SIEMENS

UP 258D31, UP 258D41, UP 258D51, UP 258D61

Presence detector WIDE

Application program description

A6V13945799 _en--_d
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Supplementary information

Purpose of the application program description

The application program description contains detailed information on the parameters and communication objects of the ETS application program as well as a description of the functions that can be set via the different parameters.

Target audience of the application program description

The application program description is intended for people who have attended an ETS course and want to commission or reconfigure the UP 258D31, UP 258D33, UP 258D41, UP 258D51 or UP 258D61.

Product documentation and support

Product documentation

Documents related the product, such as operating and installation instructions, application program description, product database, additional software and CE declarations can be downloaded from the following website:

http://www.siemens.com/gamma-td

Frequently asked questions

For frequently asked questions about the product and their solutions, see:

https://support.industry.siemens.com/cs/products?dtp=Faq&mfn=ps&lc=en-WW

Support

Contact details for additional questions relating to the product:

Tel.: +49 89 9221-8000

http://www.siemens.com/supportrequest

Content

1 Information on the presence detectors and the application programs

Product family: Physical sensors

Product type: Motion detector

Manufacturer: Siemens

This documentation describes all functions, although not all functions are available in all devices.

	Presence Detector WIDE UP 258D31 (white) **Presence Detector WIDE UP 258D33 (black)**	**Presence Detector WIDE pro UP 258D41**	**Presence Detector WIDE multi UP 258D51**	**Presence Detector WIDE DualTech UP 258D61**
Order number (MLFB)	5WG1258-2DB31 (white) 5WG1258-2DB33 (black)	5WG1258-2DB41	5WG1258-2DB51	5WG1258-2DB61
Application			07 B0 CO Presence Detector WIDE multi 9A1205	07 B0 CO Presence Detector WIDE DualTech 9A0F05
Temperature sensor	•	•	•	•
Temperature controller	•	•	•	•
Humidity sensor		•	•	
Humidity controller		•	•	
CO2 sensing			•	
Air quality controller			•	
Presence detector	•	•	•	•
Brightness measuring	•	•	•	•
2-point brightness controller	•	•	•	•
Constant light level controller	•	•	•	•
Calculator	•	•	•	•
Threshold monitoring	•	•	•	•
Dew point calculation		•	•	
Ultrasound				•
Comparator	•	•	•	•
IR decoder	•	•	•	•
Configurable sensitivity	•	•	•	•
Configurable sectorization	•	•	•	

2 Functional description

The application programs „07 B0 CO Presence Detector WIDE multi 9A1205“, „07 B0 CO Presence Detector WIDE 9A1005“, „07 B0 CO Presence Detector WIDE DualTech 9A0F05“ and „07 B0 CO Presence Detector WIDE pro 9A1105” can be used for the corresponding KNX devices in the “Using the application program” section. These are briefly described below.

The „Presence Detector WIDE UP 258D31“, „Presence Detechtor WIDE UP 258D33“, „Presence Detector WIDE pro UP 258D41“, „Presence Detector WIDE multi UP 258D51“ and „Presence Detector WIDE DualTech UP 258D61“ are KNX devices that contain multiple sensors and controllers. They use KNX to communicate with actuators or other KNX devices. They have been designed for installation on the ceiling.

The presence detectors are equipped with an integrated brightness sensor and, depending on the model, one or more HVAC sensors.

All variants record brightness and temperature and thus control not only the lighting systems but also ventilation and heating systems. The „Presence Detector WIDE pro UP 258D41“ also controls the humidity in the room, and the „Presence Detector WIDE multi UP 258D51 “ additionally controls the air quality. Every HVAC sensor has its own controller.

The „Presence Detector WIDE UP 258D31“, „Presence Detector WIDE UP 258D33“, „Presence Detector WIDE UP pro 258D41“ and „Presence Detector WIDE multi UP 258D51“ detect presence via PIR sensors and the “Presence Detector WIDE DualTech UP 258D61“ uses ultrasound to detect a presence.

Additional functions of the presence detectors of all variants are:

Sensors

The „Presence Detector WIDE UP 258D31“, „Presence Detector WIDE UP 258D33“, „Presence Detector WIDE UP pro 258D41“ and “Presence Detector WIDE multi UP 258D51“ have 4 PIR sensors. The PIR sensors can be deactivated individually in order to reduce the area recorded in a targeted manner. The “Presence Detector WIDE DualTech UP 258D61“ offers presence detection by means of ultrasound and an additional PIR sensor.

The sensitivity of the presence detector can be configured using the ETS for both PIR and ultrasound in order to adapt it flexibly to different situations. This ensures reliable detection and avoids false positives.

How the presence detector works

The detector has three independent function blocks (evaluation units) with up to four output objects each. Depending on how the parameters are configured, these communication objects can be used to each send one or two telegrams on KNX at the end of a detected movement. The values of the communication objects are set via corresponding parameters for each function block (presence detector, presence detector for HVAC or subordinate).

HVAC presence detector

The detector can be used to control HVAC applications.

This function can be used, for example, to switch systems used for heating, ventilation and air conditioning (HVAC) of the room from "pre-comfort mode" when the room is not in use for a short time to "comfort mode" when the room is in use and back to "pre-comfort mode" after the room is vacated. The evaluation is brightness-independent and according to a special evaluation of the detection.

Presence detector – manager-subordinate

The detector can be used as a standalone device, master or secondary (subordinate) detector.

Depending on the requirements, additional presence detectors can be connected as “slave connectors” to the “main detector” via KNX in order to extend the presence detection area or cover larger areas. The “subordinate detectors” only supply motion information to the main detector.

Presence detector - lock sensor and output

There are two options for blocking the operating modes “presence detector” and “presence detector for HVAC:” Sensor and/or output. The “subordinate” operating mode merely has a sensor lock.

The difference is that the response of the channel when activating or deactivating the output block can be configured.

Brightness measuring - can be calibrated via KNX

The presence detector has a light sensor. The measured value for indirect measurement can be calibrated so that it can be adapted to the respective installation location. The brightness sensor can be calibrated in four different ways: with adjustment factor, with adjustment factor and offset, via object (mixed light, artificial light) or via two separate objects (artificial light and natural light).

Integrated 2-point brightness controller (switching)

If the brightness controller is activated (automatic mode), the lighting is switched on as soon as the brightness falls below the configured lower brightness limit. The lighting is switched off once the configured upper brightness limit is exceeded. The brightness limits can be set using parameters or communication objects.

Integrated steady constant lighting control (dimming)

The illuminance of natural light entering a room through the window decreases the deeper it enters into the room. In order to use the entering natural light in the best possible way with constant lighting control, the device offers the option to control a main lighting group directly and up to four additional sub-lighting groups each via a separate characteristic line and a separate controller (manager/subordinate mode). All lighting groups are supposed to be dimmed to the same setpoint (e.g. 500 lux).

Temperature sensor and temperature controller

These devices provide room-based temperature control for heating and/or cooling. The room temperature controller sends a control value to the actuator. This value is calculated using a control algorithm (2-point control, steady PI control or steady PI control with sequence control) based on the actual room temperature that is measured and the set setpoint. This actuator controls a heating or cooling valve that changes the room temperature with its flow rate of hot or cold water.

In addition, the room control unit supports fan control of fan coil units. Warm or cold air is blown into the room via a multi-stage fan. This forced convection makes it possible to achieve faster heating or cooling in the room.

Calculator

Up to 12 independent calculators with up to 12 inputs each are available. Percentage values, temperature values, illuminance, humidity values or CO-2 concentration can be selected as inputs. These values can be evaluated in terms of maximum value, minimum value or weighted value.

Threshold monitoring

For the measured values brightness, temperature, humidity and CO2, an upper threshold and a lower threshold can each be defined and then monitored.

Comparator

The value comparator can be used to compare two similar analog values (e.g. temperature) with each other.

Infrared (IR) receiver

The IR receiver that is built into the devices allows you to control the lighting and solar protection as well as store and recall scenes via an IR remote control. The physical address can also be programmed with the IR remote control.

Humidity sensors and controllers

The presence detector can measure and analyze relative humidity. For the humidity controller, a staged controller or steady PI controller are available. Up to 5 control signal stages can be selected for staged control. The type of control value output can be either switching (1-bit) or continuous (8-bit).

Dew point calculation

The presence detector calculates the dew point temperature and sends it via a communication object.

Air quality sensor and controller

The sensor can measure and analyze the CO2 content of the air. For the air quality controller, a staged controller or steady PI controller are available. Up to 5 control signal stages can be selected for staged control. The type of control value output can be either switching (1-bit) or continuous (8-bit).

2.1 Operating and display elements and connections

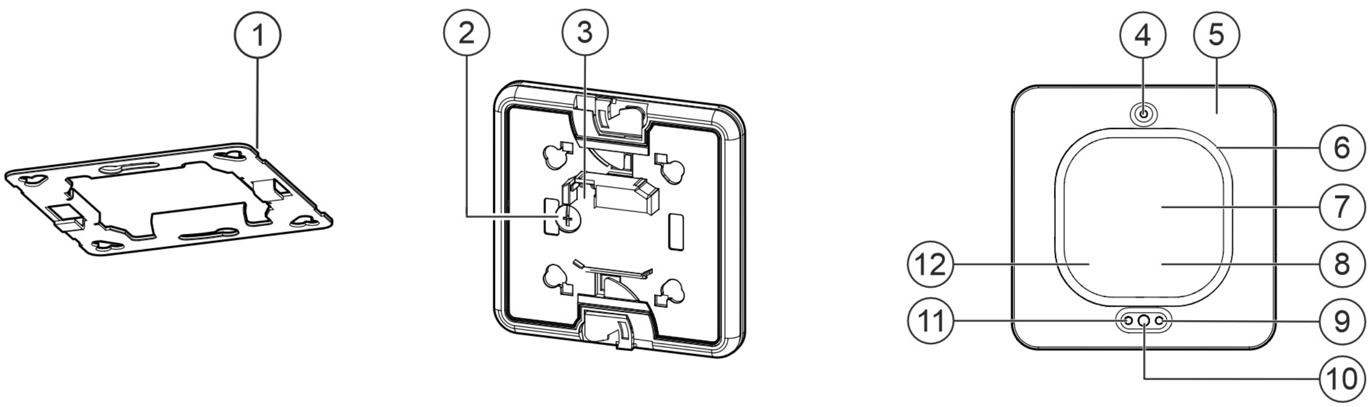


Fig. 1: Presence Detector WIDE multi UP 258D51

1	Mounting plate	7	Test LED for motion under the lens
2	PIR range adjustment	8	Temperature sensor
3	Bus terminal block	9	Infrared receiver
4	Programming button	10	Brightness sensor
5	CO_2 sensor	11	Programming LED

6	Detection lens	12	Humidity sensor

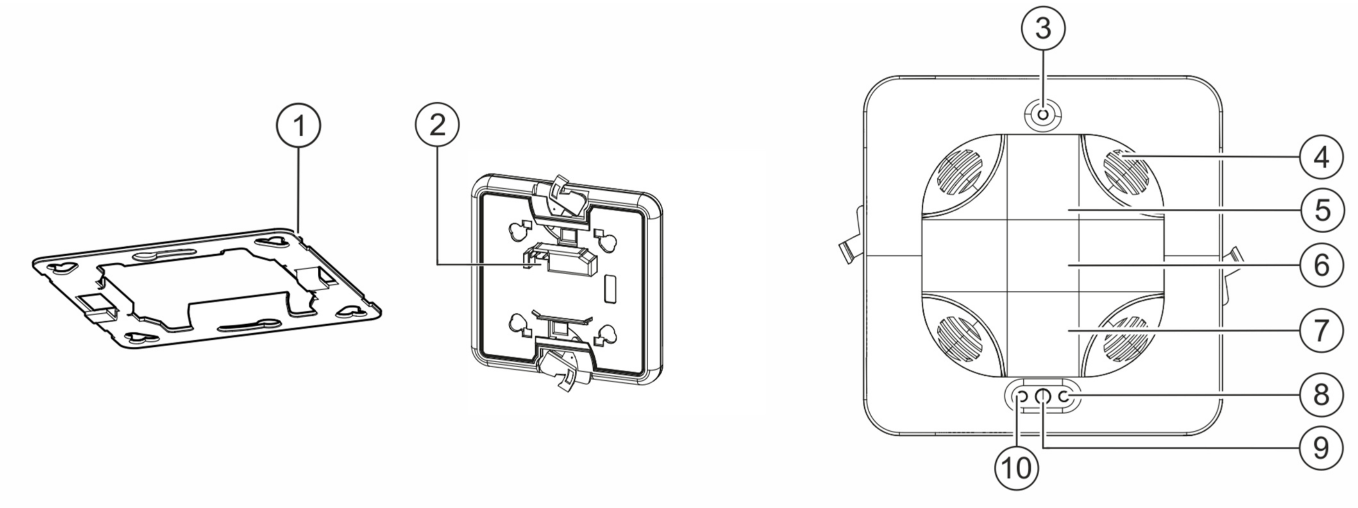


Fig. 2: Presence Detector WIDE DualTech UP 258D61

1	Mounting plate	6	Test LED for motion under the lens
2	Bus terminal block	7	Temperature sensors
3	Programming button	8	Infrared receiver
4	Ultrasound sensors (US)	9	Brightness sensor
5	Detection lens	10	Programming LED

2.2 Factory settings

With the factory settings the device can be tested without programming. A green LED will light up for as long as motion is detected.

More information:

- Operating and display elements and connections [→ 10]
- Resetting the device to factory settings [→ 35]

2.3 Programming mode

After bus voltage recovery, wait several seconds before pushing the programming button (not before booting is complete).

Activating programming mode

◈ Push the programming button for > 1 second.

⇨ Programming mode is activated.

⇨ The programming LED lights up continuously.

Deactivating programming mode

▷ Programming mode is activated. The programming LED lights up continuously.

- ◈ Push the programming button.
- ⇨ Programming mode is deactivated.
- ⇨ The programming LED does not light up.

2.4 Behavior on unloading the application program

After unloading the application program with the ETS, the unloaded device has no functions.

2.5 Behavior on voltage failure/recovery

The electronics of the device are bus powered. Therefore, a mains voltage failure only leads to a functional failure of the device if the bus voltage also fails as a result of the mains voltage failure.

In the event of a bus voltage failure, the current status and other values for each channel are saved permanently so that they can be restored when the bus voltage is recovered.

When bus voltage is recovered, the configured actions for each channel are executed and, depending on the parameters set, new statuses are reported.

With regard to brightness measurement, the behavior on bus voltage failure/recovery is defined precisely. The brightness setpoints are saved and, depending on the configuration, restored after bus voltage recovery. If you want to give the controller a value in the format of an external brightness sensor, you have to use the calculation function.

3 Communication objects

The application program is loaded in the device ex works.

The device is configured and commissioned with Engineering Tool Software (ETS) version ETS 5 or higher.

With the help of the ETS the specific parameters and addresses can be assigned.

The objects and corresponding parameter settings are described with the functions.

The following lists show all communication objects of the device for one channel. The communication objects are identical for every channel with the only difference being the number.

The number and designation of the communication objects displayed in the ETS menu can vary as they depend on the parameter settings. Numbers missing in this table are not assigned.

Maximum number of group addresses: 500

Maximum number of group assignments: 500

3.1 Cross-channel communication objects

No.	Object name	Function	Datapoint type	Flags
1	Status device function	Ok/Defect	1.005 alarm	CRT
2	Send status values	request	1.017 trigger	CW
3	Movement LED	On/Off	1.003 enable	CW
5	Ultrasound sensitivity	Value	5.001 percentage (0..100%)	CRW
6	PIR high sensitivity	On/Off	1.001 switch	CW

3.2 Communication objects of the individual channels

The following table shows all communication objects of the device for one channel.

No./ channel	Object name	Function	Datapoint type	Flags
A*				
7	A, Presence detector, status object of actuator A, Presence detector (HVAC), status object of actuator A, Slave, Status object of actuator	On/Off	1.001 switch	CW
8	A, Presence detector, movement (external) A, Presence detector (HVAC), movement (external)	On	1.010 start/stop	CW

No./ cha nnel	Object name	Function	Datapoint type	Flags
A*				
9	A, Presence detector, extension A, Presence detector (HVAC), extension	On	1.001 switch	CW
10	A, Presence detector, extension A, Presence detector (HVAC), extension	Off	1.001 switch	CW
11	A, Presence detector, overshoot time A, Presence detector (HVAC), overshoot time	Value	7.005 time (s)	CW
12	A, Presence detector, overshoot time A, Presence detector (HVAC), overshoot time	time 1 = 0/ time 2 = 1	1.002 boolean	CW
13	A, Presence detector, status overshoot time A, Presence detector (HVAC), status overshoot time	Value	7.005 time (s)	CRT
14	A, Presence detector, lock sensor A, Presence detector (HVAC), lock sensor A, Slave, lock sensor	On/Off	1.003 enable	CW
15	A, Presence detector, lock sensor active A, Presence detector (HVAC), lock sensor active A, Slave, lock sensor active	On/Off	1.002 boolean	CRT
16	A, Presence detector, lock output A, Presence detector (HVAC), lock output	On/Off	1.003 enable	CW
17	A, Presence detector, stop switching A, Presence detector (HVAC), stop switching	On/Off	1.001 switch	CW

No./ channel	Object name	Function	Datapoint type	Flags
A*				
18	A, Presence detector, stop dimming A, Presence detector (HVAC), stop dimming	brighter/ darker	3.007 dimming control	CW
19	A, Presence detector, stop dimming value A, Presence detector (HVAC), dimming value	Value	5.001 percentage (0..100%)	CW
20	A, Presence detector, lock output active A, Presence detector (HVAC), lock output active	On/Off	1.002 boolean	CRT
21	A, Presence detector, start, (A), switching value A, Presence detector (HVAC), start, (A), switching value	Value 1/Value 2	1.002 boolean	CW
22	A, Presence detector, start, (A), switching A, Presence detector (HVAC), start, (A), switching	On	1.001 switch	CRT
22	A, Slave, start, (A)	On	1.001 switch	CRT
22	A, Presence detector, start, (A), value A, Presence detector (HVAC), start, (A), value	% value	5.001 percentage (0..100%)	CRT
		8-bit value	5.010 counter pulses (0..255)	
		16-bit value	7.001 pulses	
		°C value	9.001 temperature (°C)	
		Value in LUX	9.004 lux (Lux)	
		% r.h. value	9.007 humidity (%)	
		ppm value	9.008 parts/million (ppm)	
22	A, Presence detector, start, (A), scene A, Presence detector (HVAC), start, (A), scene	recall	17.001 scene number	CRT

No./ channel	Object name	Function	Datapoint type	Flags
A*				
23	A, Presence detector, start, 2nd telegram (B), switching value A, Presence detector (HVAC), start, 2nd telegram (B), switching value	Value 1/Value 2	1.002 boolean	CW
24	A, Presence detector, start, 2nd telegram (B), switching A, Presence detector (HVAC), start, 2nd Telegram (B), switching	On/Off	1.001 switch	CRT
24	A, Presence detector, start, 2nd telegram (B), value A, Presence detector (HVAC), start, 2nd Telegram (B), value	% value	5.001 percentage (0..100%)	CRT
		8-bit value	5.010 counter pulses (0..255)	
		16-bit value	7.001 pulses	
		°C value	9.001 temperature (°C)	
		Value in LUX	9.004 lux (Lux)	
		% r.h. value	9.007 humidity (%)	
		ppm value	9.008 parts/million (ppm)	
24	A, Presence detector, start, 2nd telegram (B), scene A, Presence detector (HVAC), start, 2nd Telegram (B), scene	recall	17.001 scene number	CRT
25	A, Presence detector, end, (C), switching value A, Presence detector (HVAC), end, (C), switching value	Value 1/Value 2	1.002 boolean	CW
26	A, Presence detector, end, (C), switching A, Presence detector (HVAC), end, (C), switching	On/Off	1.001 switch	CRT

No./ channel	Object name	Function	Datapoint type	Flags
A*				
26	A, Presence detector, end, (C), value A, Presence detector (HVAC), end, (C), value	% value	5.001 percentage (0..100%)	CRT
		8-bit value	5.010 counter pulses (0..255)	
		16-bit value	7.001 pulses	
		°C value	9.001 temperature (°C)	
		Value in LUX	9.004 lux (Lux)	
		% r.h. value	9.007 humidity (%)	
		ppm value	9.008 parts/million (ppm)	
26	A, Presence detector, end, (C), scene A, Presence detector (HVAC), end, (C), scene	recall	17.001 scene number	CRT
27	A, Presence detector, end, 2nd telegram (D), switching value A, Presence detector (HVAC), end, 2nd telegram (D), switching value	Value 1/Value 2	1.002 boolean	CW
28	A, Presence detector, end, 2nd telegram (D), switching A, Presence detector (HVAC), end, 2nd telegram (D), switching	On/Off	1.001 switch	CRT
28	A, Presence detector, end, 2nd telegram (D), value A, Presence detector (HVAC), end, 2nd telegram (D), value	% value	5.001 percentage (0..100%)	CRT
		8-bit value	5.010 counter pulses (0..255)	
		16-bit value	7.001 pulses	
		°C value	9.001 temperature (°C)	
		Value in LUX	9.004 lux (Lux)	
		% r.h. value	9.007 humidity (%)	
		ppm value	9.008 parts/million (ppm)	
28	A, Presence detector, end, 2nd telegram (D), scene A, Presence detector (HVAC), end, 2nd telegram (D), scene	recall	17.001 scene number	CRT

* For each additional channel, add the value “22.” Example: Channel A, no. 7 = channel B, no. 29 = channel C, no. 51.

