temperature)
- Mode of Operation "1": the electronic heat demand control is active; the negative delta is set to 0, the max. positive delta is a parameter to be entered; the electronic room temperature control determines the supply water temperature in the right (positive) branch of the curve; the heating curve determines the supply water temperature in the left (negative) branch of the curve; the circulation pump is ON (mode "1" is recommended for mixed installations to avoid too low supply water temperature).
- Mode of Operation "2": the electronic heat demand control is active; the max. positive and the max. negative delta are parameters to be entered; the supply water temperature is determined by the electronic room temperature control (mode "2" is the standard mode for optimal energy savings).

# **2.6** Functional Block: Heating Demand Transformer Room Temperature (HDTRT)

### 2.6.1 Functional Specification

The purpose of this functional block is to transform the heating demand of an apartment to the corresponding heating flow temperature demand TempFlowWaterDemAbsHDTRT in its Heat DistributionSegment.

The HDTRT uses two alternative inputs for calculation. It gets either:

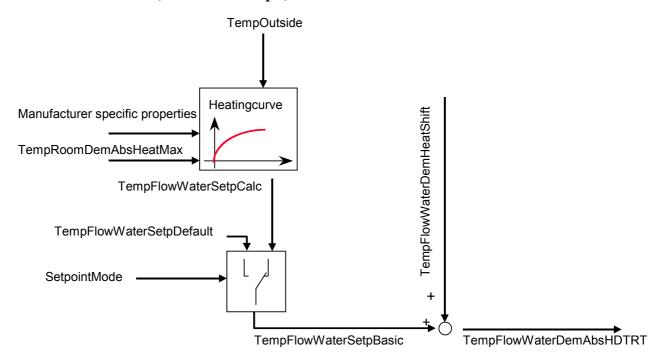
- the max. room heating temperature demand TempRoomDemAbsHeatMax from the Heating Room Demand Manager HRDM in the same apartment or
- the flow temperature demand delta value TempFlowWaterDemHeatShift from the HDTACT in the same apartment

Which input channel is active, depends on the method of heat demand calculation in the apartment. The heat demand of an apartment may be expressed either as a room temperature setpoint or a valve position setpoint (which is mapped in the HDTACT to a flow temperature delta value). => see clause 2.1.2

Mix of both methods within one apartment is not allowed! This shall be ensured by the installer. If both methods are mixed within one Apartment and both types of demand input signals are received by the HDTRT, the resulting heat demand depends on manufacturer specific implementation.

The resulting heating flow temperature demand (absolute value) is sent to the Heating Flow Demand Manager HFDM in the corresponding Heat Distribution Segment.

#### **Heat demand calculation (illustrative example):**



Hot Water Heating

The HDTRT determines the basic setpoint TempFlowWaterSetpBasic for the flow temperature demand using either a default value TempFlowWaterSetpDefault or via a heating curve or similar function (depending on parameter SetpointMode). The flow temperature demand delta value TempFlowWaterDemHeatShift from the HDTACT is added to the flow temperature basic setpoint. So the flow temperature demand is changed depending on the current energy consumption (valve position or max. room temperature setpoint) of the individual rooms.

- If TempFlowWaterSetpDefault is used for the basic setpoint, the TempRoomDemAbsHeatMax input has no influence => to be used together with valve position mechanism only
- If HDTRT gets the room temperature demand TempRoomDemAbsHeatMax from HRDM, the corresponding flow temperature demand TempFlowWaterSetpCalc is calculated. The Outside Temperature input is usually required for transformation of room temperature demand into TempFlowWaterSeptCalc using a heating curve.

  If the TempRoomDemAbsHeatMax contains the attribute 'No Demand', the resulting TempFlowWaterDemAbsHDTRT signal will also have the attribute set to 'no demand'.
- If HDTRT gets the flow temperature demand delta value TempFlowWaterDemHeatShift from HDTACT, the basic setpoint value is set to the TempFlowWaterSetpDefault or is depending on a manufacturer specific heating curve and the delta value is added. If TempFlowWaterDemHeatShift is 'OutOfService' the resulting TempFlowWaterDemAbsHDTRT signal will also have the attribute set to 'no demand'.
- If the HDTRT does not get any demand either from HRDM or HDTACT in the apartment, it will set the resulting TempFlowWaterDemAbsHDTRT signal attribute to 'no demand'.

#### Absolute load priority and shift load priority:

- attributes are contained in the TempRoomDemAbsHeatMax signal and are copied to TempFlowWaterDemAbsHDTRT signal.
- attributes are contained in the ActPosDemAbsHeatMax (optionally supported, normally LTE-HEE only) and are copied to TempFlowWaterDemAbsHDTRT signal.

#### Emergency heat demand:

- 'EmergDem' attribute is contained in the TempRoomDemAbsHeatMax signal and is copied to TempFlowWaterDemAbsHDTRT signal.
- 'EmergDem' attribute is contained in the ActPosDemAbsHeatMax (optionally supported, normally LTE-HEE only) and is copied to TempFlowWaterDemAbsHDTRT signal.

#### Max temperature limit:

The corresponding attribute in the TempFlowWaterDemAbsHDTRT signal can be set if necessary (manufacturer specific function)

#### SystemPumpReg:

The input signal PumpControl from HDTACT may be used to in the HDTRT to calculate the SystemPumpReq attribute in the TempFlowWaterDemAbsHDTRT signal.

#### Handling of Forcing/locking Signals and StatusHPM:

The forcing and locking signals from HPM and HFDM as well as StatusHPM are received from the Heating Flow Demand Manager HFDM and transferred to the individual room control blocks of one apartment. These signals are transparently routed by the HDTRT to the binding group 'Apartment' without changing of datapoint values or datapoint addressing. I.e. only the binding group (LTE-HEE) is changed by the HDTRT. Because of this routing mechanism, the HIRC do not need to know to which 'ProdSegmH' resp. 'DistrSegmH' they are connected

Since the HDTRT has no built-in pre-controller functionality these signals have no functional effect on the HDTRT itself.

#### 2.6.2 Constraints

For each apartment there must be one HDTRT and one HRDM. For each apartment there may also be one optional HDTACT. If an apartment has different types of heating loops, they must be handled like different apartments, if the heating loop characteristic shall be considered in the HDTRT.

The HDTRT functional block may be located in a device at the apartment level or at the producer level or in both type of devices. In small applications (only one apartment or heating loop) this block is typically located in the boiler control device. In applications with several apartments and different types of heating loops these blocks are typically located in the pre-control devices.

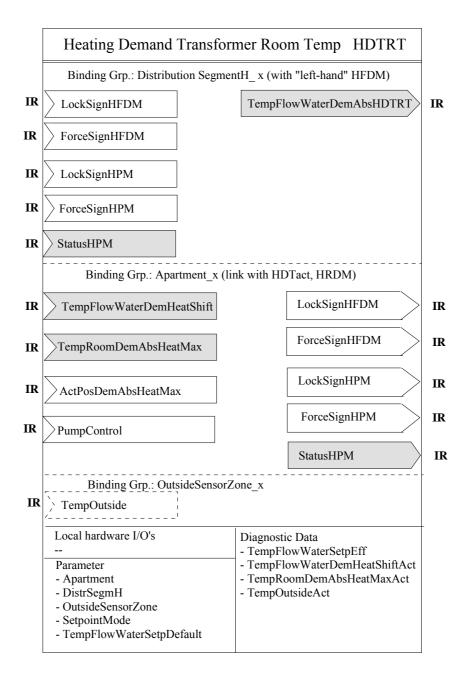
Since the HDTRT is often combined with other functional blocks in one device the data flow may be device internal only.

IMPORTANT: reporting of the Heat Demand signal TempFlowWaterDemAbsHDTRT by the HDTRT can <u>today</u> not be implemented in Standard Mode because the necessary compound HVAC DPT for runtime-interworking is not yet available in Standard Mode

Therefore for the time being only LTE implementations of the HDTRT functional block offer a bus-link to a <u>demand dependent</u> heat distribution (HFDM) and heat production system (HPM).

In Standard Mode implementations for small systems (e.g. according to ObIS Model [13]) the HDTRT is usually implemented in the Boiler (same device including HFDM, HPM and BOC). In this case the data flow from HDTRT to HFDM is device internal.