3.3 Communication objects for brightness measuring

No.	Object name	Function	Datapoint type	Flags
73	Brightness value (sensor)	Value in LUX	9.004 lux (Lux)	CRT
74	Brightness value (calibration)	Value in LUX	9.004 lux (Lux)	CW
75	Brightness value daylight (calibration)	Value in LUX	9.004 lux (Lux)	CW
76	Brightness value artificial light (calibration)	Value in LUX	9.004 lux (Lux)	CW

3.4 Communication objects for temperature measuring

No.	Object name	Function	Datapoint type	Flags
79	Temperature sensor, temperature value	°C value	9.001 temperature (°C)	CRT
80	Temperature sensor, failure	1 = Failure	1.005 alarm	CRT

3.5 Communication objects for the humidity sensor

No.	Object name	Function	Datapoint type	Flags
82	Humidity sensor, relative humidity	% r.h. value	5.004 percentage (0..255%)	CRT
83	Humidity sensor, relative humidity	% r.h. value	9.007 humidity (%)	CRT
84	Humidity sensor, fault	1 = Failure	1.005 alarm	CRT

3.6 Communication objects for CO2 measuring

No.	Object name	Function	Datapoint type	Flags
85	CO2 sensor, CO2 value	ppm value	7.001 pulses	CRT
86	CO2 sensor, CO2 value	ppm value	9.008 parts/million (ppm)	CRT
87	CO2 sensor, failure	1 = Failure	1.005 alarm	CRT

3.7 Communication objects for the calculator

No.	Object name	Function	Datapoint type	Flags
1*				
88 − 99	Calculator 1, % value 1 − 12	% value	5.001 percentage (0..100%)	CW
88 − 99	Calculator 1, temperature value 1 − 12	°C value	9.001 temperature (°C)	CW
88 − 99	Calculator 1, brightness value 1 − 12	value in LUX	9.004 lux (Lux)	CW
88 − 99	Calculator 1, relative humidity 1 − 12	% r.h. value	9.007 humidity (%)	CW
88 − 99	Calculator 1, CO2 value 1	ppm value	9.008 parts/million (ppm)	CW
100	Calculator 1, %, result	% value	5.001 percentage (0..100%)	CRT
100	Calculator 1, temperature, result	°C value	9.001 temperature (°C)	CRT
100	Calculator 1, brightness, result	value in LUX	9.004 lux (Lux)	CRT
100	Calculator 1, relative humidity, result	% r.h. value	9.007 humidity (%)	CRT
100	Calculator 1, CO_2 (ppm), result	ppm value	9.008 parts/million (ppm)	CRT

* For each additional calculator, add the value “13.” Example: Calculator 1, No. 88 = Calculator 2, No. 101 = Calculator 3, No. 114.

3.8 Communication objects for 2-point control

No.	Object name	Function	Datapoint type	Flags
244	2-p. lighting control, controller	On/Off	1.001 switch	CW
245	2-p. lighting control, status controller	On/Off	1.002 boolean	CRT
246	2-p. lighting control, stop when switching	Switching	1.001 switch	CW
247	2-p. lighting control, stop when dimming	Dimming	3.007 dimming control	CW
248	2-p. lighting control, stop at dimming value	Dimming	5.001 percentage (0..100%)	CW
249	2-p. lighting control, stop for scenes	Scene	18.001 scene control	CW
250	2-p. lighting control, threshold - on	Value in LUX	9.004 lux (Lux)	CRW

No.	Object name	Function	Datapoint type	Flags
251	2-p. lighting control, threshold - off	Value in LUX	9.004 lux (Lux)	CRW
252	2-p. lighting control, switching	On	1.001 switch	CRT
253	2-p. lighting control, switching	Off	1.001 switch	CRT

3.9 Communication objects for constant lighting control

No.	Object name	Function	Datapoint type	Flags
254	Constant lighting control, controller	On/Off	1.001 switch	CW
255	Constant lighting control, controller status	On/Off	1.002 boolean	CRT
256	Constant lighting control, stop when switching	Switching	1.001 switch	CW
257	Constant lighting control, stop when dimming	Dimming	3.007 dimming control	CW
258	Constant lighting control, stop at dimming value	Dimming value	5.001 percentage (0..100%)	CW
259	Constant lighting control, stop for scenes	Scene	18.001 scene control	CW
260	Constant lighting control, setpoint - absolute	Value in LUX	9.004 lux (Lux)	CW
261	Constant lighting control, setpoint - relative	brighter/ darker	3.007 dimming control	CW
262	Constant lighting control, store setpoint	1 = save	1.001 switch	CW
263	Constant lighting control, setpoint status	Value in LUX	9.004 lux (Lux)	CRT
264	Constant lighting control, Main group switching	On/Off	1.001 switch	CRT
265	Constant lighting control, Main group dimming value	Dimming value	5.001 percentage (0..100%)	CRT
266	Constant lighting control, Main group dimming value status	Dimming value	5.001 percentage (0..100%)	CWTU
267	Constant lighting control, subgroup 1 switching	On/Off	1.001 switch	CRT
268	Constant lighting control, subgroup 1 dimming value	Dimming value	5.001 percentage (0..100%)	CRT

No.	Object name	Function	Datapoint type	Flags
269	Constant lighting control, subgroup 2 switching	On/Off	1.001 switch	CRT
270	Constant lighting control, subgroup 2 dimming value	Dimming value	5.001 percentage (0..100%)	CRT
271	Constant lighting control, subgroup 3 switching	On/Off	1.001 switch	CRT
272	Constant lighting control, subgroup 3 dimming value	Dimming value	5.001 percentage (0..100%)	CRT
273	Constant lighting control, subgroup 4 switching	On/Off	1.001 switch	CRT
274	Constant lighting control, subgroup 4 dimming value	Dimming value	5.001 percentage (0..100%)	CRT
275	Constant lighting control, Calibration	1 = Start/0 = Stop	1.010 start/stop	CW
276	Constant lighting control, Diagnostic values	Value in LUX	9.004 lux (Lux)	CRT

3.10 Communication objects for temperature control

No.	Object name	Function	Datapoint type	Flags
325	Temperature control, controller	On/Off	1.001 switch	CW
326	Temperature control, controller status	On/Off	1.011 state	CRT
327	Temperature control, room mode (automatic operation)	1 … 4	20.102 HVAC mode	CW
328	Temperature control, room mode (manual operation)	0 … 4	20.102 HVAC mode	CW
329	Temperature control, room operating mode, automatic mode	On	1.001 switch	CW
330	Temperature control, room operating mode (manual operation), comfort mode	On	1.001 switch	CW
331	Temperature control, room operating mode (manual operation), pre-comfort mode	On	1.001 switch	CW

No.	Object name	Function	Datapoint type	Flags
332	Temperature control, room operating mode (manual operation), power saving mode	On	1.001 switch	CW
333	Temperature control, room operating mode (manual operation), protection mode	On	1.001 switch	CW
334	Temperature control, status of room mode (manual operation)	0 … 4	20.102 HVAC mode	CRT
335	Temperature control, status of room operating mode, automatic mode	On/Off	1.011 state	CRT
336	Temperature control, status of room operating mode (manual operation), comfort mode	On/Off	1.011 state	CRT
337	Temperature control, status of room operating mode (manual operation), pre-comfort mode	On/Off	1.011 state	CRT
338	Temperature control, status of room operating mode (manual operation), power saving mode	On/Off	1.011 state	CRT
339	Temperature control, status of room operating mode (manual operation), protection mode	On/Off	1.011 state	CRT
340	Temperature control, room mode status	1 … 4	20.102 HVAC mode	CRT
341	Temperature control, comfort extension	0 = Stop/1 = Start	1.010 start/stop	CW
342	Temperature control, comfort extension status	On/Off	1.011 state	CRT
343	Temperature control, permanent protective mode	On/Off	1.001 switch	CWTU
344	Temperature control, actual temperature value	°C value	9.001 temperature (°C)	CWTU
345	Temperature control, heat alarm	0 = No alarm/ 1 = Alarm	1.005 alarm	CRT
346	Temperature control, frost alarm	0 = No alarm/ 1 = Alarm	1.005 alarm	CRT

No.	Object name	Function	Datapoint type	Flags
347	Temperature control, status error actual temperature value	1 = Failure	1.002 boolean	CRT
348	Temperature control, window contact status	0 = closed/1 = open	1.019 window/door	CRT
349	Temperature control, dew point alert	0 = No alarm/ 1 = Alarm	1.005 alarm	CWTU
350	Temperature control, dew point alarm status	0 = No alarm/ 1 = Alarm	1.005 alarm	CRT
351	Temperature control, presence	On/Off	1.018 occupancy	CWTU
352	Temperature control, window 1	0 = closed/1 = open	1.019 window/door	CWTU
353	Temperature control, window 2	0 = closed/1 = open	1.019 window/door	CWTU
354	Temperature control, window 3	0 = closed/1 = open	1.019 window/door	CWTU
355	Temperature control, window 4	0 = closed/1 = open	1.019 window/door	CWTU
356	Temperature control, outside temperature	°C value	9.001 temperature (°C)	CW
357	Temperature control, status error ambient temperature	1 = Failure	1.002 boolean	CRT
358	Temperature control, controller mode	0 = cooling/1 = heating	1.100 cooling/heating	CWTU
359	Temperature control, basic setpoint	°C value	9.001 temperature (°C)	CW
360	Temperature control, setpoint offset	K value	9.002 temperature difference (K)	CW
361	Temperature control, heating setpoint, comfort mode	°C value	9.001 temperature (°C)	CW
362	Temperature control, heating setpoint, pre-comfort mode	°C value	9.001 temperature (°C)	CW
363	Temperature control, heating setpoint, power saving mode	°C value	9.001 temperature (°C)	CW
364	Temperature control, heating setpoint, protection mode	°C value	9.001 temperature (°C)	CW
365	Temperature control, heating setpoints (°C)	°C value	275.100 Temperature setpoint setting for 4 HVAC Modes	CRW

No.	Object name	Function	Datapoint type	Flags
366	Temperature control, object heating setpoint shifts (K)	°C value	275.100 Temperature setpoint setting for 4 HVAC Modes	CW
367	Temperature control, cooling setpoint, comfort mode	°C value	9.001 temperature (°C)	CW
368	Temperature control, cooling setpoint, pre-comfort mode	°C value	9.001 temperature (°C)	CW
369	Temperature control, cooling setpoint, power saving mode	°C value	9.001 temperature (°C)	CW
370	Temperature control, cooling setpoint, protection mode	°C value	9.001 temperature (°C)	CW
371	Temperature control, cooling setpoint (°C)	°C value	275.100 Temperature setpoint setting for 4 HVAC Modes	CRW
372	Temperature control, object cooling setpoint shifts (K)	K value	9.002 temperature difference (K)	CRT
373	Temperature control, status of current basic setpoint	°C value	9.001 temperature (°C)	CRT
374	Temperature control, setpoint offset status		9.001 temperature (°C)	CRT
375	Temperature control, status of current setpoint	°C value	9.001 temperature (°C)	CRT
376	Temperature control, status of effective cooling setpoint	°C value	275.100 Temperature setpoint setting for 4 HVAC Modes	CRT
377	Temperature control, status of effective heating setpoint	°C value	275.100 Temperature setpoint setting for 4 HVAC Modes	CRT
378	Temperature control, status of effective cooling setpoints	°C value	9.001 temperature (°C)	CWTU
379	Temperature control, status of effective heating setpoints	1 = Failure	1.002 boolean	CRT
380	Temperature control, temperature limitation heating mode, actual temperature value	On/Off	1.011 state	CRT

No.	Object name	Function	Datapoint type	Flags
381	Temperature control, temperature limitation heating mode, status error actual temperature value	On/Off	1.001 switch	CRT
382	Temperature control, temperature limitation in heating mode, status	On/Off	1.011 state	CRT
383	Temperature control, cooling, control value switching	On/Off	1.001 switch	CRT
384	Temperature control, cooling, control value switching (sequence 2)	On/Off	1.001 switch	CRT
385	Temperature control, heating/cooling, control value switching Temperature control, heating, control value switching	On/Off	1.001 switch	CRT
386	Temperature control, heating/cooling, control value switching (sequence 2) Temperature control, heating, control value switching (sequence 2)	On/Off	1.001 switch	CRT
387	Temperature control, cooling, control value steady	0...100 %	5.001 percentage (0..100%)	CRT
388	Temperature control, cooling, control value steady (sequence 2)	0...100 %	5.001 percentage (0..100%)	CRT
389	Temperature control, heating/cooling, control value steady Temperature control, heating, control value steady	0...100 %	5.001 percentage (0..100%)	CRT
390	Temperature control, heating/cooling, control value steady (sequence 2) Temperature control, heating, control value steady (sequence 2)	0...100 %	5.001 percentage (0..100%)	CRT

No.	Object name	Function	Datapoint type	Flags
391	Temperature control, ventilator mode	0 = automatic operation/1 = manual operation	1.003 enable	CW
392	Temperature control, ventilator speed (manual operation)	0...100 %	5.001 percentage (0..100%)	CW
393	Temperature control, ventilator level (manual operation)	0 … 3	5.100 fan stage (0..255)	CW
394	Temperature control, ventilator mode status	0...100 %	5.001 percentage (0..100%)	CRT
395	Temperature control, ventilation, control value for manual operation	0 = cooling/1 = heating	1.100 cooling/heating	CRT
396	Temperature control, ventilation, current control value	0...100 %	5.001 percentage (0..100%)	CRT
397	Temperature control, controller mode status	0 = cooling/1 = heating	1.100 cooling/heating	CRT
398	Temperature control, collective status (RTSM)	8-bit status	21.107 combined status RTSM	CRT
399	Temperature control, collective status (RTC)	16-bit status	22.103 combined status RTC	CRT
400	Temperature control, controller status (Eberle)	8-bit status	–	CRT
401	Temperature control, controller status (RHCC)	16-bit status	22.101 RHCC status	CRT
402	Temperature control, controller status (DPT_HVACContrMode)	8-bit status	20.105 HVAC control mode	CRT

3.11 Communication objects for dew point calculation

No.	Object name	Function	Datapoint type	Flags
403	Dew point	°C value	9.001 temperature (°C)	CRT

3.12 Communication objects for the humidity controller

No.	Object name	Function	Datapoint type	Flags
404	Humidity controller, controller	On/Off	1.001 switch	CRWT
405	Humidity controller, steady control signal – manual setpoint	0...100 %	5.001 percentage (0..100%)	CRWT

No.	Object name	Function	Datapoint type	Flags
406	Humidity controller, steady control signal – manual mode	0 = auto/1 = manual	1.003 enable	CRWT
407	Humidity controller, override	0 = normal/1 = overridden	1.003 enable	CRWT
408	Humidity controller, setpoint	% r.h. value	9.007 humidity (%)	CRWT
408	Humidity controller, switching point level 1	% r.h. value	9.007 humidity (%)	CRWT
409	Humidity controller, switching point level 2	% r.h. value	9.007 humidity (%)	CRWT
410	Humidity controller, switching point level 3	% r.h. value	9.007 humidity (%)	CRWT
411	Humidity controller, switching point level 4	% r.h. value	9.007 humidity (%)	CRWT
412	Humidity controller, switching point level 5	% r.h. value	9.007 humidity (%)	CRWT
413	Humidity controller, minimum control value	0...100 %	5.001 percentage (0..100%)	CRWT
414	Humidity controller, maximum control value	0...100 %	5.001 percentage (0..100%)	CRWT
415	Humidity controller, steady control signal	% value	5.001 percentage (0..100%)	CRT
416	Humidity controller, control signal level 1	On/Off	1.001 switch	CRT
417	Humidity controller, control signal level 2	On/Off	1.001 switch	CRT
418	Humidity controller, control signal level 3	On/Off	1.001 switch	CRT
419	Humidity controller, control signal level 4	On/Off	1.001 switch	CRT
420	Humidity controller, control signal level 5	On/Off	1.001 switch	CRT

3.13 Communication objects for the air quality controller

No.	Object name	Function	Datapoint type	Flags
421	Air quality controller, controller	On/Off	1.001 switch	CRWT
422	Air quality controller, steady control signal – manual setpoint	0...100 %	5.001 percentage (0..100%)	CRWT

No.	Object name	Function	Datapoint type	Flags
423	Air quality controller, steady control signal – manual mode	0 = auto/1 = manual	1.003 enable	CRWT
424	Air quality controller, override	0 = normal/1 = overridden	1.003 enable	CRWT
425	Air quality controller, setpoint	ppm value	9.008 parts/million (ppm)	CRWT
425	Air quality controller, switching point level 1	ppm value	9.008 parts/million (ppm)	CRWT
426	Air quality controller, switching point level 2	ppm value	9.008 parts/million (ppm)	CRWT
427	Air quality controller, switching point level 3	ppm value	9.008 parts/million (ppm)	CRWT
428	Air quality controller, switching point level 4	ppm value	9.008 parts/million (ppm)	CRWT
429	Air quality controller, switching point level 5	ppm value	9.008 parts/million (ppm)	CRWT
430	Air quality controller, minimum control value	ppm value	5.001 percentage (0..100%)	CRWT
431	Air quality controller, maximum control value	ppm value	5.001 percentage (0..100%)	CRWT
432	Air quality controller, steady control signal	% value	5.001 percentage (0..100%)	CRT
433	Air quality controller, control signal level 1	On/Off	1.001 switch	CRT
434	Air quality controller, control signal level 2	On/Off	1.001 switch	CRT
435	Air quality controller, control signal level 3	On/Off	1.001 switch	CRT
436	Air quality controller, control signal level 4	On/Off	1.001 switch	CRT
437	Air quality controller, control signal level 5	On/Off	1.001 switch	CRT

3.14 Communication objects for threshold monitoring

No.	Object name	Function	Datapoint type	Flags
1*				
277	Threshold monitoring 1, threshold above limit, temperature	°C value	9.001 temperature (°C)	CRW
	Threshold monitoring 1, threshold above limit, brightness	Value in LUX	9.004 lux (Lux)	
	Threshold monitoring 1, threshold above limit, humidity	% r.h. value	9.007 humidity (%)	
	Threshold monitoring 1, threshold above limit, CO2	ppm value	9.008 parts/million (ppm)	
278	Threshold monitoring 1, threshold below limit, temperature	°C value	9.001 temperature (°C)	CRW
	Threshold monitoring 1, threshold below limit, brightness	Value in LUX	9.004 lux (Lux)	
	Threshold monitoring 1, threshold below limit, humidity	% r.h. value	9.007 humidity (%)	
	Threshold monitoring 1, threshold below limit, CO2	ppm value	9.008 parts/million (ppm)	
279	Threshold monitoring 1, threshold exceedance	On/Off	1.002 boolean	CRT
280	Threshold monitoring 1, threshold shortfall	On/Off	1.002 boolean	CRT
281	Threshold monitoring 1, lock output	On/Off	1.003 enable	CW
282	Threshold monitoring 1, lock output active	On/Off	1.002 boolean	CRT

* For each additional threshold monitoring, add the value “6.” Example: “Threshold monitoring 1, threshold above limit, temperature“ = No. 277, No. 283 = threshold monitoring 2, threshold exceedance threshold, temperature.