### 2.6.3 Functional block diagram



## 2.6.4 Datapoint description

### **2.6.4.1** Overview

Data Point	Description	Data Point Type	DPT N°
Outputs			
TempFlowWaterDemAbsHDTRT	Flow temperature demand of the HDTRT to be sent to the allocated HFDM	DPT_ TempFlowWaterDemAbs	210.100
StatusHPM	routed status information from HPM to the Apartment	DPT_StatusHPM	209.100
LockSignHPM	routed locking signal from HPM to the Apartment => consumers reduce energy consumption	DPT_LockSign	207.101
ForceSignHPM	routed forcing signal from HPM to the Apartment to force the consumers to increase energy consumption	DPT_ForceSign	21.100
LockSignHFDM	routed locking signal from HFDM to the Apartment for loadmanagement in the Heat Distribution Segment, to force the consumers to reduce energy consumption	DPT_LockSign	207.101
ForceSignHFDM	routed forcing signal from HFDM to the Apartment in case of overheat/oversupply in the HFDM, to force the consumers to consume energy	DPT_ForceSign	21.100
Inputs			
StatusHPM	Status information from 'Producer Manager'	DPT_StatusHPM	209.100
ForceSignHPM	Forcing signal from HPM due to overheat, to force the consumers to consume energy => to be routed to the Apartment	DPT_ForceSign	21.100
LockSignHPM	Locking signal from HPM due to boiler overload, to force the consumers to reduce energy consumption => to be routed to the Apartment	DPT_LockSign	207.101
ForceSignHFDM	Forcing signal from HFDM in the Heat Distribution Segment => to be routed to the Apartment	DPT_ForceSign	21.100
LockSignHFDM	Locking signal from HFDM in the Heat Distribution Segment => to be routed to the Apartment	DPT_LockSign	207.101
PumpControl	This signal may be used to control the SystemPumpReq attribute in the TempFlowWaterDemAbsHDTRT signal	DPT_Switch	1.001
TempRoomDemAbsHeatMax	Resulting maximum heating room temperature demand from HRDM / LTE and S-interface	DPT_TempRoomDemAbs DPT_Value_Temp	209.101 9.001
ActPosDemAbsHeatMax	Resulting maximum heating actuator position demand (contains load priority information LTE only)	DPT_ActPosDemAbs	207.104
TempFlowWaterDemHeatShift	heating flow temperature demand delta value from HDTACT / LTE and S-interface	DPT_TempHVACRel_Z DPT_Value_Tempd	205.101 9.002
TempOutside	Current outside temperature / LTE and S-interface	DPT_TempHVACAbs_Z DPT_Value_Temp	205.100 9.001

Data Point	Description	Data Point Type	DPT N°
Parameters			
Apartment	LTE zone: Apartment number	DPT_UcountValue8_Z	202.002
DistrSegmH	LTE zone: number of the Heat Distribution Segment	DPT_UcountValue8_Z	202.002
OutsideSensorZone	LTE zone for external Outside temperature sensor	DPT_UcountValue8_Z	202.002
SetpointMode	selects fixed basic flow temperature setpoint or outside temperature dependent: Fixed / Calculated	DPT_InputSource	1.014
TempFlowWaterSetpDefault	Default flow temperature setpoint instead of outside temperature dependent flow temp.	DPT_TempHVACAbs	205.100
Diagnostic Data			
TempFlowWaterSetpEff	calculated flow temperature setpoint	DPT_TempHVACAbs	205.100
TempFlowWaterDemHeatShiftAct	Actual local copy of the flow temperature setpoint shift value from HDTACT	DPT_TempHVACRel	205.101
TempRoomDemAbsHeatMaxAct	Actual local copy of the room temperature demand used for flow temperature setpoint calculation	DPT_TempRoomDemAbs	209.101
TempOutsideAct	Actual local copy of the outside temperature used by the HDTRT	DPT_TempHVACAbs	205.100

<sup>\*)</sup> Implementation of Properties using standard DPT see clause 1.3.2

			STANDARD MODE	EXTEN MO	
		Basic FB	S-Mode	Standard Mode Interface	LTE-Mode
Outputs	TempFlowWaterDemAbsHDTRT	<b>NA</b> 1)	NA	NA	M
	StatusHPM	$NA^2$ )	NA	NA	M
	ForceSignHFDM	$NA^2$ )	NA	NA	О
	LockSignHFDM	$NA^2$ )	NA	NA	О
	ForceSignHPM	$NA^2$ )	NA	NA	О
	LockSignHPM	$NA^2$ )	NA	NA	О
Inputs	TempFlowWaterDemHeatShift	$GO_b$	GO	GO	M
	TempRoomDemAbsHeatMax	GO <sub>b</sub>	GO	GO	M
	ActPosDemAbsHeatMax	<b>NA</b> 3)	NA	NA	О
	StatusHPM	<b>NA</b> 2)	NA	NA	M
	ForceSignHFDM	<b>NA</b> 2)	NA	NA	О
	LockSignHFDM	<b>NA</b> 2)	NA	NA	О
	ForceSignHPM	<b>NA</b> 2)	NA	NA	О
	LockSignHPM	<b>NA</b> 2)	NA	NA	О
	PumpControl	(GO <sub>b</sub> )		(GO)	О
	TempOutside	(GO <sub>b</sub> )		(GO)	О

<sup>1)</sup> the information is NA in the Basic FB and all other modes because the datapoint type is today not yet available in standard mode. Splitting of DPT is not possible because of necessary data consistency <sup>2)</sup> Reason: routing of datapoint is only useful in LTE-HEE, not necessary in standard mode

Table 13: HDTRT Runtime Interworking - dependence on Configuration Modes

		Support
Parameter	Apartment	M
	DistrSegmH	M
	OutsideSensorZone	О

**Table 14: HDTRT LTE specific Properties** 

<sup>3)</sup> Implementation of this input is not useful in standard modes because this input may be used only to set attributes in TempFlowWaterDemAbsHDTRT signal which is not available in standard mode

		Support
Parameter	TempFlowWaterSetpDefault	О
	SetpointMode	О
Diagnostic Data	TempFlowWaterSetpEff	О
	TempFlowWaterDemHeatShiftAct	О
	TempRoomDemAbsHeatMaxAct	О
	TempOutsideAct	О

Table 15: HDTRT Standard Properties of Interface Objects (or memory mapped DP)

## 2.6.4.2 Output TempFlowWaterDemAbsHDTRT

#### **Standard Mode**

Not applicable

FB:	HDTRT	LTE Se	erver Output Name:	TempFlowV	<b>NaterDe</b>	emAbsHDT	RT	Mandatory ⊠ Optional □	
Desc	ription:								
This o	output signa		ns the calculated flow tem corresponding Heat Distril						
	nd: see cla			oution Segme	iii. Caic	diation of ti	ic now	cilipere	ituic
DPT:			empFlowWaterDemAbs	DPT ID 2	210 100	Datatype f	ormat	V <sub>16</sub> B <sub>16</sub>	
Field	Ivallie		scription	ן טרווט ן צ	Sup.	Range	Unit	COV	Default
	FlowDem		uested flow temperature		M	full range	°C	2	CS
Attrib			desied now temperature		IVI	i iuii rariye	<u> </u>		US .
	นเ <del>ย</del> ร าValid	Val	idity of TempFlowDem		M	true/false	bool	Υ	false
- Dell	ivaliu		se means also "no heat de	omand")	IVI	liue/iaise	DOOI	1	laise
			if absolute load priority is		0	true/false	bool	Y	false
- Aus	Luaurnoniy		the HDTRT and the corres			liue/iaise	DOOI	1	laise
			RC heating system (usually						
			olicable)	y HOC					
- Shif	tLoadPriorit		if shift load priority is requ	ested by the	0	true/false	bool	Υ	false
Orm	Loudi Horit		TRT and the correspondir			li de/idise	5001	ļ .	laise
			ating system (usually not a						
			if flow temp. in the Heat D		0	true/false	bool	Y	false
			gment must be limited to n					-	
			rmally not the case for HD						
- Min	TempLimit 1	,	cold water only	,	NA	false	bool	N	false
- DHV	•		DHW only		NA	false	bool	N	false
	mCtrlReq		icates that a room heating	circuit has	М	true/false	bool	Y	false
			at demand	demand					
- Ven	tReq	for	Ventilation only		NA	false	bool	N	false
- Aux	AllSeasonR	eq for	auxiliary heat consumer o	nly	NA	false	bool	N	false
- Syst	temPumpRe	eq req	uest for water circulation i	n the	0	true/false	bool	Y	false
		dis	tribution segment (commo	bution segment (common system					
			np on)	p on)					
- Eme	ergDem		if emergency heat deman		0	true/false	bool	Y	false
			st protection is requested by						
			TRT and the correspondir	ng HIRC					
			ating system						
	VLegioReq		DHW only		NA	false	bool	N	false
	munication								
	ding Group	):				T			
Clas			Туре			Default			
	eographical								
	plication S	pecific ×				1			
	nassigned			onfigurable _		L			
	Address:			(HDTRT)		erty ID:	51		
	-Services	·		RepTime:	10 8		<u>leartbe</u>		5 min
	oReport		Output per default com			ing Group \	vildcar		<u>ea L</u>
•	TE Read-Ro		Tx Prio: Hi	gh 🗌	NC	ormal 🛚		Low	
	lling of the all always b		Transm offer Devices in	Ctored Value		at Value N	7 Def	l <b>t</b> \ /al.	🗆
	pported)	Э	Transm after Powerup:	Stored value	<i>-</i>	∖ct Value ∑	1 Dela	ault Valu	ле 🗀
	pported) perty-Serv	ice							
	ividual acc		Read only	Read/	Write (				
_ `	ption Hand					0,	ave at E	Powerdo	nwn 🗆
	puon nanu	mig.				30	ave at r	OWEIUC	74411

Special Features:	