3.15 Communication objects for the comparator

No.	Object name	Function	Datapoint type	Flags
438	Comparator 1, external value W1	On/Off	1.001 switch	CW
		% value	5.001 percentage (0..100%)	
		8-bit value	5.010 counter pulses (0..255)	
		16-bit value	7.001 pulses	
		°C value	9.001 temperature (°C)	
		Value in LUX	9.004 lux (Lux)	
		% r.h. value	9.007 humidity (%)	
		ppm value	9.008 parts/million (ppm)	
		32-bit value	12.001 counter pulses (unsigned)	
439	Comparator 1, external value W2	On/Off	1.001 switch	CW
		% value	5.001 percentage (0..100%)	
		8-bit value	5.010 counter pulses (0..255)	
		16-bit value	7.001 pulses	
		°C value	9.001 temperature (°C)	
		Value in LUX	9.004 lux (Lux)	
		% r.h. value	9.007 humidity (%)	
		ppm value	9.008 parts/million (ppm)	
		32-bit value	12.001 counter pulses (unsigned)	
440	Comparator 1, result	True/false	1.002 boolean	CRT

3.16 Communication objects for IR decoder

No.	Object name	Function	Datapoint type	Flags
450	IR channel A, switching IR channel A, button left, switching	On/Off	1.001 switch	CRWT
451	IR channel A, dimming IR channel A, button left, dimming	brighter/ darker	3.007 dimming control	CRT
453	IR channel A, solar protection IR channel A, button left, solar protection	Up/Down	1.008 up/down	CRWT

No.	Object name	Function	Datapoint type	Flags
454	IR channel A, blind IR channel A, button left, blind	Stop, Up/ Down	1.007 step	CRT
456	IR channel A, change value	Value	5.001 percentage (0..100%) 5.010 counter pulses (0..255) 6.010 counter pulses (-128..127) 9.001 temperature (°C) 9.004 lux (Lux) 9.* 2-byte float value	CRT
457	IR channel A, receive value	Value	5.001 percentage (0..100%) 5.010 counter pulses (0..255) 6.010 counter pulses (-128..127) 9.001 temperature (°C) 9.001 temperature (°C) 9.* 2-byte float value	CW
458	IR channel A, button left, value	Value	5.001 percentage (0..100%) 5.010 counter pulses (0..255) 7.001 pulses 9.001 temperature (°C) 9.001 temperature (°C) 9.007 humidity (%) 9.008 parts/million (ppm) 9.* 2-byte float value	CRT
459	IR channel A, scene IR channel A, button left, scene	recall/store	18.001 scene control	CRT
460	IR channel A, left button, lock object	locking	1.003 enable	CRT
461	IR channel A, right button, switching	On/Off	1.001 switch	CRWT
462	IR channel A, right button, dimming	brighter/ darker	3.007 dimmer step	CRT
464	IR channel A, right button, solar protection	Up/Down	1.008 up/down	CRWT
465	IR channel A, right button, slat	Stop, Up/ Down	1.007 step	CRT

No.	Object name	Function	Datapoint type	Flags
467	IR channel A, right button, value	Value	5.001 percent (0…100 %) 5.010 counting impulses (0...255) 7.001 counting impulses (0...65535) 9.* 2-byte floating value 9.001 temperature (℃) 9.004 illuminance (lx) 9.007 humidity (% r.h.) 9.008 parts/million (ppm)	CRT
468	IR channel A, right button, scene	recall/store	18.001 scene control	CRT
469	IR channel A, right button, lock object	locking	1.003 enable	Input

4 Overview of the user interface

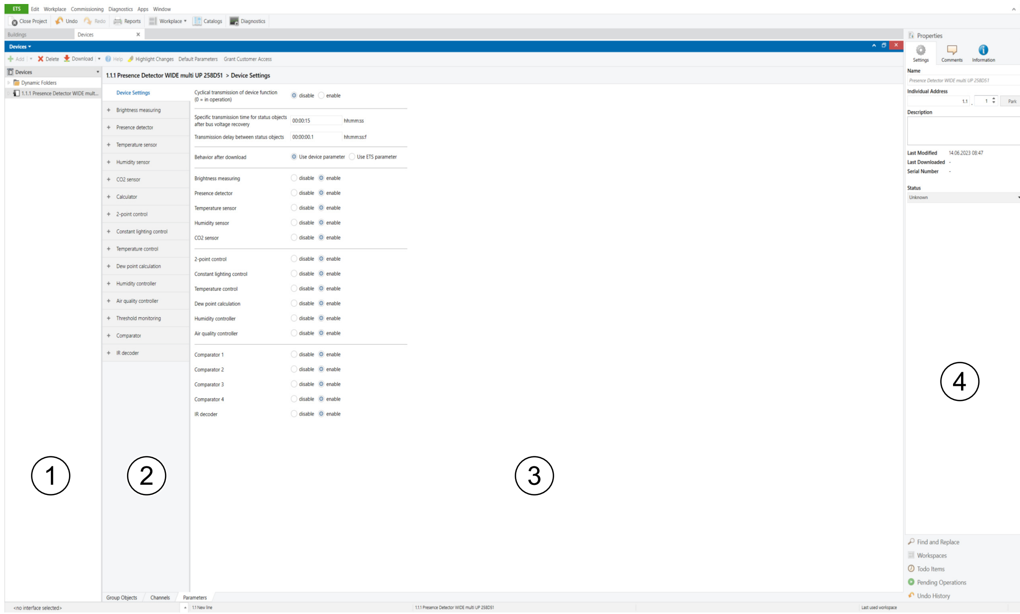


Fig. 3: User interface (example Presence Detector WIDE multi UP 258D51)

1 Tree view of devices and channels

2 Listing of parameter cards. Depending on which parameters have been enabled or configured in the parameter area (3), additional parameter cards are displayed here.

3 Parameter area. In this area, parameters are set, enabled or disabled. With some parameters, after enable additional rows or additional parameter cards are displayed.

4 Properties area. This area displays the properties of the device.

You can use the ‘Highlight changes’ button in the ETS to highlight in yellow any parameters that do not have the default settings.

5 Commissioning

After connecting the device to the bus voltage, the sensor must first “start up”, i.e. the motion sensor takes up to 40 seconds to initialize. While this is happening, no motion is detected and no telegrams are sent. The parameter “Start-up delay“ can be used to extend or shorten this time. We recommend 40 s to ensure optimal functioning.

In the factory setting, programming mode can also be activated and deactivated with the IR remote control S 255/11 5WG1 255-7AB11 (S3 = On/ S4 = Off), which is available as an accessory. Other functions cannot be triggered with the IR remote control in the factory setting.

6 Resetting the device to factory settings

NOTICE	
!	**Loss of data due to resetting device!** When you reset the device, all parameters and settings entered are deleted. ● Ensure that the device is really supposed to be reset.

Resetting the device to factory settings

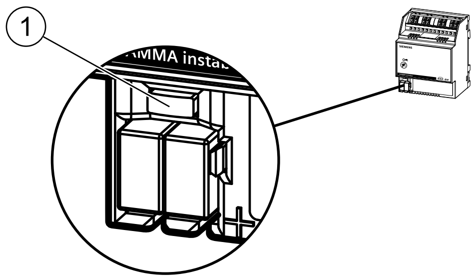


Fig. 4: Programming button and programming LED (exemplary illustration)

◈ Press the programming button (1) (at least 20 seconds) until the programming LED (1) starts flashing quickly.

⇨ The programming (1) LED flashes for 8 seconds.

⇨ The device has been reset to factory settings. All parameter settings have been deleted.

⇨ The building site function is active again.

7 Device settings

In this parameter window, the cross-function and cross-channel definitions are made.

This includes monitoring the device function, the sending behavior of the status objects after voltage recovery and the behavior after an ETS download.

7.1 Parameters on the "Device settings” parameter card

Cyclical transmission of device function(0 = in operation)

Parameter	Settings
Cyclical transmission of device function (0 = in operation)	disable enable

Function:

This parameter is used to disable or enable the cyclic sending of the device function.

If the device is functioning properly, the value “0” is transmitted cyclically.

If the device no longer transmits cyclically, this indicates a device failure. A higher-level system can monitor the cyclic sending and trigger a warning or alarm message if the status message is not transmitted.

Note:

Sending first takes place after the time configured in the “Cyclical transmission period” parameter.

Other parameters:

If the parameter is set to “enable“ the following parameters appear:

- “Send status of device function inverted”
- “Cyclical transmission period”

More information:

- “Status device function” communication object [→ 40]
- “Send inverted status for device function” parameter [→ 36]
- “Cyclical sending period” parameter [→ 37]

Send status of device function inverted(1 = in operation)

Parameter	Settings
Send status of device function inverted(1 = in operation)	No Yes

Function:

This parameter can be used to transmit the status of the device function in inverted form. In this case the value “1” is transmitted cyclically when the device is functioning properly.

Availability:

The “Send status of device function inverted(1 = in operation)” parameter is displayed if the following parameters have been configured:

- Parameter “Cyclical transmission of device function (0 = in operation)“ on the "device settings” parameter card
  - Setting: “enable”

More information:

“Cyclical sending of device function (0 = in operation)” parameter [→ 36]

Cyclical transmission period

Parameter	Settings
Cyclical transmission period (hh:mm:ss)	00:00:01 ... 18:12:15

Function:

This parameter can be used to select the time interval for cyclic sending of the device function status.

Note:

The device status is also sent for the first time after bus voltage failure and bus voltage recovery after the time set here.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Cyclical transmission of device function (0 = in operation)“ on the "device settings” parameter card
  - Setting: “enable”

More information:

- “Cyclical sending of device function (0 = in operation)” parameter [→ 36]

Specific transmission time for status objects after bus voltage recovery

Parameter	Settings
Specific transmission time for status objects after bus voltage recovery (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to ensure that no unnecessary bus load is generated by status telegrams immediately after bus voltage recovery and after a re-start of the device.

The time of sending after bus voltage recovery must be set high enough that other KNX devices that have to receive and process the status have also already completed their initialization.

The time of sending applies to the stored status values after bus voltage recovery. If the state changes during bus voltage failure or after bus voltage recovery (e.g. due to switching), the respective status is transmitted immediately and once again after the elapse of the time set here.

Note:

The sending time does not apply if a status request of all status objects is initiated via the “send status values” communication object.

If a status request is initiated directly after bus voltage recovery and before this sending time (e.g. via the “send status values” communication object), then this request is discarded. Separate sending of the status objects is possible only after the regular sending of the status.

Transmission delay between status objects

Parameter	Settings
Transmission delay between status objects (hh:mm:ss.f)	00:00:00.1 ... 00:01:00.0

Function:

This parameter is used to set with which minimal wait time two successive status telegrams are to be sent to ensure that no excessive bus load is generated by status telegrams sent in quick succession during operation.

Note:

This transmission delay only applies after bus voltage recovery and with the “Send status values” function.

Behavior after download

Parameter	Settings
Behavior after download	Use device parameter Use ETS parameter

Function:

This parameter is used to set whether the parameters of the device or the parameters of the ETS software are to be used after downloading the ETS to the device.

The following settings are possible:

- Use device parameter**:**
  With this setting, parameters that the device has received from other sources via the communication objects are retained and are not overwritten by the parameters set in the ETS.
  The settings of the channels are not re-initialized and the current status is retained.
- Use ETS parameter**:**
  With this setting, the parameters stored in the device are overwritten and the parameters set in the ETS are used. The behavior for bus voltage recovery configured in the ETS is also executed.

Recommendation:

If the device does not behave as expected, set this parameter to “Use ETS parameter.”

Brightness measuring

Parameter	Settings
Brightness measuring	disable enable

Function:

This parameter can be used to enable or block the brightness measuring of the internal brightness sensor.If “enable“ is selected, the parameter card “Brightness measuring” is displayed for configuring the brightness sensor.

Presence detector

Parameter	Settings
Presence detector	disable enable

Function:

This parameter can be used to enable or block the presence detector. If “enable“ is selected, the parameter card “Presence detector” is displayed for configuring the presence detector.

Temperature sensor

Parameter	Settings
Temperature sensor	disable enable

Function:

This parameter can be used to enable or block the internal temperature sensor. If “enable“ is selected, the parameter card “Temperature sensor” is displayed for configuring the temperature sensor.

Humidity sensor

Parameter	Settings
Humidity sensor	disable enable

Function:

This parameter can be used to enable or block the internal humidity sensor. If “enable“ is selected, the parameter card “Humidity sensor” is displayed for configuring the humidity sensor.

CO2 sensor

Parameter	Settings
CO2 sensor	disable enable

Function:

This parameter can be used to enable or block the internal air quality sensor. If “enable“ is selected, the parameter card “CO2 sensing” is displayed for configuring the air quality sensor.

2-point control

Parameter	Settings
2-point control	disable enable

Function:

This parameter can be used to enable or block the 2-point control. If “enable“ is selected, the parameter card “2-point control” is displayed for configuring the 2-point controller.

Constant lighting control

Parameter	Settings
Constant lighting control	disable enable

Function:

This parameter can be used to enable or block the constant lighting control. If “enable“ is selected, the parameter card “Constant lighting control” is displayed for configuring the constant lighting control.

Temperature control

Parameter	Settings
Temperature control	disable enable

Function:

This parameter can be used to enable or block the temperature control. If “enable“ is selected, the parameter card “Temperature control” is displayed for configuring the temperature control.

Dew point calculation

Parameter	Settings
Dew point calculation	disable enable

Function:

This parameter can be used to enable or block the Dew point calculation. If “enable“ is selected, the parameter card “Dew point calculation” is displayed for configuring the dew point calculation.

Humidity controller

Parameter	Settings
Humidity controller	disable enable

Function:

This parameter can be used to enable or block the humidity controller. If “enable“ is selected, the parameter card “Humidity controller” is displayed for configuring the humidity controller.

Air quality controller

Parameter	Settings
Air quality controller	disable enable

Function:

This parameter can be used to enable or block the air quality control (CO2 control) function. If “enable“ is selected, the parameter card “Air quality controller” is displayed for configuring the air quality controller.

Comparator [A…D]

Parameter	Settings
Comparator [A…D]	disable enable

Function:

This parameter can be used to enable or block the four comparators. If “enable“ is selected, the parameter card “Comparator” is displayed for configuring comparators.

IR decoder

Parameter	Settings
IR decoder	disable enable

Function:

This parameter can be used to enable or block the IR decoder. If “enable“ is selected, the parameter card “IR decoder” is displayed where up to 6 IR channels can be configured.

7.2 Communication objects

Status device function

No.	Object name	Function	Datapoint type	Flags
1	Status device function	Ok/Defect	1.005 alarm	CRT

Function:

This object is used to regularly transmit the value “0” when the device is operating. If the device no longer transmits cyclically, this indicates a device failure.

A higher-level system can monitor the cyclic sending and trigger a warning or alarm message if the status message is not transmitted.

The “Send status of device function inverted” parameter can be used to set that this value is inverted. In this case, the value “1” is transmitted cyclically when the device is functioning properly.

Note:

Sending first takes place after the time configured in the “Cyclical transmission period” parameter.

Availability:

The communication object “Status device function” is displayed if the following configuration has been made:

- Parameter “Cyclical transmission of device function(0 = in operation)” on the “device settings” parameter card

– Setting: “enable”

More information:

- “Cyclical sending of device function (0 = in operation)” parameter [→ 36]

Send status values

No.	Object name	Function	Datapoint type	Flags
2	Send status values	request	1.017 trigger	CW

Function:

This object is used to trigger the sending of the current status values for all status objects for which the sending is set to “send on request” in the configuration when a telegram with any value (“1” or “0”) is received.

8 Setting functions

8.1 Brightness measuring

The device receives its own light sensor. The signal measured there is available both internally and on the KNX bus via a communication object.

Since the light sensor measures directly, it can be calibrated for indirect measures so that it can be adapted to different installation locations. Quick fluctuations in illuminance are hidden. The regular maximum measurable value of the internal light sensor is 1000 lux, but calibration may result in other maximum measurable values.

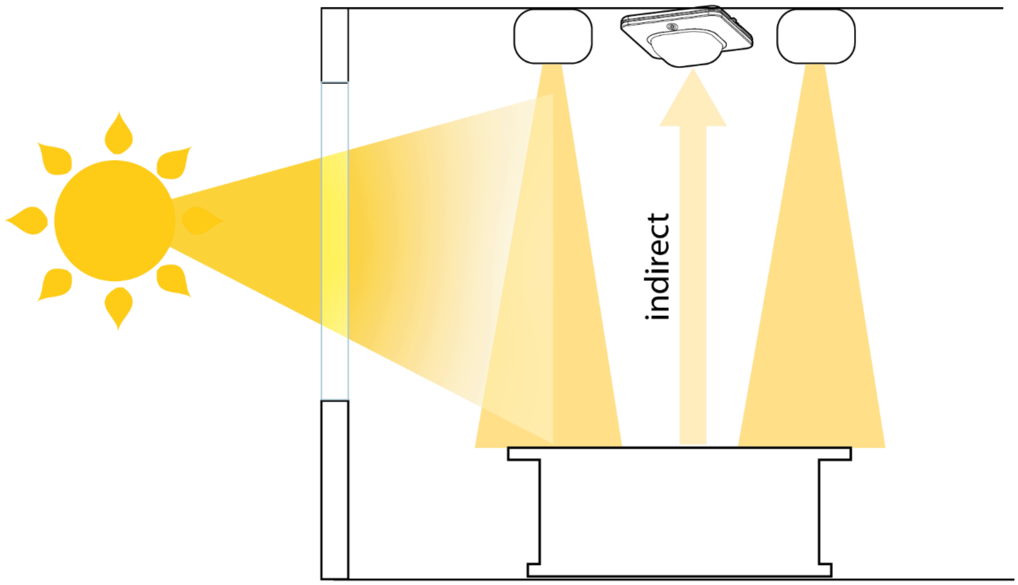


Fig. 5: Indirect measurement principle

A parameter is used to specify whether the brightness value determined by the device or an externally received brightness value is used for the function blocks of the detector.

The instrument characteristics and basic calibration are factory-set for approximately 2.8 m (typical ceiling height of 3.5 m minus table height of 0.6 m to 0.8 m). For larger distances or special reflection properties of the reference area, separate calibration must be performed with the respective reference area.

Calibration of the brightness sensor

In order to use the integrated brightness sensor optimally for measurement and light control, the sensor has to be calibrated because the portion of the reflected light that the sensor measures strongly depends on the reflecting area underneath the brightness sensor.

Once a calibration has been performed and downloaded, it is retained until the calibration type is changed.

During the brightness measurement, the programming LED must be switched off because the light from the LED could falsify the measurement results.

Four ways of calibrating the brightness sensor

- Calibrating the brightness sensor with an adjustment factor
- Calibrating the brightness sensor with an adjustment factor and offset
- Calibrating the brightness sensor via an object (mixed light, artificial light)
- Calibrating the brightness sensor via two separate objects (artificial light and natural light)

Calibrating the brightness sensor with an adjustment factor

Using the indirect measuring method, the brightness sensor only records the reflected brightness that exists in the capture area underneath the detector. However, the integrated controller requires the actual brightness on the work surface. This can be adjusted using an adjustment factor (multiplier). Users can set/configure the thus determined adjustment factor themselves.

This method is preferably used in rooms without natural light.

Example:

If a lux meter detects 500 lux on the surface of the workstation, but only 200 lux when directed downwards at the ceiling, the factor can be easily calculated as 2.5. Only 40% are reflected by the surface. Enter 2.5 in the “Adjustment factor” parameter.

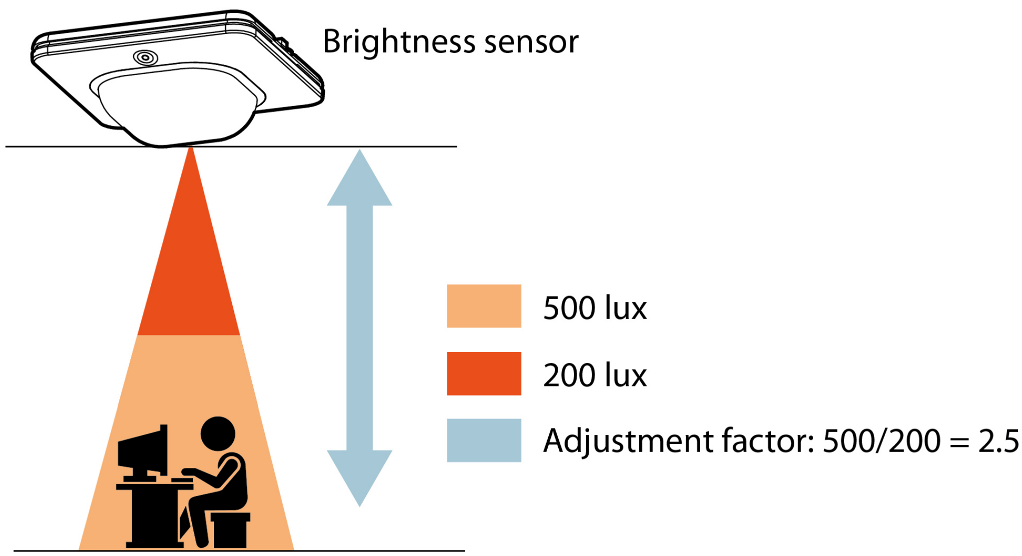


Fig. 6: Calibration with adjustment factor

Calibrating the brightness sensor with an adjustment factor and offset

In this case, an additional offset (which is applied to the measured value ahead of the factor) is available directly as a parameter in the ETS.

The correction is made according to the following formula:

Adjusted brightness value = (measured brightness value + offset) * (adjustment factor * 0.01)

This makes it possible, for example, to compensate for differences in brightness at different illuminance levels due to the influence of extraneous light (e.g. continuous light for emergency lighting) within certain limits.

This method is preferably used in rooms without natural light.

Calibrating the brightness sensor via an object (mixed light, artificial light)

The calibration via object (mixed light, artificial light) is preferably used in rooms with artificial light and natural light where no massive changes in artificial light and natural light occur during the day.

The measured brightness value can be sent to the device via the communication object “Brightness value (calibration)“ (brightness value (calibration)). Hence, the calculation of the adjustment factor can be performed by the device itself. A better lighting control result is achieved with a calibration with mixed light (50 % natural light and 50 % artificial light).

Follow these steps to perform the calibration:

1. Switch off the lighting control and the lights. Natural light continues to hit the work surface.
2. Measure the brightness under the sensor on the floor or table or what is under this device/brightness sensor.
3. Set half of the brightness setpoint desired later by closing the blinds a little. However, avoid direct sunlight on the work surface.
4. Switch on the lighting (not the control!) and dim manually to the brightness setpoint.
   ⇨ This means that the setpoint is reached with half natural light and half artificial light (mixed light).
5. Use the ETS to send the currently measured brightness value to the sensor via the communication object “Brightness value (calibration)“ (brightness value calibration).

⇨ The device is now calibrated. Check the brightness value. Near the separate value, the brightness value should be close to the same value as on the brightness sensor. The best parallelism you have during calibration of the value should be the setpoint.

Example:

The brightness value on the work surface of 500 lux measured with a lux meter is transferred via the ETS to the enabled communication object “Brightness value (calibration).”

Note:

This type of calibration requires an equal amount of natural light and artificial light. The internal adjustment factor is limited to a maximum of 20.

Calibrating the brightness sensor via two separate objects (artificial light and natural light)

This method provides more precise brightness values when adjusting between artificial and natural light than using a shared calibration object for mixed/artificial light.

Note:

For calibration “via two objects (artificial light and natural light),” constant lighting control must be activated and calibrated (see “Brightness measuring [➙ 45]“).

With this method, the artificial light and natural light are taken into account separately for the calibration of the sensor. The measured brightness values can be sent to the device via the communication objects “Brightness value daylight (calibration)“ (brightness value natural light (calibration)) and “Brightness value artificial light (calibration)“ (brightness value artificial light (calibration)). The device can therefore calculate the adjustment factor itself. Subsequently, the natural light component is calculated internally so that the actual brightness on the work surface is recorded and calculated much more precisely and can be adjusted.

Follow these steps to perform the calibration:

1. To calibrate the light sensor with natural light, switch off the lighting control and the lights first. Natural light continues to hit the work surface.
2. Measure the brightness under the sensor (work surface or floor) with a lux meter. There should be sufficient natural light (> 1/2 * setpoint) to ensure that subsequent control works better. Too much natural light (> setpoint) should be avoided. If necessary, use blinds to reduce the portion of natural light.

3. Use the ETS to send the currently measured brightness value (in Lux) to the device via the communication object “brightness value natural light (calibration).”
4. Darken the room for calibration with artificial light so that no natural light enters.
5. Switch off the light control and switch on the lights (max. brightness). If the lighting system is oversized and a brightness value is measured that is much greater than the setpoint, dim the lights down a bit.
6. Measure the brightness under the sensor (work surface or floor) with a lux meter.
7. Use the ETS to send the currently measured brightness value (in Lux) to the device via the communication object “Brightness value artificial light (calibration)“ (brightness value artificial light (calibration)).
8. Calibrate constant lighting control See “Brightness measuring [→ 45].”

⇨ The device is now calibrated. Check the brightness value. The brightness value should provide a value equivalent to that of the lux meter on the work surface both with the blinds closed (artificial light only) and with the lights switched off (natural light only).

Even after the characteristic curve recording of the artificial light, the constant lighting control must remain activated so that the brightness measurement provides correct values.

Example:

The setpoint has been specified as 500 lx. With the lighting switched off, natural light of 800 lx is measured. The blinds are closed to the point where approx. 500 lx remain on the work surface. Transfer this value to the device as the natural light. Following that, close the blinds completely so that the portion of natural light is a low as possible. Completely darkened is ideal. Switch on the lighting and set the maximum brightness. Send the measured brightness value, e.g. 600 lx to the device for calibration of the brightness sensor. Then, when the blinds are closed completely, start the calibration of the constant lighting control.

Record the light characteristic during constant lighting control (calibration)

For constant lighting control, a characteristic profile of the brightness in the room must be recorded separately. Before this characteristic curve can be taught, the above calibration of the brightness sensor must be carried out.

Follow these steps to perform the calibration:

1. For calibration, darken the room so that no natural light enters.
2. Ensure that the communication object “Constant lighting control, Main group dimming value status“ (constant lighting control, main group status dimming value) is connected to the status object of the dimming actuator.
3. Start the calibration via the communication object “Constant lighting control, Calibration“ (constant lighting control, calibration).
4. If calibration is successful, the value "50 %" is sent via the communication object "Constant lighting control, Main group dimming value" (constant lighting control, main group dimming value). Following that, the 16 measured values (lux values) are output via the communication object "Constant lighting control, Diagnostic values" (constant lighting control, diagnostic values).

Calculation of average

To ignore rapid brightness fluctuations, an averaging function is available You can use an ETS parameter (averaging over a number of values) to specify how many measured values are included in the averaging. This can be used to compensate somewhat for short-term brightness fluctuations in natural light (passing clouds) or reflections on the work surface (white sheet of paper).

8.1.1 Parameters on the “Brightness measuring” parameter card

The “Brightness measuring” parameter card is displayed if the parameter “Brightness measuring” on the “Device settings” parameter card is set to “enable.”

Calibration

Parameter	Settings
Calibration	With adjustment factor With adjustment factor and offset Via object (mixed light, artificial light) Via two objects (artificial light and daylight)

Function:

This parameter can be used to set the calibration mode of the light sensor. Calibration is performed either via an adjustment factor, via an adjustment factor and offset, via one object or via two objects for artificial light and natural light.

For calibration “Via two objects (artificial light and daylight),” constant lighting control must be activated and calibrated. Constant lighting control must always be activated. This procedure must be performed even if only brightness measurement is required without any constant lighting control.

Other parameters:

If the parameter is set to “With adjustment factor and offset,” the following parameter is also displayed:

- “Offset (lx)”

If the “Via object (mixed light, artificial light)” parameter is set to “,” the “Adjustment factor (x 0.01)” parameter is hidden and the following parameter is displayed:

- “Initial adjustment factor (x 0.01)”

If the parameter is set to “Via two objects (artificial light and daylight),” the “Adjustment factor (x 0.01)” parameter is hidden and the following parameters are displayed:

- “Adjustment factor daylight (x 0.01)”
- “Adjustment factor artificial light (x 0.01)”

Communication object:

If the parameter is set to “Via object (mixed light, artificial light),” the following communication object is displayed:

- “Brightness value (calibration)”

If the parameter is set to “Via two objects (artificial light and daylight),” the following communication objects are displayed:

- “Brightness value daylight (calibration)”
- “Brightness value artificial light (calibration)”

More information:

- Communication object “Brightness value (calibration)” [→ 51]
- Communication object “Brightness value natural light (calibration)” [→ 51]

- Communication object “Brightness value artificial light (calibration)” [→ 52]
- Parameter “Offset (lx)” [→ 47]
- Parameter “Initial adjustment factor (x 0.01)” [→ 47]
- Parameters “Adjustment factor natural light (x 0.01)” [→ 48]
- Parameter “Adjustment factor artificial light (x 0.01)” [→ 48]

Adjustment factor (x 0.01)

Parameter	Settings
Adjustment factor (x 0.01)	1...2000

Function:

The light measured by the light sensor is multiplied by 0.01 times the configured adjustment factor.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Calibration”
  - Setting: “With adjustment factor” or “With adjustment factor and offset”

More information:

- Parameter “Calibration” [→ 46]

Offset (lx)

Parameter	Settings
Offset (lx)	-671088.6...670760.9

Function:

The offset is an adjustment value for the light measured by the light sensor. It can be used to correct environmental factors.

The correction is made according to the following formula:

Adjusted brightness value = (measured brightness value + offset) * (adjustment factor * 0.01)

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Calibration”
  - Setting: “With adjustment factor and offset”

More information:

- Parameter “Calibration” [→ 46]

Initial adjustment factor (x 0.01)

Parameter	Settings
Initial adjustment factor (x 0.01)	1...2000

Function:

The light measured by the light sensor is multiplied by 0.01 times the configured adjustment factor.

The initial adjustment factor is valid until a value is received via the "Brightness value (calibration)" communication object, with which the adjustment factor is then calculated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Calibration”
  - Setting: “Via object (mixed light, artificial light)”

More information:

- Parameter “Calibration” [→ 46]

Adjustment factor daylight (x 0.01)

Parameter	Settings
Adjustment factor daylight (x 0.01)	1...2000

Function:

The light measured by the light sensor is multiplied by 0.01 times the configured adjustment factor.

The adjustment factor for natural light is valid until a value is received via the "Brightness value daylight (calibration)" communication object, with which the adjustment factor is then calculated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Calibration”
  - Setting: “Via two objects (artificial light and daylight)”

More information:

- Parameter “Calibration” [→ 46]

Adjustment factor artificial light (x 0.01)

Parameter	Settings
Adjustment factor artificial light (x 0.01)	1...2000

Function:

The light measured by the light sensor is multiplied by 0.01 times the configured adjustment factor.

The adjustment factor for artificial light is valid until a value is received via the "Brightness value artificial light (calibration)" communication object, with which the adjustment factor is then calculated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Calibration”
  - Setting: “Via two objects (artificial light and daylight)”

More information:

- Parameter “Calibration” [→ 46]

Number of values for calculation of average

Parameter	Settings
Number of values for calculation of average	1...8

Function:

The internal light sensor measures every 20 milliseconds. For brightness measurement, the average value can be formed over several values measured in succession. The above parameter defines the number of values used for averaging.

Object "Brightness value (sensor)"

Parameter	Settings
Object "Brightness value (sensor)"	disable enable

Function:

The parameter is used to set whether the “Brightness value (sensor)“ communication object, temperature value” object is enabled or disabled. This can be used to output the current brightness value and query it via the bus.

Other parameters:

If the parameter is set to “enable,” the following parameters are displayed:

- “Send brightness value on request”
- “Send brightness value on change of value”
- “Send brightness value cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Brightness value (sensor)”

More information:

- Communication object “Brightness value (sensor)” [→ 51]
- Parameter “End brightness value on request” [→ 49]
- Parameter “Send brightness value on change of value” [→ 49]
- Parameter “Send brightness value cyclically” [→ 50]

Send brightness value on request

Parameter	Settings
Send brightness value on request	disable enable

Function:

This parameter can be used to set whether the brightness value is sent on request or whether requests for the brightness value will be rejected.

The request is triggered via the communication object “send status values.”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Object "Brightness value (sensor)"”
  – Setting: “enable”

More information:

- Parameter “Object brightness value (sensor)” [→ 48]

Send brightness value on change of value

Parameter	Settings
Send brightness value on change of value	disable enable

Function:

This parameter determines if the brightness value is to be sent automatically for every change of value. When “enable” is selected, additional parameters are displayed that can be used to define which change of value (absolute and in percent) since last sent has to be exceeded and how much time must have passed since last sending for the value to be sent again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Object "Brightness value (sensor)"”
  – Setting: “enable”

Other parameters:

If the parameter is set to “enable,” the following parameters are displayed:

- “Value change since last sent (lx)”
- “Value change since last sent (%)”
- “Block time for sending the brightness value”

More information:

- Parameter “Object brightness value (sensor)” [→ 48]

Value change since last sent (lx)

Parameter	Settings
Value change since last sent (lx)	0...670760

Function:

This parameter is used to define at which change of value in lux since the last value sent the value of the communication object “brightness value (sensor)” is sent again. Sending takes place if the minimum block time for sending of the brightness value has been exceeded.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Send brightness value on change of value”
  - Setting: “enable”

Value change since last sent (%)

Parameter	Settings
Value change since last sent (%)	0...100

Function:

This parameter is used to define at which change of value in percent compared to the last value sent the value of the communication object “brightness value (sensor)” is sent again. Sending takes place if the minimum block time for sending of the brightness value has been exceeded.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Send brightness value on change of value”
  - Setting: “enable”

Block time for sending the brightness value

Parameter	Settings
Block time for sending the brightness value (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the brightness value has to have passed in order for it to be sent again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Send brightness value on change of value““
  - Setting: “enable”

Note:

The block time does not apply to cyclic sending. If the block time is greater than the cycle time, the value is nonetheless sent at the end of the cycle time.

Send brightness value cyclically

Parameter	Settings
Send brightness value cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter determines if and at which intervals the determined brightness value is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Object "Brightness value (sensor)"”
  - Setting: “enable”

More information:

- Parameter “Object brightness value (sensor)” [→ 48]

8.1.2 Communication objects “brightness measuring”

Brightness value (sensor)

No.	Object name	Function	Datapoint type	Flags
73	Brightness value (sensor)	Value in LUX	9.004 lux (Lux)	CRT

Function:

The brightness sensor uses this object to send the brightness value. The current value can be queried using a read request via the bus at any time.

The measured range of the internal light sensor is 1000 lux max.

This value can be changed through calibration.

Brightness value (calibration)

No.	Object name	Function	Datapoint type	Flags
74	Brightness value (calibration)	value in LUX	9.004 lux (Lux)	CW

Function:

Since the light sensor only measures the indirect light reflected from the desk, this must be calibrated in accordance with the environment and position.

During calibration, the room in which the device has been installed should have about the same brightness value as the setpoint that is to be used for constant lighting control later on.

ETS can be used to send the value in lux measured on the desk surface by an external lux meter to the device via the object above. The measured value is entered into the ETS input field as a decimal number. ETS encodes this value and sends it to the device. As soon as the value has been received, it is used to calculate the adjustment factor (brightness value = adjustment factor * measured value).

Availability:

This communication object is only displayed if “via object (artificial light, natural light)” has been set as the calibration method.

Note:

If the value 0 lx is received via the object, the adjustment factor is set to the value of the parameter “Initial adjustment factor (x 0.01).”

If the value received via the object exceeds the value measured by the internal light sensor by more than a factor of 20, the adjustment factor is set to the value of the parameter “Initial adjustment factor (x 0.01).”

Brightness value daylight (calibration)

No.	Object name	Function	Datapoint type	Flags
75	Brightness value daylight (calibration)	value in LUX	9.004 lux (Lux)	CW

Function:

This object is used to calibrate the light sensor for natural light.