## 2.6.4.3 Output StatusHPM

### **Standard Mode**

Not applicable

FB:	HDTRT	LTE Serv	ver Output Name:	StatusHPN	И					datory ⊠ ptional □
Desci	ription:			_					Į O	ptional <u> </u>
		I routed to	the 'Apartment' zo	ne. Data val	ue is uno	change	ed. See	claus	e 2.6.1 an	d HPM
	ication		· ·			J				
DPT:	Name	DPT Stat	tusHPM	DPT ID	209.100	) Da	tatype	format	t V <sub>16</sub> B <sub>8</sub>	
Field Description					Sup.	Range		Unit	COV	Default
see H	see HPM specification									
Comr	nunicatio	n:								
Bind	ding Grou	p:								
Clas	SS		Туре				Defau	lt		
	ographica									
Ap	plication S	Specific⊠	Apartment.*.*				1.*.*			
Un	assigned		Broadcast	Configura	able 🗌					
	Address:		IO Type(ID):				51			
	-Services	(event):		inRepTime:		10 s	ec	Hear	tbeat: 2)	15 min
	oReport	$\boxtimes$	Output per default	communication	ting	Rindi	na Gra	un Wil	dcard allo	Day
	FE Read-F							•	ucai u alio	wed
	lling of the		Tx Prio:	High 🗌		No	rmal 🛭	3	Low	<i>'</i> 🗌
	all always pported) <sup>1)</sup>		Transm after Powe	erup: Stored	l Value [	] A	ct Valu	ıe 🛚	Default V	alue 🗌
	perty-Serv ividual ac		Read only	] 1)	Read/W	rite				
Exce	otion Han	dling:						Save	e at Power	down
Speci	al Feature	es:								
1) no :	storage of	the signal	in the HDTRT (only	routing) the	refore re	ad-ac	cess fr	om the	HDTRT is	s not
	pported									
<sup>2)</sup> trar	smission	depends o	n reception of the s	ignal (routino	g functio	nality)				

## 2.6.4.4 Output ForceSignHPM

### **Standard Mode**

Not applicable

FB: HDTRT LTE Se	ver Output Name:	ne: ForceSignHPM						datory [
Description:							-	
Signal from HPM routed t								
specification. Routing fun-			enabled	d / disa	bled by	/ a com	pany spe	cific
parameter according to the								
<b>DPT</b> : Name DPT_Fo		DPT ID	21.100			format		
	Description Sup. Range Unit					COV	Default	
see HPM specification								
Communication:								
Binding Group:								
Class	Туре				Defau	lt		
Geographical								
Application Specific⊠	Apartment.*.*				1.*.*			
Unassigned	Broadcast	Configura						
DP Address:	IO Type(ID):	136 (HPM)			erty ID:		53	2)
				40				$3^{(2)}$ min
LTE-Services (event):		MinRepTime		10 9	sec	неа	rtbeat:	3 <sup>2)</sup> min
InfoReport ` 🗹	COV  Output per default							<u> </u>
InfoReport	Output per default	communicat		Bind	ing Gro	up Wild	lcard allov	wed
InfoReport \(\square\) \(\square\) (LTE Read Response polling of the output				Bind		up Wild		wed
InfoReport   (LTE Read Response polling of the output shall always be supported)   (InfoReported Properties Pr	Output per default	communicat	ing	Bind	ing Gro ormal ∑	oup Wild	lcard allov	wed
InfoReport \(\sum \sqrt{}\) (LTE Read Response polling of the output shall always be	Output per default  Tx Prio:	communicat	ing	Bind No	ing Gro ormal ∑	oup Wild	lcard allow	wed
InfoReport  (LTE Read Response polling of the output shall always be supported)  Property-Service (individual access):	Output per default  Tx Prio:  Transm after Power	communicat	ing d Value	Bind No	ing Gro ormal ∑	oup Wild	lcard allow	wed   variable   varia
InfoReport  (LTE Read Response polling of the output shall always be supported)  Property-Service	Output per default  Tx Prio:  Transm after Power	communicat	ing d Value	Bind No	ing Gro ormal ∑	oup Wild	lcard allov Low Default V	wed   variable   varia
InfoReport  (LTE Read Response polling of the output shall always be supported)  Property-Service (individual access):	Output per default  Tx Prio:  Transm after Power	communicat	ing d Value	Bind No	ing Gro ormal ∑	oup Wild	lcard allov Low Default V	wed   variable   varia
InfoReport  (LTE Read Response polling of the output shall always be supported)  Property-Service (individual access):  Exception Handling:	Output per default  Tx Prio:  Transm after Power  Read only 1)	High erup: <sup>2)</sup> Store	ing d Value Read/V	Bind No	ing Gro ormal ∑ Act Valu	up Wild	Low Low Default V at Power	wed
InfoReport (LTE Read Response polling of the output shall always be supported)  Property-Service (individual access):  Exception Handling: Special Features:	Output per default  Tx Prio:  Transm after Power  Read only 1)	High erup: <sup>2)</sup> Store	d Value Read/W	Bind No Prite	ing Gro ormal ∑ Act Valu	up Wild	Low Low Default V at Power	wed

## 2.6.4.5 Output LockSignHPM

### **Standard Mode**

Not applicable

FB: HDTRT	LIE Sel	ver Output Name:	LockSignr	1PW					idatory 🔲
								0	ptional 🔯
Description:	<del>-</del>		•					-	
Signal from HPI	I routed to	the 'Apartment' zor	ne. Data valı	ue is und	hange	ed. See	clause	2.6.1 ar	d HPM
specification. Ro	outing func	tionality is optional a	and may be	enabled	/ disal	bled by	a com	pany spe	cific
parameter acco	rding to the	installation needs.							
<b>DPT</b> : Name	DPT_Loc	kSign	DPT ID	207.101	Da	tatype	format	U <sub>8</sub> B <sub>(8</sub>	
Field		Sup. I	Range	)	Unit	COV	Default		
see HPM specif	ication								
Communicatio	n:								
Binding Grou	p:								
Class		Туре				Defaul	t		
Geographica									
Application S	Specific⊠	Apartment.*.*				1.*.*			
Unassigned		Broadcast	Configura	ıble 🗌					
DP Address:		IO Type(ID):	136 (HPM)		Prope	erty ID:		54	
LTE-Services	(event):	COV 🔯	MinRepTime	e:	Prope 10 s			54 rtbeat:	3 <sup>2)</sup> min
LTE-Services InfoReport	Ì	<b>,</b> , ,	MinRepTime	e:	10 s	ec	Hea	rtbeat:	3 111111
LTE-Services InfoReport (LTE Read F	` ⊠́ <del>Response</del>	COV 🔯	MinRepTime	e:	10 s	ec	Hea		3 111111
LTE-Services InfoReport (LTE Read F polling of the	` ⊠ Response ⊢output	COV 🔯	MinRepTime	e:	10 s Bindi	ec	Hea up Wild	rtbeat:	wed
LTE-Services InfoReport (LTE Read F polling of the shall always	` ⊠ <del>Response</del> ⊢ <del>output</del> <del>be</del>	COV D Output per default	MinRepTime communicat	e: ting	10 s Bindi No	ec ng Gro	Hea up Wild	rtbeat: card allo	wed
LTE-Services InfoReport (LTE Read F polling of the shall always supported)	Response output	Output per default Tx Prio: Transm after Power	MinRepTime communicat	e: iing d Value [	Bindi No	ec ng Gro rmal 🔀	Hea up Wild	rtbeat: card allo	wed
LTE-Services InfoReport (LTE Read F polling of the shall always	Response output be	COV Output per default Tx Prio:	MinRepTime communicat	e: ting	Bindi No	ec ng Gro rmal 🔀	Hea up Wild	rtbeat: card allo	wed
LTE-Services InfoReport (LTE Read F polling of the shall always supported) 1) Property-Serv	Response output be vice cess):	Output per default Tx Prio: Transm after Power	MinRepTime communicat	e: iing d Value [	Bindi No	ec ng Gro rmal 🔀	Heaup Wild	rtbeat: card allo	wed  v  v  value  value
LTE-Services InfoReport (LTE Read F polling of the shall always supported) Property-Serv (individual ac	Response output be vice cess):	Output per default Tx Prio: Transm after Power	MinRepTime communicat	e: iing d Value [	Bindi No	ec ng Gro rmal 🔀	Heaup Wild	rtbeat: card allo Lov Default V	wed  v  v  value  value
LTE-Services InfoReport (LTE Read F polling of the shall always supported) Property-Serv (individual ac Exception Hand	Response -output be vice ccess): dling:	Output per default  Tx Prio:  Transm after Power  Read only 1)	MinRepTime communicat  High  erup: 2)Storee	e: iing d Value [ Read/W	Bindi No Arite	ec ng Gro rmal ⊠ .ct Valu	Hea up Wild  e  Save	rtbeat:  card allo   Lov  Default \u20f3	wed
LTE-Services InfoReport (LTE Read F polling of the shall always supported) Property-Serv (individual ac Exception Han Special Feature  1) no storage of	Response -output be vice ccess): dling:	Output per default Tx Prio: Transm after Power	MinRepTime communicat  High  erup: 2)Storee	e: iing d Value [ Read/W	Bindi No Arite	ec ng Gro rmal ⊠ .ct Valu	Hea up Wild  e  Save	rtbeat:  card allo   Lov  Default \u20f3	wed
LTE-Services InfoReport (LTE Read F polling of the shall always supported) Property-Serv (individual ac Exception Han Special Feature  1) no storage of supported	Response output be vice cess): dling: the signal	Output per default  Tx Prio:  Transm after Power  Read only 1)	MinRepTime communicated High   erup: 2)Stored  routing) the	e: iing d Value [ Read/W	Bindi No Arite	ec ng Gro rmal ⊠ .ct Valu	Hea up Wild  e  Save	rtbeat:  card allo   Lov  Default \u20f3	wed