During calibration, the room in which the device has been installed should have sufficient natural light (> 1/2 * setpoint) and artificial light should be switched off.

ETS can be used to send the value in lux measured on the desk surface by an external lux meter to the device via the object above. The measured value is entered into the ETS input field as a decimal number. ETS encodes this value and sends it to the device. As soon as the value has been received, it is used to calculate the adjustment factor (brightness value = adjustment factor * measured value).

Availability:

This communication object is only displayed if “via two objects (artificial light and natural light)” has been set as the calibration method.

Note:

If the value 0 lx is received via the object, the adjustment factor is set to the value of the parameter “Adjustment factor daylight (x 0.01).”

If the value received via the object exceeds the value measured by the internal light sensor by more than a factor of 20, the adjustment factor is set to the value of the parameter “Adjustment factor daylight (x 0.01).”

Brightness value artificial light (calibration)

No.	Object name	Function	Datapoint type	Flags
76	Brightness value artificial light (calibration)	Value in LUX	9.004 lux (Lux)	CW

Function:

This object is used to calibrate the light sensor for artificial light.

During calibration, the blinds in the room in which the device has been installed should be closed completely and all lights should be switched on (max. brightness).

ETS can be used to send the value in lux measured on the desk surface by an external lux meter to the device via the object above. The measured value is entered into the ETS input field as a decimal number. ETS encodes this value and sends it to the device. As soon as the value has been received, it is used to calculate the adjustment factor (brightness value = adjustment factor * measured value).

Availability:

This communication object is only displayed if “via two objects (artificial light and natural light)” has been set as the calibration method.

Note:

If the value 0 lx is received via the object, the adjustment factor is set to the value of the parameter “Adjustment factor artificial light (x 0.01).”

If the value received via the object exceeds the value measured by the internal light sensor by more than a factor of 20, the adjustment factor is set to the value of the parameter “Adjustment factor artificial light (x 0.01).”

8.2 Presence detector

The detector detects the presence of a person and that there is no longer a person in the detection range of the detector. The detector signal can be evaluated via three separate communication channels - Presence detector, Presence detector for HVAC and Subordinate - where the detection range and PIR/US sensors are identical for all outputs. Each output channel can be disabled independently.

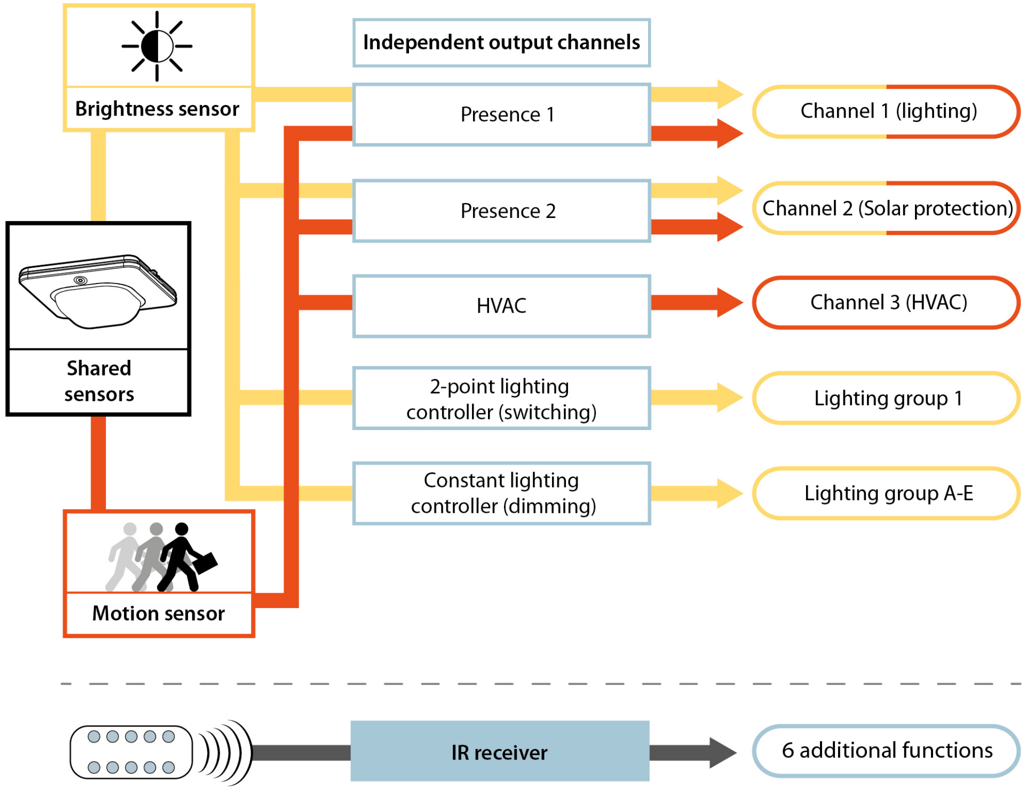


Fig. 7: Three independently configurable output channels for different applications

Ultrasound sensors

The ultrasound sensor is only available for presence detector WIDE DualTech UP 258D61.

Actively emitted by the sensor, ultrasound waves (40 kHz) propagate around the rest of the room. They envelop objects that are in the room and penetrate into the furthest corners. This means that the sensor can even detect movements when there is no line-of-sight contact between it and the person. Ultrasound waves do not penetrate thin walls and are highly sensitive.

The sensitivity can be configured for setting the detection area.

Users can choose which sensor technologies (PIR and US) should be used for the initial triggering and ongoing activation of the presence detector.

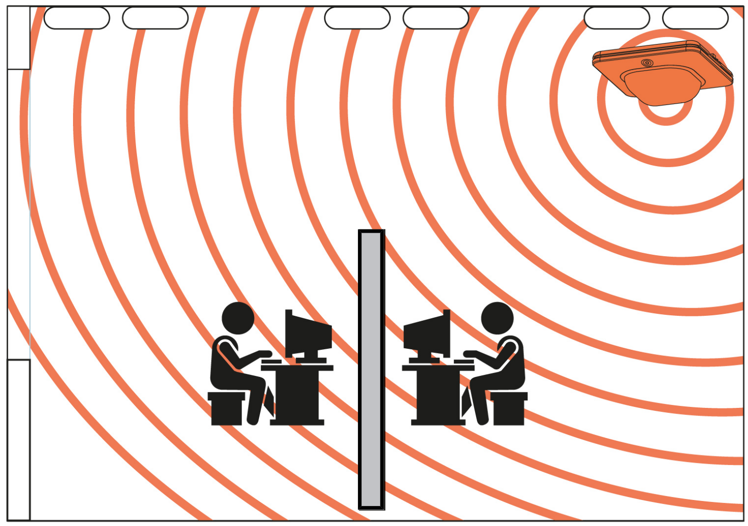


Fig. 8: Propagation of ultrasound waves in space

They way the presence detector and presence detector for HVAC operate

Four communication objects are available for each channel. Depending on how the parameters are configured, these objects can be used to each send one or two telegrams to the bus at the start and at the end of a detected movement. The values of the communication objects are configured for each channel by means of appropriate parameters.

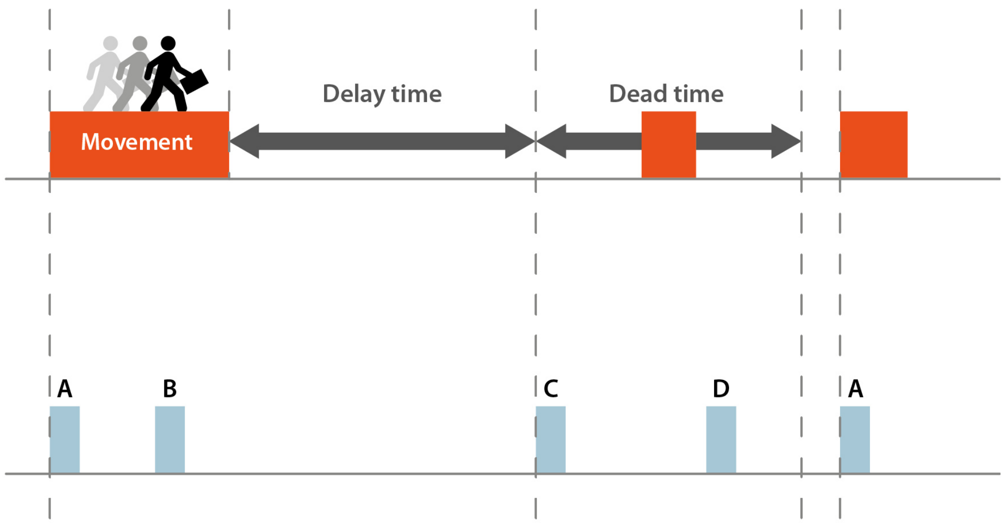


Fig. 9: Process diagram

Every time a motion is detected, an overrun time is started. The duration of this time can be configured for each channel. The end of a motion is reached with the end of the overrun time.

The dead time, the duration of which can also be configured for each channel, is used to protect actuators connected to the detector. If a motion is detected during the dead time, neither telegrams are sent nor is the overrun time started.

Below, the telegrams that are sent at the start of motion are referred to as A and B. The telegrams that are sent at the end of a motion are called C and D.

Process (example)

If the detector detects a motion, telegram A is sent. If it has been configured to also send a telegram B, telegram B is sent (possibly also cyclically) after the configured delay time. If no more motions take place, telegram C and (if configured) telegram D are sent at the end of the overrun time. Telegram D can also be sent cyclically.

If additional motions occur while the overrun time is still running, the overrun time is restarted.

Presence detector for HVAC

The detector has an additional control output with a monitoring timeframe for HVAC applications. This operating mode requires a longer detection time for switching on. At least one detection must have occurred in each of the set observation time windows to trigger the channel.

Subordinate

The detector can be used as a standalone device, main (manager) or secondary (subordinate) detector.

Depending on the requirements, additional presence detectors can be connected as “subordinates” to the “main detector” via KNX in order to extend the presence detection area or cover larger areas. The “subordinates” only supply motion information to the main detector.

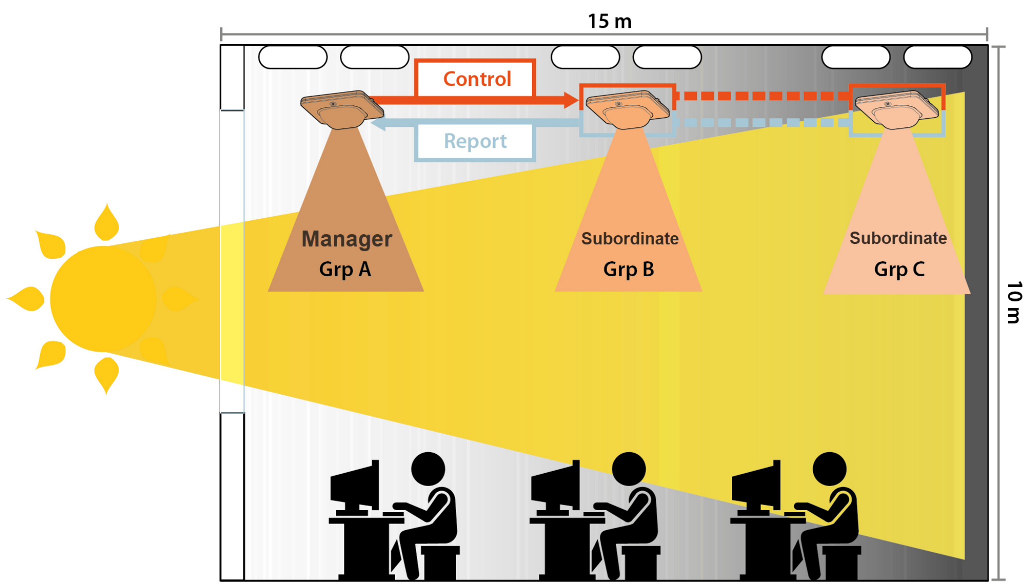


Fig. 10: Manager subordinate mode

The manager detector behaves depending on the brightness when it receives commands from the subordinate detectors. Telegrams received from communication object 8 (movement (external)) are treated as if the manager detector had detected a presence, i.e. operation depends on the measured brightness.

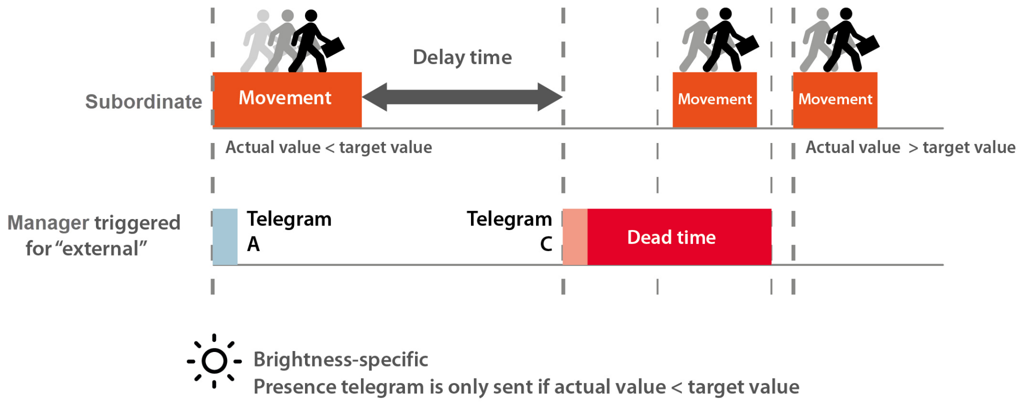


Fig. 11: Manager operating modes after receiving commands from the subordinate detectors.

Extension input

The extension inputs enable three use cases, for example, with an external pushbutton. Telegrams received from communication objects 9 and 10 (extension On and Off) are always treated as presence regardless of the measured brightness.

The aforementioned use cases are as follows:

Semi-automatic (auto Off)

Example: The light is switched on manually (e.g. via pushbutton) and automatically switched off when no further presence is detected.

In this case the presence detector must only be connected to the actuator via the switch-off command (C). For switching on, the button must be connected to the actuator and the extension input (On) of the presence detector.

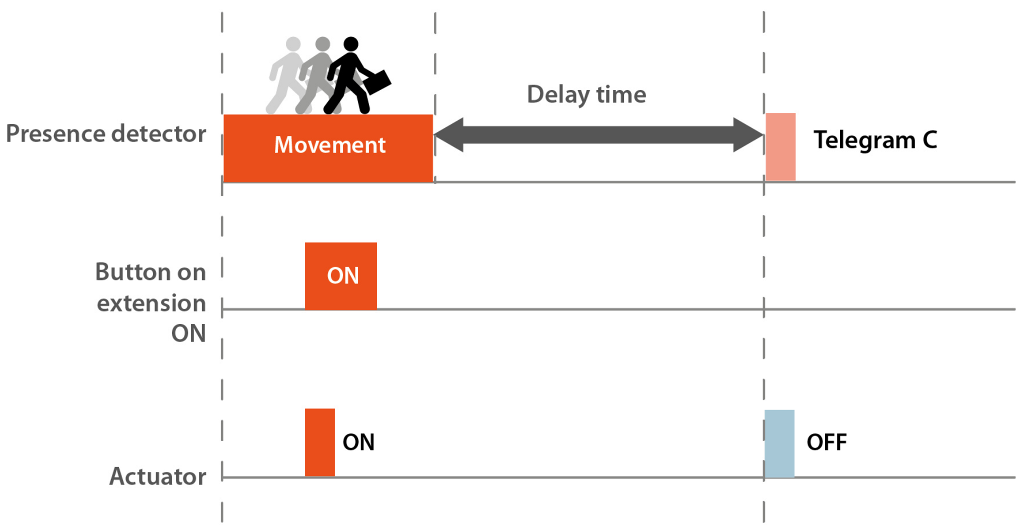


Fig. 12: Extension input "Semi-automatic (auto Off)"

Semi-automatic (auto On)

The light is switched on automatically if a presence is detected, and then switched off manually (e.g. via a button).

In this case the presence detector must only be connected to the actuator via the switch-on command (A). For switch-off, the button is connected with the actuator and the extension input (Off) of the presence detector.

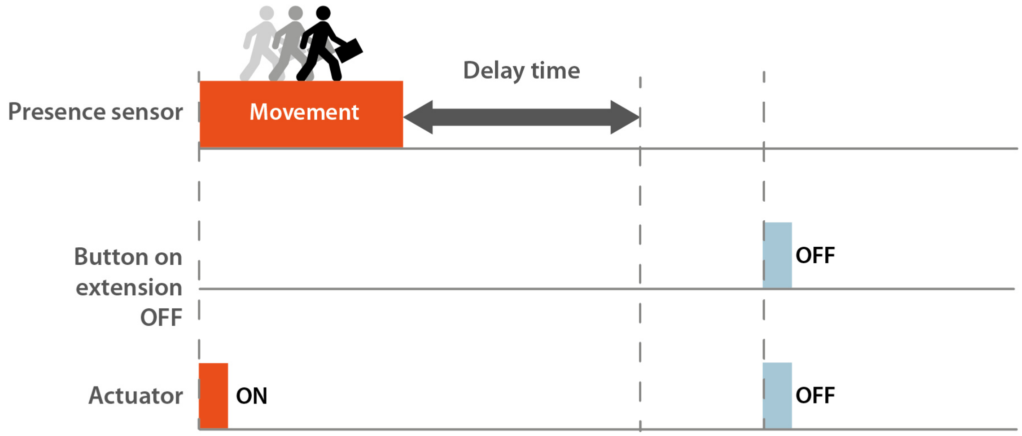


Fig. 13: Extension "Semi-automatic (auto On)"

Switching on in spite of excessive brightness value

The extension input (On) can be used to switch on the light even though it does not fall below the brightness limit. Following that, the presence detector responds as in normal operation.

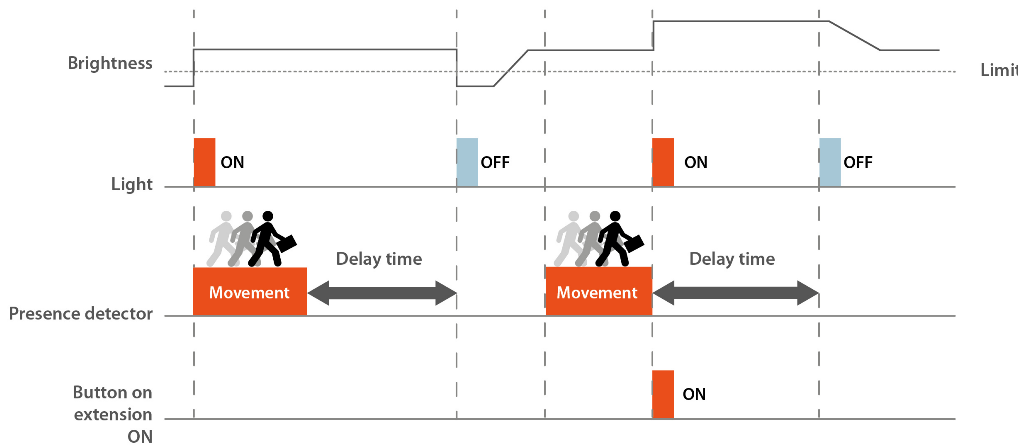


Fig. 14: Extension input "switching on in spite of excessive brightness value"

Setting the sensitivity of the presence detector

You can use ETS to configure the sensitivity of the presence detector for both PIR sensors and ultrasound in order to adapt the presence detector flexibly to different situations. This ensures reliable detection and avoids false positives.

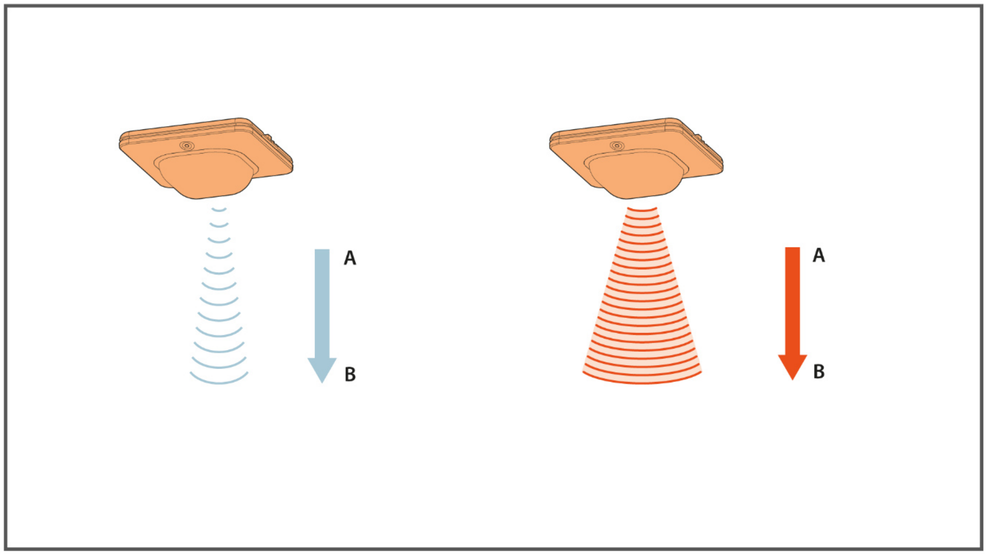


Fig. 15: The presence detector can respond with low (left) or high (right) sensitivity.

The PIR sensor sensitivity can be set to high or low. There is also an automatic mode. Automatic mode can be used to ensure high sensitivity when someone is in the room (e.g. In an office during working hours). When the room is vacant (end of the working day), the detector automatically switches to a lower sensitivity to avoid false presence detections.

The duration of the high sensitivity can also be configured.

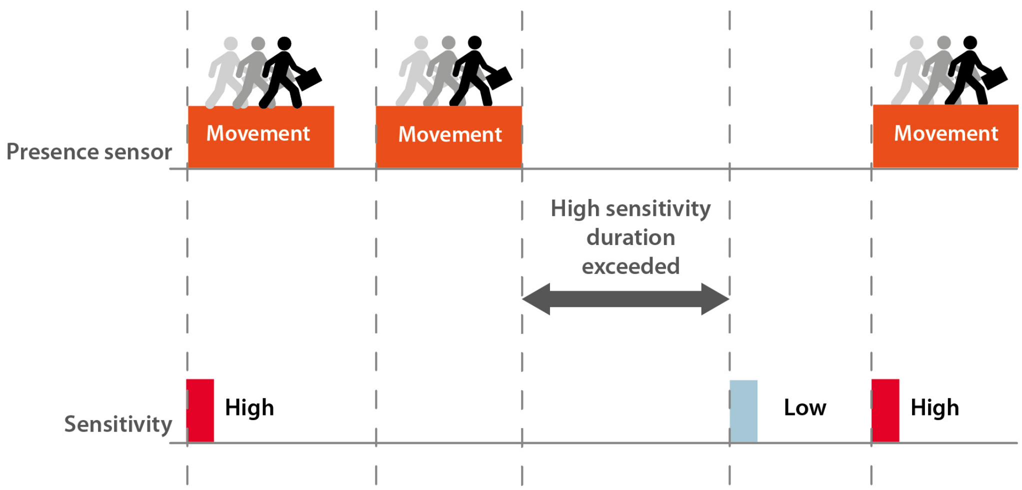


Fig. 16: Automatic adjustment of the sensitivity of the presence detector

Locking the sensor and output

There are two options for blocking the operating modes “presence detector” and “presence detector for HVAC:” Sensor and output. The “subordinate” operating mode merely has a sensor lock.

The difference is that the response of the channel when activating or deactivating the output block can be configured.

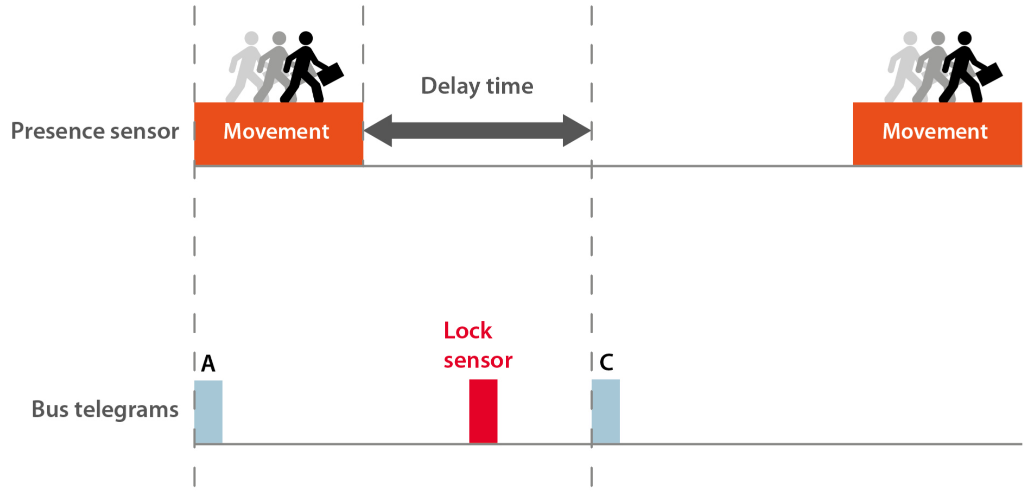


Fig. 17: Lock sensor

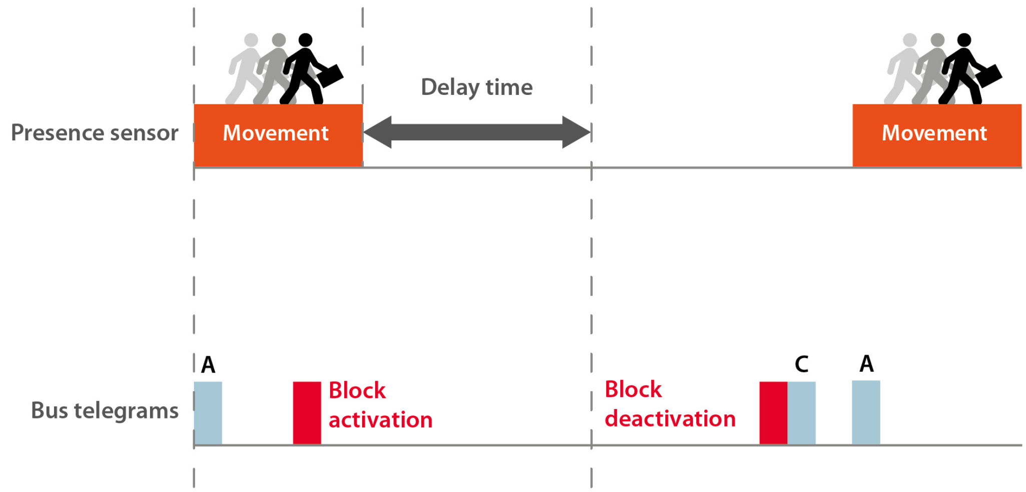


Fig. 18: Lock output

8.2.1 Parameters of the “presence detector” parameter card

The “Presence detector” parameter card and additional parameter cards are displayed if the parameter “Presence detector” on the “Device settings” parameter card is set to “enable.”

Signal recognition with LED

Parameter	Settings
Signal recognition with LED	disable enable

Function:

This parameter can be used to set whether an LED on the presence detector is to light up when a movement is detected.

LED presence detector via object

Parameter	Settings
LED presence detector via object	disable enable

Function:

This parameter can be used to enable or disable the “Movement LED” communication object. This object can be used to activate or deactivate the signaling of a movement via the LED on the presence detector.

Availability:

This parameter is only visible if the “Signal recognition with LED” parameter is set to “enable.”

The presence detectors WIDE , WIDE UP 258D33, WIDE pro and WIDE multi UP 258D51 each include four PIR sensors. The PIR sensors can be deactivated individually to reduce the capture area in a targeted manner.
Presence detector WIDE DualTech UP 258D61 only features 1 PIR sensor.

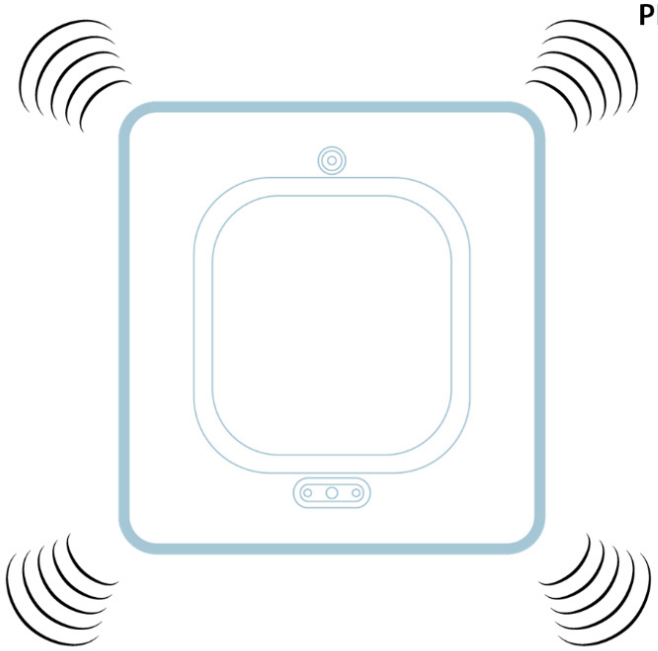


Fig. 19: PIR sensors

Sensor 1 – 4

Parameter	Settings
Sensor 1 – 4	disable enable

Function:

This parameter can be used to enable or block PIR sensors 1 - 4 individually.

Availability:

This parameter is only visible for devices without an ultrasound sensor:
UP 258D31, UP 258D33UP 258D41, UP 258D51 and UP 258D52.

PIR sensitivity

Parameter	Settings
PIR sensitivity	Automatically Automatically with object High Low

Function:

This parameter is used to set the sensitivity of the PIR sensors of the presence detector.

- Automatically:
  The presence detector is set to low sensitivity until the first movement in the room. After the first motion, it is set as highly sensitive. The presence detector responds in a highly sensitive manner as configured in the “Duration high sensitivity” parameter.
- Automatically with object:
  A 1-bit object can be used to switch between two sensitivity settings. If the value 0 is received, the presence detector responds as if “Automatically” is set; if the value 1 is received, the presence detector is set to highly sensitive.
- High:
  The presence detector responds to movements in the room with high sensitivity.
- Low:
  The presence detector responds to movements in the room with low sensitivity.

Duration high sensitivity

Parameter	Settings
Duration high sensitivity (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to configure the high sensitivity duration. After the time has elapsed, the presence detector is set to insensitive again.

Availability:

This parameter is only visible if the parameter “PIR sensitivity“ is set to “Automatically“ or “Automatically with object.”

First presence

Parameter	Settings
First presence	PIR US PIR AND US PIR OR US

Function:

This parameter is used to set how the first presence detection (after the end of the overrun time) is to be evaluated.

The following settings are possible:

- PIR:
  Only the PIR signal is used for the first presence detection.
- US:
  Only the ultrasound signal is used for the first presence detection.
- PIR AND US:
  Only the PIR and ultrasound signal are used for the first presence detection. Both signals must be available.
- PIR OR US:
  Only the PIR and ultrasound signal are used for the first presence detection. One of the two signals must be available.

Availability:

This parameter is only visible for the device with ultrasound sensor: UP 258D61.

Maintain presence

Parameter	Settings
Maintain presence	PIR US PIR AND US PIR OR US

Function:

This parameter is used to set how the keeping up of the presence is to be evaluated, i.e. how the triggered presence detector is to be retriggered to ensure the overrun time does not expire.

- PIR:
  Only the PIR signal is used to maintain the presence detection.
- US:
  Only the ultrasound signal is used to maintain the presence detection.
- PIR AND US:
  Only the PIR and ultrasound signal are used to maintain presence detection. Both signals must be available.
- PIR OR US:
  Only the PIR or ultrasound signal is used to maintain the presence detection. One of the two signals must be available.

Availability:

This parameter is only visible for the device with ultrasound sensor: UP 258D61.

Ultrasound sensitivity (%)

Parameter	Settings
Ultrasound sensitivity (%)	0...100

Function:

This parameter can be used to set the sensitivity of the ultrasound sensor.

- 0% means that the ultrasound is set to not sensitive.
- 100% means that the ultrasound is set to very sensitive.

Availability:

This parameter is only visible for the device with ultrasound sensor: UP 258D61.

Note:

Values > 50 % make sense for the sensitivity of the ultrasound sensor.

Change ultrasound sensitivity via object!

Parameter	Settings
Change ultrasound sensitivity via object!	disable enable

Function:

This parameter is used to specify whether the sensitivity of the ultrasound sensor can be changed via a communication object via the bus at any time.

The value received via the communication object immediately overwrites the factory-set parameter value and is stored permanently.

Availability:

This parameter is only visible for the device with ultrasound sensor: UP 258D61.

Channel [A…C], operating mode

Parameter	Settings
Channel [A…C], operating mode	Inactive Presence detector Presence detector (HVAC) Slave

Function:

This parameter can be used to set the desired mode individually for each channel. Detailed settings for the selected operating mode can be made on the parameter card of the same name. The following operating modes can be set:

- Presence detector
- Presence detector (HVAC)
- Slave

Other parameters:

The parameter card for the selected operating mode is displayed.

8.2.2 Parameters of the “A (B, C), presence detector” parameter card

Brightness-dependent presence detection

Parameter	Settings
Brightness-dependent presence detection	disable enable

Function:

This parameter enables or disables the reporting of a motion depending on the ambient brightness. If a motion has already been detected (run-on time running), no evaluation of the ambient brightness takes place. That is, if additional motions occur while the overrun time is still running, the overrun time is re-started.

Brightness limit (lx)

Parameter	Settings
Brightness limit (lx)	0...670760

Function:

This parameter is used to set the brightness limit up to which a movement is evaluated.

Availability:

This parameter is only visible if the “Brightness-dependent presence detection” parameter is set to “enable.”

Source for brightness value (actual value)

Parameter	Settings
Source for brightness value (actual value)	Internal value Calculated value

Function:

This parameter is used to select the source for the brightness value.

Availability:

This parameter is only visible if the “Brightness-dependent presence detection” parameter is set to “enable.”

Index of calculator

Parameter	Settings
Index of calculator	1…12

Function:

This parameter is used to set the source for the calculated value.

Availability:

This parameter is only visible if the “Source for brightness value” parameter is set to “Calculated value.”

Start behavior after bus voltage recovery

Parameter	Settings
Start behavior after bus voltage recovery	Switch off, send (C) [and D] Switch on, send (A) [and B] No change As before bus voltage failure

Function:

This parameter can be used to set the desired start behavior of the presence detector on bus voltage recovery.

The following settings are possible:

- Switch off, send (C) [and D]:
  The presence detector switches off on bus voltage recovery and, if configured, sends objects C and D.
- Switch on, send (A) [and B]:
  The presence detector switches on (overrun time is started) after bus voltage recovery and, if configured, sends objects A and B.
- No change:
  No telegram is sent after bus voltage recovery. If the presence detector was switched on before bus voltage failure and a motion is now detected, the overrun time is started, but objects A and B are not sent. If the presence detector was switched off before bus voltage failure and motion is now detected, the overrun time is started and objects A and B are sent.
- As before bus voltage failure:
  On bus voltage recovery, the state that existed prior to bus voltage failure is restored. If the presence detector was switched on, the overrun time is started after bus voltage recovery and, if configured, objects A and B are sent. If the presence detector was switched off, it is switched off after bus voltage recovery and, if configured, objects C and D are sent.

Start-up delay

Parameter	Settings
Start-up delay (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to configure the duration of the start-up delay after bus voltage recovery. During this time, the presence detector does not respond to movements and does not send telegrams either. This parameter can be used to make sure that other KNX devices have started up after bus voltage recovery before they are controlled by the presence detector.

The parameter is also used to ensure the initialization time required by the hardware. The parameter should not be set to less than 40 s.

Movement (external)

Parameter	Settings
Movement (external)	disable enable

Function:

This parameter can be used to set whether the object “A, Presence detector, movement (external)” is to be supplemented. This object can be used to record movements from external sensors.

Extension input On

Parameter	Settings
Extension input On	disable enable

Function:

This parameter can be used to set whether the object “A, Presence detector, extension `[On]” is to be supplemented.

Dead time also impacts extension

Parameter	Settings
Dead time also impacts extension	disable enable

Function:

If it is configured that the dead time also affects the extension, a trigger is "temporarily stored" by the extension in the detector and the corresponding telegrams A to D are only sent after the dead time has elapsed.

If the parameter is set to “disable,” the extension triggers take effect immediately.

Availability:

This parameter is only visible if the “Extension input On” parameter is set to “enable.”

Extension input Off

Parameter	Settings
Extension input Off	disable enable

Function:

This parameter can be used to set whether the object “A, Presence detector, extension `[Off]” is to be supplemented.

Evaluate status object [s](00:00:00.0 = no evaluation)

Parameter	Settings
Evaluate status object [s](00:00:00.0 = no evaluation) (hh:mm:ss.f)	00:00:00.0 ... 01:49:13.5

Function:

When lights in the detection range of a detector are switched on and off, the change in temperature of the illuminant can cause a movement to be detected incorrectly. To prevent this, the sensor can be switched inactive for a certain time.

Dead time after end of detection

Parameter	Settings
Dead time after end of detection (hh:mm:ss.f)	00:00:00.0 ... 01:49:13.5

Function:

The dead time is used to protect the actuator that is connected to the presence detector. If a movement occurs during the dead time, the presence detector does not switch on.

Note:

The dead time must be longer than the delay time between expiry of the overrun time and telegram C or D, otherwise telegram C or D may fail.

Since the sensor is internally "active" for approx. 3 seconds after detecting a movement, a movement that might be detected during the dead time may also trigger a telegram. This is the case if the movement is detected within the last 3 seconds of the dead time. To ensure that the dead time actually, works you should set as large a number as possible.

Kind of overshoot time

Parameter	Settings
Kind of overshoot time	Fixed value Selectable value Variable value

Function:

This parameter is used to set the type of overrun time. The overrun time is the time after the last movement that the presence detector waits until it reports that there is no more movement.

The following settings are possible:

- Fixed value:
  A fixed overrun time is set.
- Selectable value:
  Two overrun times are set, which can be toggled via a 1-bit object.
- Variable value:
  A fixed overrun time is set as the start overrun time. This overrun time can then be changed via an object.