## 2.6.4.6 Output signal: LockSignHFDM

**Standard Mode**Not applicable

FB:	HDTRT	LTE Serv	ver Output Name:	LockSignHFDM						datory [
Desc	ription:			_					<u> </u>	otional Z
	•	and HFDI	M Specification							
DPT:	Name	DPT_Loc	kSign	DPT ID	207.10	1 Da	atatype fo	rmat	U <sub>8</sub> B <sub>8</sub>	
Field Description					Sup.	Range	e U	nit	COV	Default
see H	see HFDM specification									
Comr	nunication	):								
Bine	ding Group	o:								
Clas	s		Type				Default			
	eographical									
	plication S	pecific⊠	Apartment.*.*				1.*.*			
	assigned		Broadcast	Configura						
	Address:		IO Type(ID):	\ / /     J					52	
	-Services	` <u>~</u>		MinRepTime		10 s	sec	Hear	beat: 3	3 <sup>2)</sup> min
	oReport	$\bowtie$	Output per default communicating Ring			Rindi	ina Grour	Wilde	ard allow	ved $\square$
	FE Read-R						nding Group Wildcard allowed			
	lling of the		Tx Prio:	High 📙		No	rmal 🛚		Low	
	<del>all always t</del> <del>pported)</del>	<del>)C</del>	Transm after Powe	erup: <sup>2)</sup> Store	d Value	A	ct Value		efault Va	alue 🗌
	perty-Serv ividual acc		Read only	] 1)	Read/V	Vrite				
Exce	otion Hand	lling:						Save a	at Power	down
Spec	al Feature	s:								
1) no	storage of t	he signal	in the HDTRT (only	routing) the	refore r	ead-ac	cess fron	n the F	IDTRT is	not
	pported									
<sup>2</sup> ) trar	smission d	epends or	n reception of the si	gnal (routing	function	nality)				

## 2.6.4.7 Output ForceSignHFDM

### **Standard Mode**

Not applicable

FB:	HDTRT	LTE Se	rver Output Nam	ne: ForceSig	ForceSignHFDM					datory 🔲
									Op	otional 🛚
Desc	ription:									
see c	lause 2.6.1 a	nd HFDI	M Specification							
DPT:	Name D	PT_Ford	eSign	DPT ID	21.101	Da	atatype fo	rmat	B <sub>8</sub>	
Field Description Sup. Range Unit						COV	Default			
see H	IFDM specific	cation								
Comi	munication:									
Bin	ding Group:									
Clas	SS		Type				Default			
	eographical									
Ap	plication Spe	ecific	Apartment.*.*				1.*.*			
Ur	nassigned		Broadcast	Configura	able 🗌					
	Address:		IO Type(ID):	144 (HFDI	M)	Prop	erty ID:		53	
LTE	-Services (e		COV 🛛	MinRepTim		10 s	sec	Hear	tbeat: 3	3 <sup>2)</sup> min
	foReport	$\boxtimes$	Output per defau	It communica	ting	Rindi	ing Group	ο Wildα	ard allov	ved $\square$
	TE Read-Res							VVIIGO	cara anov	
	lling of the ou		Tx Prio:	High 🗌		No	rmal 🔀		Low	
	all always be pported)	<b>.</b>	Transm after Pov	werup: <sup>2)</sup> Store	d Value	□ A	ct Value		efault Va	alue 🗌
	perty-Servic		Read only 1) [	$\neg$	Read/W	/rita				
(ind	ividual acce	ess):	Tread only		i (Cau/ V	THE				
Exce	ption Handli	ng:						Save a	at Power	nwob
Spec	ial Features:									
1) no	storage of the	e signal	in the HDTRT (on	ly routing) the	erefore re	ead-ac	cess fron	n the F	IDTRT is	not
<sub>2</sub> , su	pported									
l <sup>∠)</sup> trar	smission dep	ends or	reception of the	signal (routing	g function	nality)				

## 2.6.4.8 Input TempFlowWaterDemHeatShift

### **Standard Mode:**

υŀ	Name:	i emp⊦iowvvat	erDemHeatSnift	Abbr.:		Mandat	ory	
FB	Name:	HDTRT				Can be	internal	$\boxtimes$
De	scription							
Th	is mandator	y input signal f	rom HDTACT contains	s a correction	value to the l	neating flow	temper	ature
se	tpoint in the	HDTRT. This	shift value is provided	by the HDTA	CT in order to	have an op	otimal flo	)W
			valve positions in the	heating IRC	system of one	apartment	. Handlir	ng of the
inp	out value: se	e clause 2.6.1						
	tapoint Typ							
DF	PT_Name:	DPT_Value_	Tempd					
DF	PT Format:	F <sub>16</sub>			DPT_ID:	9.002		
Fie	eld	Description			Supp.	Range	Unit	Default
						full	K	0
A	cess Type							
<b>*</b>	Input							
	$N \rightarrow this$		$1 \rightarrow \text{this}$					
	Spontaneou	ıs 🛛	Cyclically:		Time	-out:	31min	
	Request		Polling:		Perio	d:		
Co	mmunication	on Type						
•	Group Obj	ect Datapoint				Mandatory	: 🛛	
	Default Gro	up Address:						
Dy	namics	•						
	Power down	n: Save:						
	Power up:	Value:	No initialisation:		efault value:			
			Saved value:					
				R	ead from bus:		<u> </u>	
Ex	ception Ha	ndling						
Sp	ecial Featu	res						
								<u> </u>

### **LTE-HEE Mode Interface:**

FB:	HDTRT	LTE Clie		Temp	FlowWat	erDemHe	atShi	ift			latory 🖂
	<u>-                                      </u>	Input Na	me:							Ор	tional 🗌
	ription:										
			ACT contains								
			provided by the								
			tion of the co								
			AbsHeatMax i								
	ie status 'O e 2.6.1	utOtServi	ce'. This indic	ates t	nat no nea	at is reque	stea.	Handiir	ng of the	input vaiu	ie: see
DPT:		DPT Ten	pHVACRel_Z	7	DPT ID	205.10	1 D	atatype	e format	V <sub>16</sub> Z <sub>8</sub>	
Field	•	_	Description					<u> </u>	Sup.	Unit	Default
Temp	erature		flow tempera	ture s	etpoint sh	ift value			M	K	
Status			standard Sta						М	bitset	
- Out(	OfService		false = shift v	alue	is active,				М		true
			heat i	s req	uested (de	emand)					
			true = shift va	alue is	s void,						
			no he	at der	nand						
- all fla	ags		not supported	d, car	be ignore	ed			NA	bool	
Comr	nunication	1:							<del>-</del>	=	=
Bine	ding Group	):									
Clas	ss		Type				Defa	ıult			
Ge	eographical	$\boxtimes$	Apartment.*.	k			1.*.*				
Ap	plication S	oecific									
Ur	assigned		Broadcast [	]	Configur	able 🗌					•
DP A	Address:		IO Type(ID):		169 (HD	TACT)	Pro	perty ID	):	51	
LTE	-Service (e	event):	InfoReport S	Sniffer	on Bindir	ng Group:		-			
Inf	oReport	$\boxtimes$	Timeout:			31	Min				
LTE	-Service (p	olling):	Read Wildca	rd / D	oon Sniffo	r on Dindi	na Cr	oun:			
Re	ad – Respo	onse	Neau Wiluca	iu / K	esp Sillie	i on binui	ng Gi	oup.	<b>-</b>		
Value	after Pow	er-up:	De	fault	Value 🛚			_	;	Stored Va	lue 🗌
Exce	otion Hand	lling:						Sa	ave at Po	werdown	
Speci	al Feature	s:									
This i	nput can be	internal									

## 2.6.4.9 Input TempRoomDemAbsHeatMax

### **Standard Mode**

DH	Name:	Lem	pRoomDem	<u>ıAbsHeatMax</u>	Abbr.:	<b> </b>			Manda	atory		
FB	Name:	HDT	RT						Can be	e intern	al	
De	scription											
Th	is input sign	al co	ntains the r	esulting maxi	mum room	n heatin	g temp	erature d	emand (ab	solute v	/alue,	
				ure setpoint v								
				om temperati					TRT to the	corres	oondin	ıg
			emand in th	e Heat Distrib	oution Seg	ment. S	ee cla	use 2.6.1				
	tapoint Typ											
	PT_Name:	DP	T_Value_Te	emp								
DF	PT Format:	F <sub>16</sub>						DPT_ID:	9.001			
Fie	eld	De	scription					Supp.	Range	Unit	Defa	ult
									full	°C	Č	3
A	cess Type											
•	Input											
	$N \rightarrow this$			1 → this	$\boxtimes$							
	Spontaneo	us		Cyclic	ally:			Time	-out:	31 mi	n	
	Request			Polling	<del></del> g:			Perio	d:			
Co	mmunicati	on T	уре							_		
<b>♦</b>	Group Ob	ject [	Datapoint						Mandator	y: 🛛		
	Default Gro	oup A	ddress:						•			
Dy	namics											
	Power dow	n:	Save:									
	Power up:		Value:	No initialisat	tion:		Defau	It value:				
		ĺ		Saved value	e: 🗌		Actua	l value (n	ot for input	:):		
			Transmit or	bus (only for	r output):		Read	from bus	(only for ir	iput):		$\neg$
Ex	ception Ha			, ,								
	•											
Sp	ecial Featu	ires										

FB:	HDTRT	LTE Clie Name:	nt Input			datory 🛚 tional 🔲					
Desci	ription:	<del>-</del>	-					ė			
			he resulting max								
			erature setpoint								
			is room temperat					e corresp	onding		
			n the Heat Distri								
DPT:	Name	DPT_Ten	pRoomDemAbs	DPT ID	209.101	Dataty	oe format	$V_{16}B_{8}$	_		
Field			Description				Sup.	Unit	Default		
	RoomDem	Abs	requested temp	erature setpo	oint value		_ M	°C	cs		
Attribu								bool	false		
- Dem	ıValid			alidity of TempRoomDemAbs  M  Also means also "no heat demand")							
				alse means also "no heat demand") t if absolute load priority is requested by the O b							
- Absl	_oadPriority	/		ad priority is	requested	by the	0	bool	false		
OF:	La a d'Dui a cit		HIRC		4 1 1	41 LUDO		l l	6-1		
	LoadPriorit	:y	set if shift load p				0	bool	false		
- ⊨me	rgDem		set if emergency				0	bool	false		
0			protection is req	uested by or	ie or more	HIRC			<u> </u>		
	nunication										
	ding Group	): 	T			D-f!!					
Clas		<u> </u>	Type			Default 1.*.*					
	ographical		Apartment. * .*			.1."."					
	plication S	pecilic	Droodoot 🗆	Canfigura							
	assigned Address:		Broadcast	Configura		Droporty	D.	51			
			IO Type(ID):	170 (HR		Property		อา id Subzon			
	-Service (e oReport	event):	InfoReport Snif Timeout:	iei on bindii		Min	Room an	iu Subzon	le		
			rimeout.		31	IVIIII					
	- <b>Service (p</b> ad – Resp		Read Wildcard /	Resp Sniffe	r on Bindir	ng Group:					
Value	after Pow	erup:	Defau	ılt Value 🛚				Stored Va	lue 🗌		
Excep	otion Hand	lling:				(	Save at Po	werdown			
	al Feature										
This in	nput can be	internal					<u> </u>				

## 2.6.4.10 Input PumpControl

### **Standard Mode**

DF	P Name:	Pun	npControl			Abbr.:					Man	datory		
FB	Name:	HD	ΓRT								Can	be inter	mal	$\boxtimes$
De	escription													
se	e LTE-HEE	Mod	de											
Da	tapoint Ty	ре												
DF	PT_Name:	DF	PT_Switch											
DF	PT Format:	B <sub>1</sub>							DP	T_ID:	1.00	1		
Fie	eld	De	escription						Sup	op. F	Range	Unit	Defa	ault
					se	e LTE-H	EE mo	de						
Ac	cess Type													
<b>*</b>	Input													
	$N \rightarrow this$			$1 \rightarrow th$	is 🗵	3								
	Spontaneo	us			Cyclical	ly:	$\boxtimes$			Time-c	out:	31 r	nin	
	Request				Polling:					Period	:			
C	mmunicat	ion <sup>-</sup>	Гуре											
•	Group Ob	ject	Datapoint							1	Mandat	ory:	$\boxtimes$	
	Default Gro	oup /	Address:											
Dy	namics													
	Power dow	vn:	Save:											
	Power up:		Value:	No in	nitialisatio	n:		Defau	ılt va	alue:			$\boxtimes$	
				Save	ed value:			Actua	ıl val	lue (not	t for inp	out):		
			Transmit o	n bus (	only for c	output):		Read	fron	n bus (d	only for	input):		
Ex	ception Ha	andli	ng											
Sp	ecial Featu	ıres												

#### LTE-HEE mode:

FB:	HDTRT	LTE CI	ient Input Name:	PumpCon	trol				latory □ tional ⊠
Desci	ription:	<u>'</u>						<u> </u>	
currer	nt valve posit	tions) =>	which indicates who this signal may be o IDTRT signal. To be	used to set	the attrib	bute System	PumpRe	q in the	•
DPT:	Name D	PT_Swi	tch	DPT ID	1.001	Datatype	e format	B <sub>1</sub>	
Field			Description				Sup.	Unit	Default
								bool	on
Comr	nunication:						-	<u>-</u>	3
Bind	ding Group:								
Clas	S		Type			Default			
Ge	eographical		Apartment. * .*			1.*.*			
	plication Spe	ecific							
	assigned		Broadcast	Configurat					
	Address:		IO Type(ID):	169 (HDT		Property ID		52	
	-Service (ev	/ent <u>):</u>	InfoReport Sniffer	on Binding	Group:		Room an	d Subzon	е
	oReport	$\boxtimes$	Timeout:		31	Min			
	-Service (po ead – Respor		Read Wildcard / Re	esp Sniffer	on Bindiı	ng Group:			
Value	after Powe	rup:	Default \	/alue ⊠			9	Stored Val	lue 🗌
Excep	otion Handli	ing:				S	ave at Po	werdown	
Speci	al Features	:							
This in	nput can be	internal		•		•			

#### 2.6.4.11 Input StatusHPM

#### **Standard Mode**

Not applicable

#### LTE-HEE mode:

- same as StatusHPM input on HZC
- the datapoint value is transparently routed to the Apartment zone => StatusHPM output

### 2.6.4.12 Input LockSignHPM

#### **Standard Mode**

Not applicable

#### LTE-HEE mode:

- same as LockSignHPM input on HZC
- the datapoint value is transparently routed to the Apartment zone => LockSignHPM output

### 2.6.4.13 Input ForceSignHPM

#### **Standard Mode**

Not applicable

- same as ForceSignHPM input on HZC
- the datapoint value is transparently routed to the Apartment zone => ForceSignHPM output

### 2.6.4.14 Input LockSignHFDM

#### **Standard Mode**

Not applicable

#### LTE-HEE mode:

- same as LockSignHFDM input on HZC
- the datapoint value is transparently routed to the Apartment zone => LockSignHFDM output

### 2.6.4.15 Input ForceSignHFDM

#### **Standard Mode**

Not applicable

- same as ForceSignHFDM input on HZC
- the datapoint value is transparently routed to the Apartment zone => ForceSignHFDM output

## 2.6.4.16 Input TempOutside

Standard Mode: see description in functional Block BOC

FB:	HDTRT	LTE Clie	nt Input Name:	TempOut	side				datory 🗌
Dagari	!m4! a.m.							Οp	lionai 🔼
Descri		fue					f = = f   =		4 ! - 4
			a remote outside ter			an be used	tor flow te	mperature	e setpoint
			a heat curve. See			2 15 1 1		\	
DPT:	Name	DPI_lem	pHVACAbs_Z	DPT ID	205.100	)  Dataty	oe format	V <sub>16</sub> Z <sub>8</sub>	D ( 1)
Field	<u> </u>		Description				Sup.	Unit	Default
	Dutside		temperature value	-,,,			M	°C	<del></del> 
Status			standard Status att				M	bitset	
	)fService		void sensor value t				M	bool	false
- Fault			sensor failure true				M	bool	false
- Overridden sensor value overridden true / false O							bool	false	
								bool	false
- AlarmUnAck alarm acknowledgement status ack / unack O boo									unack
								bool	
	nunication								
	ing Group	): 	_			I =			
Class			Туре			Default			
	ographical								
	olication S	pecific⊠	OutsideSensorZon			1			· · · · · · · · · · · · · · · · · · ·
	assigned		Broadcast	Configural			_		
	ddress:		IO Type(ID):	320 (OTS		Property	ID:	51	
	Service (e		InfoReport Sniffer	on Binding					
	Report		Timeout:		31	Min			
	Service (p		Read Wildcard / Re	esp Sniffer	on Bindir	na Group:			
	ad – Respo					J			
	after Pow	•	Default \	/alue ⊠				Stored Va	
	tion Hand						Save at Po		
			pany specific defau						
			d. The outside temp	perature va	lue from	another O	ΓS (differe	nt zone) n	nay also
			behavior)						
	Special Features:								
This in	nis input can be internal								

## 2.6.4.17 Input ActPosDemAbsHeatMax

### **Standard Mode**

Not applicable

(not useful)