Overshoot time 1

Parameter	Settings
Overshoot time 1 (hh:mm:ss)	00:00:01 ... 18:12:15

Function:

This parameter can be used to configure overrun time 1.

Overshoot time 2

Parameter	Settings
Overshoot time 2 (hh:mm:ss)	00:00:01 ... 18:12:15

Function:

This parameter can be used to configure overrun time 2.

Availability:

This parameter is only visible if the “Kind of overshoot time” parameter is set to “Selectable value.”

Object "Status overshoot time"

Parameter	Settings
Object "Status overshoot time"	disable enable

Function:

This parameter is used to set whether communication object “A, Presence detector, status overshoot time” is supposed to be available. The presence detector uses this object to communicate the current overrun time.

Other parameters/parameter cards:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”).

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Function [A…D]

Parameter	Settings
Function [A…D]	locking enable

Function:

This parameter can be used to enable or block functions [A…D]. For each enabled function, a parameter card is displayed on which you can make the settings for the start of a movement (A and B) and the end of a movement (C and D).

Lock sensor

Parameter	Settings
Lock sensor	disable enable

Function:

This parameter is used to specify whether the presence sensor can be locked or not. If locked, the presence sensor is deactivated. If the overrun time is already active (detector has switched on), the remaining overrun time expires and the detector switches off (C-D is sent). Switching on again via the presence sensor is not possible as long as the lock is active. Switching on/off via the extension is possible. The extension objects are analyzed during the blocked phase, which can result in re-triggering.

Other parameter cards:

If the parameter is set to “enable,” the “Lock presence sensor” parameter card is displayed.

Lock output

Parameter	Settings
Lock output	disable enable

Function:

This parameter is used to specify whether the output (that is, the sending of telegrams A – D) can be locked or not.

Other parameters/parameter cards:

If the parameter is set to “enable,” the “Lock output” parameter card is displayed.

8.2.2.1 Parameters of the parameter cards for functions [A…D]

The following parameters in the parameter cards "Start, (A)", "Start, 2nd telegram (B)", "End, (C)" and "End, 2nd telegram (D)" are identical and are therefore only described once. The parameter cards can be enabled using the “function [A…D]” parameters on the parameter card “A, (B, C), presence detector.”

Delay time

Parameter	Settings
Delay time (hh:mm:ss.f)	00:00:00.0 ... 01:49:13.5

Function:

This parameter can be used to set a delay time for the start (movement detection) or the end (end of overrun time) of presence detection.

Cyclic sending

Parameter	Settings
Cyclic sending (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set the time interval at which the value of the associated communication object (objects A to D) is sent cyclically.

If this is set to “00:00:00,” cyclic sending is deactivated.

Data type

Parameter	Settings
Data type	Switching DPT 1.001 Percentage (%) DPT 5.001 Value (8-bit) DPT 5.010 Value (16-bit) DPT 7.001 Temperature (°C) DPT 9.001 Illuminance (lx) DPT 9.004 Humidity (% r.H.) DPT 9.007 CO2 concentration (ppm) DPT 9.008 Scene DPT 17.001

Function:

This parameter is used to determine the data point types of the associated communication object (objects A to D).

The following datapoint types can be set:

- Switching DPT 1.001:
  Corresponds to the datapoint type “1.001 switching”
- Percentage (%) DPT 5.001:
  Corresponds to the datapoint type “5.001 percent (0…100 %)”
- Value (8-bit) DPT 5.010:
  Corresponds to the datapoint type “5.010 counting impulses (0 … 255)”
- Value (16-bit) DPT 7.001:
  Corresponds to the datapoint type “7.001 pulses”
- Temperature (°C) DPT 9.001:
  Corresponds to the datapoint type “9.001 temperature °C”
- Illuminance (lx) DPT 9.004:
  Corresponds to the datapoint type “9.004 Lux (Lux)”
- Humidity (% r.H.) DPT 9.007:
  Corresponds to the datapoint type “9.007 humidity (%)”
- CO2 concentration (ppm) DPT 9.008:
  Corresponds to the datapoint type “9.008 parts/million (ppm)”
- Scene DPT 17.001: Corresponds to the datapoint type “17.001 scenes number”

Value

Parameter	Settings
Value	Off On

Function:

This parameter is used to set the value of the data type specified above. The permitted values depend on the selected data type.

Selectable value

Parameter	Settings
Selectable value	disable enable

Function:

This parameter can be used to set whether or not the value to be sent at the start or the end of a movement is switchable via an object.

Value 2

Parameter	Settings
Value 2	Off On

Function:

This parameter is used to set the value of the data type specified above, if the object "..., switching value" is used for switching. The permitted values depend on the selected data type.

Availability:

This parameter is only visible if the "Selectable value" parameter is set to "enable."

8.2.2.2 Parameters of the "Lock presence sensor" parameter card:

The "Lock presence sensor" parameter card is only visible, if the parameter "Lock sensor" of the "A (B, C), presence detector" parameter card is set to "enable."

Start value/behavior of lock input on bus voltage recovery

Parameter	Settings
Start value/behavior of lock input on bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. If this is set to "Query via bus," the lock object is queried via "ValueRead" after bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if the presence sensor is to be locked if a "logical 0" is received on the lock object.

Monitoring time

Parameter	Settings
Monitoring time (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter defines whether the cyclical receipt of telegrams on the communication object for locking the sensor should be monitored and how long the monitoring time should be.

With a parameter value of 00:00:00, no monitoring takes place.

For all other parameter values, the cyclical input of deactivation telegrams is monitored. If the monitoring time is exceeded, the sensor is locked automatically.

Lock Duration

Parameter	Settings
Lock Duration (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter defines the desired on period when the sensor is locked.

The lock duration is then re-started with each incoming activation telegram.

If the parameter is set to 00:00:00, the lock duration is unlimited.

Note:

If the monitoring time is simultaneously set not equal to 00:00:00, the following behavior will be observed:

- **Monitoring time < lock duration:** The lock duration is triggered using a cyclically incoming activation telegram. The configured lock duration is not effective.
- **Monitoring time > lock duration:** The lock of the sensor is deactivated at the end of the lock duration. With the next incoming activation telegram for monitoring, it is re-activated and the lock duration starts over.

Status lock

Parameter	Settings
Status lock	disable enable

Function:

This parameter is used to define whether the communication object “A (B, C), presence detector, sensor lock active” is to be available. The lock uses this object to communicate its status.

Other parameters/parameter cards:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”).

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

8.2.2.3 Parameters of the “Lock output” parameter card

The “Lock output” parameter card is only visible, if the “Lock output“ parameter of the “A (B, C), presence detector” parameter card is set to “enable.”

Start value/behavior of lock input on bus voltage recovery

Parameter	Settings
Start value/behavior of lock input on bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. If this is set to “Query via bus,” the lock object is queried via “ValueRead” after bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if the presence sensor is to be locked if a “logical 0” is received on the lock object.

Monitoring time

Parameter	Settings
Monitoring time (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter defines whether the cyclical receipt of telegrams on the communication object for locking the sensor should be monitored and how long the monitoring time should be.

With a parameter value of 00:00:00, no monitoring takes place.

For all other parameter values, the cyclical input of deactivation telegrams is monitored. If the monitoring time is exceeded, the sensor is locked automatically.

Lock Duration

Parameter	Settings
Lock Duration (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter defines the desired on period when the sensor is locked.

The lock duration is then re-started with each incoming activation telegram.

If the parameter is set to 00:00:00, the lock duration is unlimited.

Note:

If the monitoring time is simultaneously set not equal to 00:00:00, the following behavior will be observed:

- **Monitoring time < lock duration:** The lock duration is triggered using a cyclically incoming activation telegram. The configured lock duration is not effective.
- **Monitoring time > lock duration:** The lock of the sensor is deactivated at the end of the lock duration. With the next incoming activation telegram for monitoring, it is re-activated and the lock duration starts over.

Behavior on lock activation

Parameter	Settings
Behavior on lock activation	Switch off, send (C) [and D] Switch on, send (A) [and B] No change

Function:

This parameter can be used to set the desired behavior on lock activation. The following settings are possible:

- Switch off, send (C) [and D]: The presence detector switches off when the lock is activated and, if configured, sends objects C and D.
- Switch on, send (A) [and B]: On activation of the lock, the presence detector sends objects A and B (the overrun time is not started), if configured.
- No change: If the lock is activated, no telegram is sent.

Behavior on lock deactivation

Parameter	Settings
Behavior on lock deactivation	Switch off, send (C) [and D] Switch off, send (C) [and D] No change Updated value

Function:

This parameter can be used to set the desired behavior on lock deactivation. The following settings are possible:

- Switch off, send (C) [and D]:
  The presence detector switches off when the lock is deactivated and, if configured, sends objects C and D.
- Switch off, send (C) [and D]:
  The presence detector switches on when the lock is deactivated (the overrun time is started) and, if configured, sends objects A and B.
- No change:
  If the lock is deactivated, no telegram is sent. If the presence detector is switched on when the lock is deactivated, the overrun time starts, but objects A and B are not sent. If the presence detector is switched off when the lock is deactivated, nothing happens and it waits until a new movement has been detected.
- Updated value:
  If the lock is deactivated, the current state is restored. If the presence detector is switched on, the overrun time is started when the lock is deactivated and, if configured, objects A and B are sent. If the presence detector is switched off, it is switched off when the lock is deactivated and, if configured, objects C and D are sent.

Status lock

Parameter	Settings
Status lock	disable enable

Function:

This parameter is used to set whether communication object “A, Presence detector, lock output active” is supposed to be available. The lock uses this object to communicate its status.

Other parameters/parameter cards:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”).

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

8.2.3 Parameters of the “A (B, C), presence detector for HVAC” parameter card

Interval time for HVAC-Presence detection (minutes)

Parameter	Settings
Interval time for HVAC-Presence detection (minutes)	1...15

Function:

This parameter determines the time interval in which the movement pulses are counted.

Minimum number of detected motions during interval time

Parameter	Settings
Minimum number of detected motions during interval time	1...255

Function:

This parameter sets the number of movements that must be detected during the monitoring time to meet the criterion for the start of HVAC presence. This ensures that an HVAC presence only starts if people have been within the capture area of the detector for an extended period of time.

Start behavior after bus voltage recovery

Parameter	Settings
Start behavior after bus voltage recovery	Switch off, send (C) [and D] Switch on, send (A) [and B] No change As before bus voltage failure

Function:

This parameter can be used to set the desired start behavior of the presence detector on bus voltage recovery.

The following settings are possible:

- Switch off, send (C) [and D]:
  The presence detector switches off on bus voltage recovery and, if configured, sends objects C and D.
- Switch on, send (A) [and B]:
  The presence detector switches on (overrun time is started) after bus voltage recovery and, if configured, sends objects A and B.
- No change:
  No telegram is sent after bus voltage recovery. If the presence detector was switched on before bus voltage failure and a motion is now detected, the overrun time is started, but objects A and B are not sent. If the presence detector was switched off before bus voltage failure and motion is now detected, the overrun time is started and objects A and B are sent.
- As before bus voltage failure:
  On bus voltage recovery, the state that existed prior to bus voltage failure is restored. If the presence detector was switched on, the overrun time is started after bus voltage recovery and, if configured, objects A and B are sent. If the presence detector was switched off, it is switched off after bus voltage recovery and, if configured, objects C and D are sent.

Start-up delay

Parameter	Settings
Start-up delay (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to configure the duration of the start-up delay after bus voltage recovery. During this time, the presence detector does not respond to movements and does not send telegrams either. This parameter can be used to make sure that other KNX devices have started up after bus voltage recovery before they are controlled by the presence detector.

The parameter is also used to ensure the initialization time required by the hardware. The parameter should not be set to less than 40 s.

Movement (external)

Parameter	Settings
Movement (external)	disable enable

Function:

The parameter can be used to set whether the object “A, Presence detector (HVAC), movement (external)” is to be supplemented. This object can be used to record movements from external sensors.

Extension input On

Parameter	Settings
Extension input On	disable enable

Function:

This parameter can be used to set whether the object “A, Presence detector, extension `[On]” is to be supplemented.

Dead time also impacts extension

Parameter	Settings
Dead time also impacts extension	disable enable

Function:

If it is configured that the dead time also affects the extension, a trigger is "temporarily stored" by the extension in the detector and the corresponding telegrams A to D are only sent after the dead time has elapsed.

If the parameter is set to “disable,” the extension triggers take effect immediately.

Availability:

This parameter is only visible if the “Extension input On” parameter is set to “enable.”

Extension input Off

Parameter	Settings
Extension input Off	disable enable

Function:

This parameter can be used to set whether the object “A, Presence detector, extension `[Off]” is to be supplemented.

Evaluate status object [s](00:00:00.0 = no evaluation)

Parameter	Settings
Evaluate status object [s](00:00:00.0 = no evaluation) (hh:mm:ss.f)	00:00:00.0 ... 01:49:13.5

Function:

When lights in the detection range of a detector are switched on and off, the change in temperature of the illuminant can cause a movement to be detected incorrectly. To prevent this, the sensor can be switched inactive for a certain time.

Dead time after end of detection

Parameter	Settings
Dead time after end of detection (hh:mm:ss.f)	00:00:00.0 ... 01:49:13.5

Function:

The dead time is used to protect the actuator that is connected to the presence detector. If a movement occurs during the dead time, the presence detector does not switch on.

Note:

The dead time must be longer than the delay time between expiry of the overrun time and telegram C or D, otherwise telegram C or D may fail.

Since the sensor is internally "active" for approx. 3 seconds after detecting a movement, a movement that might be detected during the dead time may also trigger a telegram. This is the case if the movement is detected within the last 3 seconds of the dead time. To ensure that the dead time actually, works you should set as large a number as possible.

Kind of overshoot time

Parameter	Settings
Kind of overshoot time	Fixed value Selectable value Variable value

Function:

This parameter is used to set the type of overrun time. The overrun time is the time after the last movement that the presence detector waits until it reports that there is no more movement.

The following settings are possible:

- Fixed value:
  A fixed overrun time is set.
- Selectable value:
  Two overrun times are set, which can be toggled via a 1-bit object.
- Variable value:
  A fixed overrun time is set as the start overrun time. This overrun time can then be changed via an object.

Overshoot time 1

Parameter	Settings
Overshoot time 1 (hh:mm:ss)	00:00:01 ... 18:12:15

Function:

This parameter can be used to configure overrun time 1.

Overshoot time 2

Parameter	Settings
Overshoot time 2 (hh:mm:ss)	00:00:01 ... 18:12:15

Function:

This parameter can be used to configure overrun time 2.

Availability:

This parameter is only visible if the “Kind of overshoot time” parameter is set to “Selectable value.”

Object "Status overshoot time"

Parameter	Settings
Object "Status overshoot time"	disable enable

Function:

This parameter is used to set whether communication object “A, Presence detector, status overshoot time” is supposed to be available. The presence detector uses this object to communicate the current overrun time.

Other parameters/parameter cards:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”).

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Function [A…D]

Parameter	Settings
Function [A…D]	disable enable

Function:

This parameter is used to specify whether the presence sensor can be locked or not. If locked, the presence sensor is deactivated. If the overrun time is already active (detector has switched on), the remaining overrun time expires and the detector switches off (C - D is sent). Switching on again via the presence sensor is not possible as long as the lock is active. Switching on/off via the extension is possible. The extension objects are analyzed during the blocked phase, which can result in re-triggering.

Lock sensor

Parameter	Settings
Lock sensor	disable enable

Function:

This parameter is used to specify whether the presence sensor can be locked or not. If locked, the presence sensor is deactivated. If the overrun time is already active (detector has switched on), the remaining overrun time expires and the detector switches off (C-D is sent). Switching on again via the presence sensor is not possible as long as the lock is active. Switching on/off via the extension is possible. The extension objects are analyzed during the blocked phase, which can result in re-triggering.

Other parameter cards:

If the parameter is set to “enable,” the “Lock presence sensor” parameter card is displayed.

Lock output

Parameter	Settings
Lock output	disable enable

Function:

This parameter is used to specify whether the output (that is, the sending of telegrams A – D) can be locked or not.

Other parameters/parameter cards:

If the parameter is set to “enable,” the “Lock output” parameter card is displayed.

8.2.3.1 Parameters of the parameter cards for functions [A…D] “Lock presence sensor” and “Lock output.”

The sub-parameters of the “A (B, C), presence detector for HVAC” parameter cards are identical to the sub-parameters of the “A (B, C), presence detector” parameter cards.

Other parameters/parameter cards:

- Parameters of the “Lock presence sensor” parameter card: [→ 69]
- Parameters of the “Lock output” parameter card [→ 70]

8.2.4 Parameters of the “A (B, C), subordinate” parameter cards

Brightness-dependent presence detection

Parameter	Settings
Brightness-dependent presence detection	disable enable

Function:

This parameter enables or disables the reporting of a motion depending on the ambient brightness. If a motion has already been detected (run-on time running), no evaluation of the ambient brightness takes place. That is, if additional motions occur while the overrun time is still running, the overrun time is re-started.

Brightness limit (lx)

Parameter	Settings
Brightness limit (lx)	0...670760

Function:

This parameter is used to set the brightness limit up to which a movement is evaluated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Brightness-dependent presence detection”
  - Setting: “enable”

Source for brightness value

Parameter	Settings
Source for brightness value	Internal value Calculated value

Function:

This parameter is used to select the source for the brightness value.

Index of calculator

Parameter	Settings
Index of calculator	1…12

Function:

This parameter is used to set the source for the calculated value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source for brightness value”

– Setting: “Calculated value”

Note:

The calculator used must be configured with the correct data type.

Start-up delay

Parameter	Settings
Start-up delay (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to configure the duration of the start-up delay after bus voltage recovery. During this time, the presence detector does not respond to movements and does not send telegrams either. This parameter can be used to make sure that other KNX devices have started up after bus voltage recovery before they are controlled by the presence detector.

The parameter is also used to ensure the initialization time required by the hardware. The parameter should not be set to less than 40 s.

Evaluate status object [s]

Parameter	Settings
Evaluate status object [s](00:00:00.0 = no evaluation) (hh:mm:ss.f)	00:00:00.0 ... 01:49:13.5

Function:

When lights in the detection range of a detector are switched on and off, the change in temperature of the illuminant can cause a movement to be detected incorrectly. To prevent this, the sensor can be switched inactive for a certain time.

Send status cyclically

Parameter	Settings
Send status cyclically	00:00:00 ... 18:12:15

Function:

This parameter determines at what intervals the object “A (B, C), subordinate, start (A)” is sent via the bus.

If this is set to “00:00:00,” then cyclic sending is deactivated.

Lock sensor

Parameter	Settings
Lock sensor	disable enable

Function:

This parameter is used to specify whether the presence sensor can be locked or not. If locked, the presence sensor is deactivated. If the overrun time is already active (detector has switched on), the remaining overrun time expires. Switching on again via the presence sensor is not possible as long as the lock is active.

Other parameter card:

If the parameter is set to “enable,” the “Lock presence sensor” parameter card is displayed.

8.2.4.1 Parameters of the “Lock presence sensor” parameter card:

The “Lock presence detector” parameter card of parameter cards “A (B, C), slave” is identical to the parameter cards “A (B, C), presence sensor.”