FB:	HDTACT	LTE Client Input ActPosDemAbsHeatMax Name:							datory 📙 otional 🔯
Desc	ription:	1							
		IRDM co	ntains the maxim	num heating ac	tuator po	sition den	nand of the	linked HI	RC
			lve position setp						
			ad priority and er	mergency heat	demand	attributes	in the		
Temp			IDTRT signal						
DPT:	Name [	PT_ActF	PosDemAbs	DPT ID	207.104	Dataty	pe format	U <sub>8</sub> B <sub>8</sub>	
Field			Description				Sup.	Unit	Default
ActPc	sDemAbs		Absolute actuat		nand		M	%	cs
			(setpoint, valve	linearized)					
Attribu				_					
- Dem	ıValid		Validity of ActPo				M	bool	false
A I I	ID-iit		(false means als			l la 4la .a		11	6-1
- Absi									false
Chiff	:LoadPriority	,	HIRC set if shift load p	oriarity in roque	oted by	the HIDC	0	bool	false
	ergDem		set if emergence				0	bool	false
- [1116	igDem		protection is red					DOOI	laise
Comr	nunication:		proteotion is rec	desica by one	OI IIIOIC	111110			<u> </u>
	ding Group:								
Clas		•	Туре			Default			
Ge	eographical	$\square$	Apartment. *. *			1.*.*			
	plication Sp	ecific							
Ur	assigned		Broadcast	Configurat	ole 🔲				·
DP	Address:		IO Type(ID):	170 (HRD	M)	Property	ID:	52	
LTE	-Service (ev	vent):	InfoReport Snif	fer on Binding	Group:		Room an	d Subzon	ie
	oReport	$\boxtimes$	Timeout:		31	Min			
	-Service (pe		Read Wildcard	/ Resp Sniffer	on Rindir	od Gronn.			
	ead – Respo				JII DIIIGII	ig Group.			
Value	after Powe	rup:	Defa	ult Value 🛚			(	Stored Va	lue 🗌
Exce	ption Handl	ing:				,	Save at Po	werdown	
	<del></del>								
	ecial Features:								
This is	nput can be	internal							

## 2.6.4.18 Parameter Apartment

FB:	HDTRT	Proper	ty	Name ( <u>Server</u> ):	Α	partment							datory 🖂
Desc	ription:	<u> </u>		_									
LTE z	one: Apart	ment nu	mk	per									
DPT:	Name	DPT_U	co	untValue8_Z		DPT ID	202.002	)	Dat	atype format	: L	$J_8Z_8$	
Field			D	escription				S	up.	Range	J	nit	Default
Coun	terValue		Α	partment number					M	1126	<u> </u>		1
Statu	S										bi	tset	
	OfService		Z	one active /inactiv	e				O	true/false			false
- all o	ther flags		n	ot supported, fixed	d t	o '0'			١A		ļ.,		
Comr											er	num	
	nalWrite								M				
	OSV & Res			et zone inactive / a	ac	tive			O				
- all o	ther comm	ands	n	ot supported				١	NA_				
Comi	nunicatior	ո։											
DP	Address:			IO Type(ID):		151 (HDT	RT)	P	rope	rty ID:	10	01	
(in t	he server)			Start-Index:		1		Ν	° of	elements	1		
Pro	perty acce	ess:		Read only			Read/W	rite	<del>)</del>	$\boxtimes$			
Pro	tection			Read level				W	/rite	level			
Exce	ption Hand	dling:	٧	alue after Poweru	ıp:	Stored '	Value ⊠	Α	ct Va	alue 🔲 De	efau	ult Value	e 🗌
Spec	ial Feature	es:											
HDTF	RT DP's are	not LTE	E 0	communicating in t	the	e Apartmer	nt zone if	zo	ne is	'OutOfServ	ice'	· .	

### 2.6.4.19 Parameter DistrSegmH

FB: HDTRT Prop	erty Name ( <u>Server</u> ): Dis	strSegmH				datory 🔯
Description:	<del>-</del>					
LTE zoning information	: link with the HFDM in th	ne corresponding I	Heat D	istribution Se	gment	
<b>DPT</b> : Name DPT	UcountValue8_Z	OPT ID 202.002	Dat	atype format	$U_8Z_8$	
Field	Description		Sup.	Range	Unit	Default
CounterValue	Heat Distribution Segm	nent number	М	131		1
Status					bitset	
- OutOfService	zone active /inactive		Ο	true/false		false
- all other flags	not supported, fixed to	'0'	NA			[
Command					enum	
- NormalWrite			M			
- SetOSV & ResetOS	set zone inactive / active	/e	0			
- all other commands	not supported		NA			
Communication:						
DP Address:	IO Type(ID): 1	51 (HDTRT)		erty ID:	104	
(in the server)	Start-Index: 1		N° of	elements	1	
Property access:	Read only	Read/W	rite	$\boxtimes$		
Protection	Read level	-	Write	level		
<b>Exception Handling:</b>	Value after Powerup:	Stored Value 🖂	Act V	alue 🔲 De	fault Valu	e 🗌
Special Features:						
HDTRT DP's on the H	eat Distribution Segment a	are not LTE comm	unicati	ng if zone is '	OutOfSer	vice'

### 2.6.4.20 Parameter OutsideSensorZone

FB:	HDTRT	Proper	ty Name ( <u>Server</u> ):	0	utsideSen	sorZone	)			datory [
									Op.	tional 🛚
	ription:									
			ne link with an Outsi	ide	e Temperat	ure Sens	or, Win	id Speed sen	sor and S	un
Intens	ity Sensor									
DPT:	Name	DPT_U	countValue8_Z		DPT ID	202.002	Dat	atype format	$U_8Z_8$	
Field			Description				Sup.	Range	Unit	Default
Count	erValue		Outside sensor zor	ne	number		M	131		1
Status	3								bitset	
- Out	OfService		zone active /inactiv	/e			0	true/false		false
- all of	ther flags		not supported, fixe	d t	o '0'		NA	[]		
Comn	nand								enum	
- Norr	nalWrite						M			
- SetC	SV & Res	etOSV	set zone inactive /	ac	tive		Ο			
- all of	ther comm	ands	not supported				NA			
Comr	nunication	<b>า</b> :	•			-		-		
DP /	Address:		IO Type(ID):		151 (HDTI	RT)	Prope	rty ID:	105	
(in t	he server)		Start-Index:		1		N° of	elements	1	
Pro	perty acce	ess:	Read only [			Read/W	rite	$\boxtimes$		
Prot	ection		Read level				Write	level		
Excep	otion Hand	dling:	Value after Poweru	ıp:	Stored \	√alue ⊠	Act Va	alue 🔲 De	fault Value	e 🗌
Speci	al Feature	es:		_						
HDTR	RT is not us	ing exter	rnal outside sensor	(s)	if zone is	'OutOfSe	ervice'			

## 2.6.4.21 Parameter TempFlowWaterSetpDefault

FB: HDTRT Property Name TempFlow (Server):					mpFlowW	/aterSetp	De	efaul	t		datory 🗌 otional 🏻
Desci	ription:		·	-							
This c	ptional cor	nfiguratio	n parameter is use	ed fo	or the flow	, tempera	atur	e de	mand calculat	tion (mech	nanism
using	a flow tem	p. correc	tion value depend	ent	of the val	ve positio	ns)	)			
DPT:	Name	DPT_H\	/ACTempAbs_Z		DPT ID	205.10	0	Dat	atype format	$V_{16}Z_{8}$	
Field			Description				S	Sup.	Range	Unit	Default
Temp			temperature value	e			<u></u>	M	cs	° C	cs
Status	3									bitset	
- Out	OfService		setpoint active /in	acti	ve			Ο	true/false		false
- all of	ther flags		not supported, fix	ed t	o '0'		<u> </u>	NA			
Comn	nand									enum	
- Norr	nalWrite							M			
- SetC	SV & Res	etOSV	set limitation para	ame	ter inactiv	e / active		Ο			
- all of	ther comm	ands	not supported					NA			
Comr	nunication	า:							-		=
DP A	Address:		IO Type(ID):		151 (HD	rt)	F	rope	rty ID:	111	
(in t	he server)		Start-Index:		1		N	ا° of و	elements	1	
Pro	perty acce	ess:	Read only			Read/V	Vrit	е	$\boxtimes$		
Prot	ection		Read level				٧	Vrite	level		
Excep	otion Hand	dling:	Value after Powe	rup:	Stored	Value 🗵	] /	\ct Va	alue 🔲 De	fault Valu	e 🗌
Speci	al Feature	es:									
Setpo	int value is	activate	d or deactivated b	y th	e 'OutOfS	ervice' S	tatı	us			

## 2.6.4.22 Parameter SetpointMode

FB:	HDTRT	Prope	erty Name ( <u>Server</u> ):	Setpoint	Mode				ndatory 🗌 ptional 🔯
Descr	iption:	ë		-				<del>- i</del>	
			calculated using outs			l a heat	ing curve		
I nis d			ds to the SM paramet	_	DIS [13]				
DPT:	Name	DPT_In	outSource	DPT ID	1.014	Dat	atype format	B <sub>1</sub>	
Field			Description			Sup.	Range	Unit	Default
							fixed /		calculate
							calculated		d
Comn	nunication	n:				_			
DP A	Address:		IO Type(ID):	151 (HDT	RT)	Prope	rty ID:	115	
(in t	he server)		Start-Index:	1		N° of e	elements	1	
Prop	perty acce	ss:	Read only		Read/W	rite/	$\boxtimes$		
Prot	ection		Read level			Write	level		
Excep	tion Hand	lling:	Value after Powerup	: Stored	Value 🛚	Act Va	alue 🔲 🏻 De	fault Valu	ıe 🗌
Speci	al Feature	s:							
		•			•				•

## 2.6.4.23 Diagnostic data TempFlowWaterSetpEff

FB:	HDTRT	Proper	ty Name ( <u>Server</u> ):	T	empFlowV	VaterSet	pΕ	ff			Mandatory ☐ Optional ☒	
Desci	ription:											
Actua	I flow temp	erature s	setpoint calculated b	у	the HDTR	Γ=> setp	oir	nt va	lue to be copi	ed in the		
			HDTRT signal			·			·			
DPT:	Name	DPT_H\	/ACTempAbs_Z		DPT ID	205.100	)	Dat	atype format	$V_{16}Z_{8}$		
Field			Description				S	up.	Range	Unit	Default	
Temp			temperature value					M	cs	° C	CS	
Status	3									bitset		
- Out	OfService		=> no setpoint (e.g					0	true/false		false	
- Ove	rridden		external override of the setpoint					Ο	true/false		false	
- all of	ther flags		not supported, fixed	d t	o '0'		١	ΙA				
Comn	nand		standard Comman	d f	ield					enum		
- Ove	rride & Rele	ease	override and release setpoint				Ο					
- all of	ther comma	ands	not supported				١	NA_				
Comr	nunication	<b>1</b> :										
DP A	Address:		IO Type(ID):		151 (HDT	RT)	Р	rope	rty ID:	110		
(in t	he server)		Start-Index:		1		Ν	° of e	elements	1		
Pro	perty acce	ss:	Read only			Read/W	rite	9	∑ <sup>1)</sup>			
Prot	ection		Read level				W	/rite	level			
Excep	otion Hand	lling:	Value after Poweru	ıp:	Stored '	Value 🗌	Α	ct Va	alue 🗵 🏻 De	fault Value	e 🗌	
Special Features:												
1) opti	onal Write	access fo	or Override / Releas	se	function or	nly						

## 2.6.4.24 Diagnostic data TempFlowWaterDemHeatShiftAct

FB:	HDTRT	Propert (Server	ty Name ):	Temp	FlowWate		datory 🗌 ptional 🖂			
Desci	ription:	<u> </u>		=					· ·	
Actua	I local copy	of the T	empFlowWate	rDemH	leatShift in	out value	from I	HDTACT		
DPT:	DPT: Name DPT_TempHVACRel _Z DPT ID 205.101 Datatype format \							$V_{16}Z_{8}$		
Field			Description				Sup.	Range	Unit	Default
Temp			flow temperatu	ure setp	ooint shift v	alue	М	full	K	<b></b>
Status	3								bitset	
- OutOfService			shift value is not available					true/false		true
- all of	ther flags		not supported	not supported, fixed to '0'						
Comr	nunicatior	า:				-		•		
DP A	Address:		IO Type(ID):		151 (HDT	RT)		erty ID:	112	
(in t	he server)		Start-Index:		1		N° of	elements	1	
Pro	perty acce	ess:	Read only	$\boxtimes$		Read/W	rite			
Prot	ection		Read level				Write	level		
Exce	otion Hand	dling:	Value after Po	werup:	Stored '	Value □	Act V	alue 🔲 De	fault Value	e 🛛
value	is 'OutofSe	ervice' if t	the signal from	HDTA	CT is not a	vailable d	or in ca	ise of 'no dem	and'	
Special Features:										
				•						

## 2.6.4.25 Diagnostic data TempRoomDemAbsHeatMaxAct

FB:	HDTRT	Propert	y Name	Templ	RoomDen	nAbsHea	tMaxA	ct	Mandatory	
		(Server	):						Op	otional 🛚
Desci	iption:								_	
Actua	l local copy	of the T	empRoomDen	nAbsHe	eat input fr	om HRDN	√ used	for flow temp	erature se	etpoint
calcul	ation									
DPT:	PT: Name DPT_HVACTempAbs_Z DPT ID 205.100 Datatype format								$V_{16}Z_{8}$	
Field			Description				Sup.	Range	Unit	Default
Temp			temperature v	alue			M	full	° C	
Status	3								bitset	
- Out	OfService			emp value is not available			0	true/false		true
- all of	her flags		not supported	I, fixed to '0'			NA			
Comr	nunication	n:				•				
DP A	Address:		IO Type(ID):		151 (HDT	RT)	Prope	rty ID:	113	
(in t	he server)		Start-Index:		1		N° of	elements	1	
Pro	perty acce	ss:	Read only	$\boxtimes$		Read/W	'rite			
Prot	ection		Read level				Write	level		
Exception Handling: Value after Powerup: Stored Value Act Value Def						fault Value	e 🛛			
Speci	Special Features:									
value	is 'OutofSe	ervice' if t	he signal from	HRDM	l is not ava	ailable or i	in case	of 'no demar	nd'	

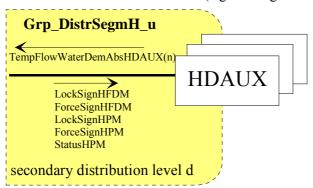
## 2.6.4.26 Diagnostic data TempOutsideAct

FB: I	HDTRT	Propert	ty Name ( <u>Server</u> ):	T	empOutsi	deAct					datory
										O	ptional 🛚
Descri	•										
			utside temperature								
			mpOutside input or	a l	hard-wired	sensor w	/hich	m	ay be overrid	lden by a	tool for
	functions										
DPT:	Name	DPT_H\	/ACTempAbs_Z		DPT ID	205.100		)at	atype format	$V_{16}Z_{8}$	
Field			Description				Sup	٥.	Range	Unit	Default
Temp			temperature value				M		cs	° C	cs
Status										bitset	
- OutO	fService		TempOutsideAct is	n	ot availabl	е	Ο		true/false		cs
- Overr	idden		override of the tem				Ο		true/false		false
- Fault			temperature corrup	ote	d, sensor t	failure	M	M true/false			false
- InAlar	rm		critical limit is reach	_	-		0		true/false		false
- Alarm	nUnAck		alarm acknowledge	em	nent status		Ο		ack/unack		unack
- all oth	ner flags		not supported, fixe	d t	:o '0'		N/	١			
Comma	and		standard Comman	-						enum	
- Overr	ide & Rele	ease	override and releas	se	temperatu	re value	Ο				
- Alarm	nAck		alarm acknowledge	Э			Ο				
- all oth	ner comma	ands	not supported				NA	١			
Comm	unication	:				•			-		•
DP A	ddress:		IO Type(ID):		151 (HDT	RT)	Pro	ре	rty ID:	114	
(in th	e server)		Start-Index:		1		N°	of (	elements	1	
Prop	erty acce	ss:	Read only			Read/W	rite		∑ ¹)		
Prote	ection		Read level				Wri	te	level		
Except	tion Hand	ling:	Value after Poweru	ıp:	Stored	Value 🗌	Act	: Va	alue 🛛 🏻 De	fault Valu	ie 🗌
Specia	al Feature	s:									
1) optio	nal Write	access fo	or Alarm acknowled	ge	ement only						

#### 2.7 **Functional Block: Auxiliary Heat Demand (HDAUX)**

#### 2.7.1 **Functional Specification**

The HDAUX connects an auxiliary "multi-purpose" heat consumer to the heat distribution system. The HDAUX can be used to model very specific / "exotic" heat consumers which do not belong to the category "Room Heating" or "Domestic Hot Water Control" (e.g. heating of a swimming pool etc.).



#### 2.7.1.1 Flow temperature demand

The HDAUX is connected to one Heat Distribution Segment. The HDAUX calculates from the flow temperature setpoint for its zone the corresponding flow temperature demand.

TempFlowWaterDemAbsHDAUX This mandatory output signal contains the calculated flow temperature demand (absolute value) of the HHDAUX which is sent to the HFDM in the heat Distribution Segment.

> Calculation of the flow temperature demand (and any control loop mechanism for the flow temperature control) is completely company-specific and not part of this specification.

The signal contains also attributes for load priority management (see also chapter 2.2.1.8), emergency heat demand and control of a common system pump in the Heat Distribution Segment (see also chapter 2.2.1.9)

#### 2.7.1.2 Usage of StatusHPM by the HDAUX

The signal StatusHPM which is provided by the HPM / HFDM informs the HDAUX e.g. if the heat production is on and is able do provide energy. This information may be used in the HDAUX for any control loop or optimization and "learning-functions". These functions are company-specific.

### 2.7.1.3 Usage of LockSignHPM and ForceSignHPM by the HDAUX

Due to the nature of the HDAUX the reaction to locking and forcing signals from HPM is manufacturer specific and depending on the specific application of the HDAUX. See document [09]

Usage of these signals is an optional feature of the HDAUX

#### 2.7.1.4 Usage of LockSignHFDM and ForceSignHFDM in the HDAUX

same procedure as for LockSignHPM and ForceSignHPM

#### 2.7.1.5 Load Priority Management

Absolute or shift load priority can be requested by the HDAUX by setting the attributes 'AbsLoadPriority' or 'ShiftLoadPriority' in the TempFlowWaterDemAbsHDAUX signal. This is an optional feature of the HDAUX

See also Load Priority Management in the HZC, chapter 2.2.1.8 and document [09]

#### 2.7.1.6 Sensors and actuators

The HDAUX may use any sensor or actuator which is necessary for its local functionality. These I/O are manufacturer specific and not specified in this document.

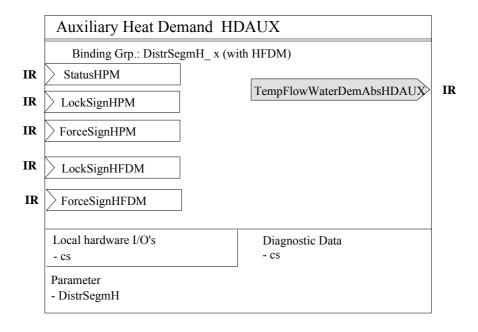
#### 2.7.2 Constraints

IMPORTANT: reporting of the Heat Demand signal TempFlowWaterDemAbsHDAUX by the HDAUX can <u>today</u> not be implemented in Standard Mode because the necessary compound HVAC DPT for runtime-interworking is not yet available in Standard Mode

Therefore for the time being only LTE implementations of the HDAUX functional block offer a link to a demand dependent heat distribution (HFDM) and heat production system (HPM).

HDAUX implementations in Standard Mode are currently not meaningful.

#### 2.7.3 Functional block diagram



## 2.7.4 Datapoint description

#### **2.7.4.1** Overview

Data Point	Description	Data Point Type	DPT N°
Outputs			
TempFlowWaterDem AbsHDAUX	Flow temperature demand of the HDAUX to be sent to the allocated HFDM	DPT_ TempFlowWaterDemAbs	210.100
Inputs			
StatusHPM	Status information from 'Producer Manager'	DPT_StatusHPM	209.100
ForceSignHPM	Forcing signal from HPM due to overheat, to force the consumers to consume energy	DPT_ForceSign	21.100
LockSignHPM	Locking signal from HPM due to boiler overload, to force the consumers to reduce energy consumption	DPT_LockSign	207.101
ForceSignHFDM	Forcing signal from HFDM in the Heat Distribution Segment	DPT_ForceSign	21.100
LockSignHFDM	Locking signal from HFDM in the Heat Distribution Segment	DPT_LockSign	207.101
Parameters			
DistrSegmH	LTE zone: number of the Heat Distribution Segment	DPT_UcountValue8_Z	202.002
Diagnostic Data			

			STANDARD MODE	<b>Е</b> хте <b>М</b> с	
		Basic FB	S-Mode	Standard Mode Interface	LTE-Mode
Outputs	TempFlowWaterDem AbsHDAUX	<b>NA</b> 1)	NA	NA	M
Inputs	StatusHPM	<b>NA</b> 1)	NA	NA	О
	ForceSignHPM	<b>NA</b> 1)	NA	NA	О
	LockSignHPM	<b>NA</b> 1)	NA	NA	О
	ForceSignHFDM	<b>NA</b> 1)	NA	NA	О
	LockSignHFDM	<b>NA</b> 1)	NA	NA	О

<sup>&</sup>lt;sup>1)</sup> the information is NA in the Basic FB and all other modes because the datapoint type is <u>today</u> not yet available in standard mode. Splitting of DPT is not possible because of necessary data consistency

Table 16: HDAUX Runtime Interworking - dependence on Configuration Modes

		Support
Parameter	DistrSegmH	M

**Table 17: HDAUX LTE specific Properties** 

	Support
Parameter	
Diagnostic Data	

Table 18: HDAUX Standard Properties of Interface Objects (or memory mapped DP)

## 2.7.4.2 Output TempFlowWaterDemAbsHDAUX

### **Standard Mode**

Not applicable

FB:	HDAUX	LTE S	Server Output Name:	TempFlowWa	aterDen	nAbsDAUX		Mandatory ⊠ Optional □		
Dosc	ription:	<u></u>		_				Орі	ionai 🗀	
		al conta	ins the calculated flow to	amperature der	mand (a	heolute vali	ue) of t	he HDAI	IV It ic	
sent t	o the HFDN	∕l in the	corresponding Heat Dis	stribution Segm	ent					
DPT:	Name		empFlowWaterDemAbs	DPT ID 2	10.100			at V <sub>16</sub> B <sub>10</sub>		
Field		]	Description		Sup.	Range	Unit	COV	Default	
Temp	FlowDem	r	equested flow temperati	ure	М	full temp.	°C	2	cs	
						range	]	1		
Attribu	utes									
- Dem	nValid	\	Validity of TempFlowDer	n	M	true/false	bool	Υ	false	
		(	false means also "no de	mand")						
- Absl	_oadPriority	/ 8	set if absolute load priori	ty is	0	true/false	bool	Υ	false	
	•	r	requested by the HDAU							
- Shift	LoadPriorit		set if shift load priority is		0	true/false	bool	Υ	false	
		t	he HDAUX							
- Max	TempLimit	5	set if flow temp. in the Di	stribution	0	true/false	bool	Υ	false	
	•		Segment must be limited	I to max.						
		\	/alue							
- Min	ΓempLimit	f	or cold water only		NA	false	bool	N	false	
- DHV	VReq		Heat demand from DHW	•	0	true/false	bool	N	false	
- Roo	mCtrlReq	H	Heat demand from Roon	n Heating	0	true/false	bool	N	false	
- Vent	tReq .		Heat demand from Venti		0	true/false	bool	N	false	
- Aux	AllSeasonF	Reg	Heat demand from auxili	ary heat	0	true/false	bool	N	false	
			consumer, all season red							
- Syst	emPumpR	eq r	equest for water circulat	ion in the	0	true/false	bool	Υ	false	
			distribution segment (cor	mmon system						
			oump on)	-						
- Eme	rgDem	8	set if emergency heat de	mand for e.g.	0	true/false	bool	Υ	false	
		f	rost protection is reques	st protection is requested by the						
		H	HDAUX							
- DHV	VLegioReq	f	or DHW only		NA	false	bool	N	false	
Comr	nunication	):				<del>-</del>			-	
Bine	ding Group	<b>)</b> :								
Clas	SS		Туре			Default				
Ge	eographical		]							
Ap	plication S	pecific	☑ DistrSegmH			1				
Ur	assigned		Broadcast □	Configurable [						
DP A	Address:		IO Type(ID):	145 (HDAUX)	Pro	perty ID:	5′	1		
LTE	-Services	(event)	): COV 🛛 M	inRepTime:		sec	Heartb	eat: 1	5 min	
Inf	oReport	$\boxtimes$	Output per default co	ommunicating	Bin	ding Group	Wildca	rd allowe	ed 🔲	
(L	ΓΕ Read-R	espons	e Tx Prio:	High	N	Iormal 🖂		Low		
	lling of the									
sh	all always b	oe -	Transm after Powert	up: Stored Valu	ıe 🗌	Act Value	🛛 De	fault Valu	ле 🗌	
	pported)									
	perty-Serv		Read only	Read	d/Write					
•	ividual acc		rtcad only	rtcat	a/ vviite					
Exce	otion Hand	lling:				(	Save at	Powerdo	own 🗌	
Speci	ial Feature	s:								

### 2.7.4.3 Input StatusHPM

#### **Standard Mode**

Not applicable

#### LTE-HEE mode

see HZC, chapter 2.2.4.11

### 2.7.4.4 Input LockSignHPM

#### **Standard Mode**

Not applicable

#### LTE-HEE mode

see HZC, chapter 2.2.4.12

### 2.7.4.5 Input ForceSignHPM

#### **Standard Mode**

Not applicable

#### LTE-HEE mode

see HZC, chapter 2.2.4.13

#### 2.7.4.6 Input LockSignHFDM

#### **Standard Mode**

Not applicable

#### LTE-HEE mode

see HZC, chapter 2.2.4.14

### 2.7.4.7 Input ForceSignHFDM

#### **Standard Mode**

Not applicable

#### LTE-HEE mode

see HZC, chapter 2.2.4.15

## 2.7.4.8 Parameter DistrSegmH

FB:	HDAUX	Proper	ty Name ( <u>Server</u> ):	D	istrSegmF	ł				datory 🛚
Desci	ription:	<u> </u>		_						<u> </u>
LTE z	oning infor	mation :	link with the HFDM	in	the corresp	ponding l	Heat D	istribution Se	gment	
DPT:	Name	DPT_U	countValue8_Z		DPT ID	202.002	Da	tatype format	$U_8Z_8$	
Field			Description				Sup.	Range	Unit	Default
Count	erValue		Heat Distribution S	eg	ment numb	per	М	131		1
Status	3								bitset	
	OfService		zone active /inactiv	zone active /inactive				true/false		false
- all o	ther flags		not supported, fixe	d t	o '0'		NA			
Comn	nand								enum	
- Norr	nalWrite						M			
	OSV & Res		set zone inactive / active							
- all of	ther comm	ands	not supported				NA			
Comr	nunicatior	<b>า</b> :				_				
DP A	Address:		IO Type(ID):		145 (HDAI	UX)	Prope	erty ID:	101	
(in t	he server)	)	Start-Index:		1		N° of	elements	1	
Pro	perty acce	ss:	Read only			Read/W	rite	$\boxtimes$		
Prot	ection		Read level				Write	level		
Exce	otion Hand	dling:	Value after Poweru	ıp:	Stored \	∕alue ⊠	Act V	alue 🔲 De	fault Value	e 🗌
Special Features:										
HDAL	JX DP's on	the Hea	t Distribution Segme	en	t are not Lī	TE comm	unicat	ing if zone is '	OutOfSer	vice'