More information:

- Parameters of the “Lock presence sensor” parameter card: [→ 69]

8.2.5 “Presence detector" communication objects

Movement LED

No.	Object name	Function	Datapoint type	Flags
3	Movement LED	On/Off	1.003 enable	CW

Function:

This object can be used to activate or deactivate the signaling of a movement via the LED on the presence detector.

Ultrasound sensitivity

No.	Object name	Function	Datapoint type	Flags
5	Ultrasound sensitivity	Value	5.001 percentage (0..100%)	CRW

Function:

This object can be used to set the sensitivity of the ultrasound sensor (only type UP 258D61).

- 0% means that the ultrasound is set to not sensitive.
- 100% means that the ultrasound is set to very sensitive.

Note:

Values > 50 % make sense for the sensitivity of the ultrasound sensor.

PIR high sensitivity

No.	Object name	Function	Datapoint type	Flags
6	PIR high sensitivity	On/Off	1.001 switch	CW

Function:

This object can be used to set the sensitivity of the PIR sensors of the presence detector.

The value “0” means that the presence detector is set to “Automatic.”

The presence detector is set to low sensitivity until the first movement in the room. After the first motion, it is set as highly sensitive. The presence detector responds with high sensitivity in accordance as configured in the “High sensitivity duration” parameter.

The value “1” means that the presence detector is set to high sensitivity.

A, Presence detector, status object of actuator
A, Presence detector (HVAC), status object of actuator
A, Slave, Status object of actuator

No.	Object name	Function	Datapoint type	Flags
7	A, Presence detector, status object of actuator A, Presence detector (HVAC), status object of actuator A, Slave, Status object of actuator	On/Off	1.001 switch	CW

Function:

This object (feedback object) is used to inform the detector whether the actuator controlled by the detector has switched.

If a change of state (1 to 0 or 0 to 1) has occurred, the passive infrared sensor is not evaluated for a configurable time. This prevents the detector from detecting the temperature drop at a light bulb that has just been switched off as movement.

A, Presence detector, movement (external)
A, Presence detector (HVAC), movement (external)

No.	Object name	Function	Datapoint type	Flags
8	A, Presence detector, movement (external) A, Presence detector (HVAC), movement (external)	On	1.010 start/stop	CW

Function:

This object is used to trigger the detector via an external presence detector. This means that as soon as the detector receives the value “1” via this object, a movement is interpreted as if a movement had been detected via the internal presence sensor. The object is evaluated during the lock phase (“lock sensor”).

A, Presence detector, extension
A, Presence detector (HVAC), extension

No.	Object name	Function	Datapoint type	Flags
9	A, Presence detector, extension A, Presence detector (HVAC), extension	On	1.001 switch	CW

Function:

This object is used to trigger the sensor externally. That is, as soon as the sensor receives the value “1” via this object, telegrams A and B (objects 21 and 23) are sent in accordance with the configuration. The extension objects are evaluated during the lock phase (lock sensor).

A, Presence detector, extension
A, Presence detector (HVAC), extension

No.	Object name	Function	Datapoint type	Flags
10	A, Presence detector, extension A, Presence detector (HVAC), extension	Off	1.001 switch	CW

Function:

This object is used to switch off the sensor in a defined manner. That is, as soon as the sensor receives the value “0” via this object, the overrun time ends and telegrams C and D (objects 25 and 27) are sent in accordance with the configuration. The extension objects are evaluated during the lock phase (lock sensor).

A, Presence detector, overshoot time
A, Presence detector (HVAC), overshoot time

No.	Object name	Function	Datapoint type	Flags
11	A, Presence detector, overshoot time A, Presence detector (HVAC), overshoot time	Value	7.005 time (s)	CW

Function:

This object can be used to change the overrun time of the detector via the bus. This time is set in seconds. This object is saved in case of a bus voltage failure and restored on bus voltage recovery.

A, Presence detector, overshoot time
A, Presence detector (HVAC), overshoot time

No.	Object name	Function	Datapoint type	Flags
12	A, Presence detector, overshoot time A, Presence detector (HVAC), overshoot time	time 1 = 0/ time 2 = 1	1.002 boolean	CW

Function:

This object can be used to switch the overrun time of the detector to one of the two previously configured overrun times (overrun time 1 or overrun time 2). This object is saved in case of a bus voltage failure and restored on bus voltage recovery.

A, Presence detector, status overshoot time
A, Presence detector (HVAC), status overshoot time

No.	Object name	Function	Datapoint type	Flags
13	A, Presence detector, status overshoot time A, Presence detector (HVAC), status overshoot time	Value	7.005 time (s)	CRT

Function:

This object is used to report the current overrun time of the detector or can be queried via the bus at any time.

A, Presence detector, lock sensor
A, Presence detector (HVAC), lock sensor
A, Slave, lock sensor

No.	Object name	Function	Datapoint type	Flags
14	A, Presence detector, lock sensor A, Presence detector (HVAC), lock sensor A, Slave, lock sensor	On/Off	1.003 enable	CW

Function:

This object can be used to lock the presence sensor and enable it again. The parameter “invert lock input” can be used to set whether the sensor is disabled when a “0” or a “1” is received.

The status value after bus voltage recovery can be configured.

Note:

Movement notifications via the objects 7, 8 and 9 (movement (external) and extension) are evaluated even if the sensor is locked.

A, Presence detector, lock sensor active
A, Presence detector (HVAC), lock sensor active
A, Slave, lock sensor active

No.	Object name	Function	Datapoint type	Flags
15	A, Presence detector, lock sensor active A, Presence detector (HVAC), lock sensor active A, Slave, lock sensor active	On/Off	1.002 boolean	CRT

Function:

This object is used to report whether the lock of the presence sensor is active or not. This can be queried via the bus at any time.

A, Presence detector, lock output
A, Presence detector (HVAC), lock output

No.	Object name	Function	Datapoint type	Flags
16	A, Presence detector, lock output A, Presence detector (HVAC), lock output	On/Off	1.003 enable	CW

Function:

This object can be used to disable the output (sending of telegrams A to D) of the detector and enable it again.

The parameter “invert lock input” can be used to set whether the output is disabled when a “0” or a “1” is received.

The status value after bus voltage recovery can be configured.

A, Presence detector, stop switching
A, Presence detector (HVAC), stop switching

No.	Object name	Function	Datapoint type	Flags
17	A, Presence detector, stop switching A, Presence detector (HVAC), stop switching	On/Off	1.001 switch	CW

Function:

This object can be used to lock the output (sending of telegrams A to D) of the detector when a switching command is received. This allows users to directly control the actuator and at the same time disable the detector.

The lock is released via the object “A, Presence detector (HVAC), lock output“ or “A, Presence detector, lock output.”

A, Presence detector, stop dimming
A, Presence detector (HVAC), stop dimming

No.	Object name	Function	Datapoint type	Flags
18	A, Presence detector, stop dimming A, Presence detector (HVAC), stop dimming	brighter/ darker	3.007 dimming control	CW

Function:

This object can be used to lock the output (sending of telegrams A to D) of the detector when a dimming command is received. This allows users to directly control the actuator and at the same time disable the detector.

The lock is released via the object “A, Presence detector (HVAC), lock output“ or “A, Presence detector, lock output.”

A, Presence detector, stop dimming value
A, Presence detector (HVAC), dimming value

No.	Object name	Function	Datapoint type	Flags
19	A, Presence detector, stop dimming value A, Presence detector (HVAC), dimming value	Value	5.001 percentage (0..100%)	CW

Function:

This object can be used to lock the output (sending of telegrams A to D) of the detector when a dimming value command is received. This allows users to directly control the actuator and at the same time disable the detector.

The lock is released via the object “A, Presence detector (HVAC), lock output“ or “A, Presence detector, lock output.”

A, Presence detector, lock output active
A, Presence detector (HVAC), lock output active

No.	Object name	Function	Datapoint type	Flags
20	A, Presence detector, lock output active A, Presence detector (HVAC), lock output active	On/Off	1.002 boolean	CRT

Function:

This object is used to report whether the lock of the output (sending telegrams A to D) of the sensor is active or not. This can be queried via the bus at any time.

A, Presence detector, start, (A), switching value
A, Presence detector (HVAC), start, (A), switching value

No.	Object name	Function	Datapoint type	Flags
21	A, Presence detector, start, (A), switching value A, Presence detector (HVAC), start, (A), switching value	Value 1/Value 2	1.002 boolean	CW

Function:

This object can be used to switch the value of the object (start A) to one of the previously configured values. The detector sends the value 1 when it receives a “0” and the value 2 when it receives a “1.” This object is saved in case of a bus voltage failure and restored on bus voltage recovery.

A, Presence detector, start, (A), switching
A, Presence detector (HVAC), start, (A), switching
A, Slave, start, (A)

No.	Object name	Function	Datapoint type	Flags
22	A, Presence detector, start, (A), switching A, Presence detector (HVAC), start, (A), switching	On/Off	1.001 switch	CRT
	A, Slave, start, (A)	On		

Function:

This object is used to send the corresponding value to the bus at the start of a detected movement or in case of external triggering, depending on the configuration.

The value depends on the operating mode of the channel (parameter "Channel A, operating mode" in the "Presence detector" parameter card) and on the selected data type (parameter card "Start, (A)").

A, Presence detector, start, (A), value
A, Presence detector (HVAC), start, (A), value

No.	Object name	Function	Datapoint type	Flags
22	A, Presence detector, start, (A), value A, Presence detector (HVAC), start, (A), value	% value	5.001 percentage (0..100%)	CRT
		8-bit value	5.010 counter pulses (0..255)	
		16-bit value	7.001 pulses	
		°C value	9.001 temperature (°C)	
		Value in LUX	9.004 lux (Lux)	
		% r.h. value	9.007 humidity (%)	
		ppm value	9.008 parts/million (ppm)	

Function:

This object is used to send the corresponding value to the bus at the start of a detected movement or in case of external triggering, depending on the configuration.

The value depends on the operating mode of the channel (parameter "Channel A, operating mode" in the "Presence detector" parameter card) and on the selected data type (parameter card "Start, (A)").

A, Presence detector, start, (A), scene
A, Presence detector (HVAC), start, (A), scene

No.	Object name	Function	Datapoint type	Flags
22	A, Presence detector, start, (A), scene A, Presence detector (HVAC), start, (A), scene	recall	17.001 scene number	CRT

Function:

This object is used to send the corresponding value to the bus at the start of a detected movement or in case of external triggering, depending on the configuration.

The value depends on the operating mode of the channel (parameter "Channel A, operating mode" in the "Presence detector" parameter card) and on the selected data type (parameter card "Start, (A)").

A, Presence detector, start, 2nd telegram (B), switching value
A, Presence detector (HVAC), start, 2nd telegram (B), switching value

No.	Object name	Function	Datapoint type	Flags
23	A, Presence detector, start, 2nd telegram (B), switching value A, Presence detector (HVAC), start, 2nd telegram (B), switching value	Value 1/Value 2	1.002 boolean	CW

Function:

This object can be used to switch the value of the object (start B) to one of the previously configured values. The detector sends the value 1 when it receives a “0” and the value 2 when it receives a “1.” This object is saved in case of a bus voltage failure and restored on bus voltage recovery.

A, Presence detector, start, 2nd telegram (B), switching
A, Presence detector (HVAC), start, 2nd Telegram (B), switching

No.	Object name	Function	Datapoint type	Flags
24	A, Presence detector, start, 2nd telegram (B), switching A, Presence detector (HVAC), start, 2nd Telegram (B), switching	On/Off	1.001 switch	CRT

Function:

This object is used to send the corresponding value to the bus at the start of a detected movement or in case of external triggering, depending on the configuration.

The value depends on the selected data type.

A, Presence detector, start, 2nd telegram (B), value
A, Presence detector (HVAC), start, 2nd Telegram (B), switching

No.	Object name	Function	Datapoint type	Flags
24	A, Presence detector, start, 2nd telegram (B), value A, Presence detector (HVAC), start, 2nd Telegram (B), switching	% value	5.001 percentage (0..100%)	CRT
		8-bit value	5.010 counter pulses (0..255)	
		16-bit value	7.001 pulses	
		°C value	9.001 temperature (°C)	
		Value in LUX	9.004 lux (Lux)	
		% r.h. value	9.007 humidity (%)	
		ppm value	9.008 parts/million (ppm)	

Function:

This object is used to send the corresponding value to the bus at the start of a detected movement or in case of external triggering, depending on the configuration.

The value depends on the selected data type (parameter card “Start, 2nd telegram (B)”).

A, Presence detector, start, 2nd telegram (B), scene
A, Presence detector (HVAC), start, 2nd Telegram (B), scene

No.	Object name	Function	Datapoint type	Flags
24	A, Presence detector, start, 2nd telegram (B), scene A, Presence detector (HVAC), start, 2nd Telegram (B), scene	recall	17.001 scene number	CRT

Function:

This object is used to send the corresponding value to the bus at the start of a detected movement or in case of external triggering, depending on the configuration.

A, Presence detector, end, (C), switching value
A, Presence detector (HVAC), end, (C), switching value

No.	Object name	Function	Datapoint type	Flags
25	A, Presence detector, end, (C), switching value A, Presence detector (HVAC), end, (C), switching value	Value 1/Value 2	1.002 boolean	CW

Function:

This object can be used to switch the value of the object (end C) to one of the previously configured values. The detector sends the value 1 when it receives a “0” and the value 2 when it receives a “1.” This object is saved in case of a bus voltage failure and restored on bus voltage recovery.

A, Presence detector, end, (C), switching
A, Presence detector (HVAC), end, (C), switching

No.	Object name	Function	Datapoint type	Flags
26	A, Presence detector, end, (C), switching A, Presence detector (HVAC), end, (C), switching	On/Off	1.001 switch	CRT

Function:

This object is used to send the corresponding value to the bus at the end of a detected movement (overrun time expired), depending on the configuration.

The value depends on the selected data type.

A, Presence detector, end, (C), value
A, Presence detector (HVAC), end, (C), value

No.	Object name	Function	Datapoint type	Flags
26	A, Presence detector, end, (C), value A, Presence detector (HVAC), end, (C), value	% value	5.001 percentage (0..100%)	CRT
		8-bit value	5.010 counter pulses (0..255)	
		16-bit value	7.001 pulses	
		°C value	9.001 temperature (°C)	
		Value in LUX	9.004 lux (Lux)	
		% r.h. value	9.007 humidity (%)	
		ppm value	9.008 parts/million (ppm)	

Function:

This object is used to send the corresponding value to the bus at the start of a detected movement or in case of external triggering, depending on the configuration.

The value depends on the selected data type (parameter card “End, (C)”).

A, Presence detector, start, 2nd telegram (B), scene
A, Presence detector (HVAC), start, 2nd Telegram (B), scene

No.	Object name	Function	Datapoint type	Flags
26	A, Presence detector, start, 2nd telegram (B), scene A, Presence detector (HVAC), start, 2nd Telegram (B), scene	recall	17.001 scene number	CRT

Function:

This object is used to send the corresponding value to the bus at the start of a detected movement or in case of external triggering, depending on the configuration.

A, Presence detector, end, 2nd telegram (D), switching value
A, Presence detector (HVAC), end, 2nd telegram (D), switching value

No.	Object name	Function	Datapoint type	Flags
27	A, Presence detector, end, 2nd telegram (D), switching value A, Presence detector (HVAC), end, 2nd telegram (D), switching value	Value 1/Value 2	1.002 boolean	CW

Function:

This object can be used to switch the value of the object (end D) to one of the previously configured values. The detector sends the value 1 when it receives a “0” and the value 2 when it receives a “1.” This object is saved in case of a bus voltage failure and restored on bus voltage recovery.

A, Presence detector, end, 2nd telegram (D), switchingA, Presence detector (HVAC), end, 2nd telegram (D), switching

No.	Object name	Function	Datapoint type	Flags
28	A, Presence detector, end, 2nd telegram (D), switching A, Presence detector (HVAC), end, 2nd telegram (D), switching	On/Off	1.001 switch	CRT

Function:

This object is used to send the corresponding value to the bus at the end of a detected movement (overrun time expired), depending on the configuration.

A, Presence detector, end, 2nd telegram (D), value
A, Presence detector (HVAC), end, 2nd telegram (D), value

No.	Object name	Function	Datapoint type	Flags
28	A, Presence detector, end, 2nd telegram (D), value A, Presence detector (HVAC), end, 2nd telegram (D), value	% value	5.001 percentage (0..100%)	CRT
		8-bit value	5.010 counter pulses (0..255)	
		16-bit value	7.001 pulses	
		°C value	9.001 temperature (°C)	
		Value in LUX	9.004 lux (Lux)	
		% r.h. value	9.007 humidity (%)	
		ppm value	9.008 parts/million (ppm)	

Function:

This object is used to send the corresponding value to the bus at the start of a detected movement or in case of external triggering, depending on the configuration.

The value depends on the selected data type (parameter card “End, (C)”).

A, Presence detector, end, 2nd telegram (D), scene
A, Presence detector (HVAC), end, 2nd telegram (D), scene

No.	Object name	Function	Datapoint type	Flags
28	A, Presence detector, end, 2nd telegram (D), scene A, Presence detector (HVAC), end, 2nd telegram (D), scene	recall	17.001 scene number	CRT

Function:

This object is used to send the corresponding value to the bus at the start of a detected movement or in case of external triggering, depending on the configuration.

8.3 Temperature sensor

The device contains an inbuilt temperature sensor for recording the room temperature in the range from 0 °C to 50 °C with a resolution of 0.08 K. This internal actual value can be adapted to environmental influences by means of a configurable offset. The adjusted value is used to determine the actual value.

The sensor values are sent via a separate communication object. The sending interval can be set as a time or depending on the change in value.

A parameter is used to specify whether the temperature value determined by the device or an externally received temperature value is used for the other function blocks of the detector.

8.3.1 Parameters on the “Temperature sensor” parameter card

The “Temperature sensor” parameter card is displayed if the parameter “Temperature sensor” on the “Device settings” parameter card is set to “enable.”

Offset (K)

Parameter	Settings
Offset (K)	-655...655

Function:

The offset is an adjustment value for the internally measured temperature. It can be used to correct environmental factors.

Object "Temperature value"

Parameter	Settings
Object "Temperature value"	disable enable

Function:

The parameter is used to set whether the “Temperature sensor, temperature value” object is enabled or disabled. This can be used to output the temperature value and query it via the bus.

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature sensor, temperature value”

Send temperature value on request

Parameter	Settings
Send temperature value on request	disable enable

Function:

This parameter can be used to set whether the temperature value is sent on request or whether requests for the temperature value will be rejected.

The request is triggered via the communication object “Send status values.”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Object "Temperature value"”
  - Setting: “enable”

Send temperature value on change of value

Parameter	Settings
Send temperature value on change of value	disable enable

Function:

This parameter determines if the temperature value is to be sent automatically for every change of value. When “enable” is selected, additional parameters are displayed that can be used to define which change of value (in K) since the last sending has to be exceeded and how much time must have passed since the last sending for the value to be sent again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter Object "Temperature value"
  - Setting: “enable”

Value change since last sent (K)

Parameter	Settings
Value change since last sent (K)	0...670760

Function:

This parameter is used to define at which change of value in K since the last value sent the value of the communication object “Temperature sensor, temperature value” is sent again. Sending takes place if the minimum block time for sending of the temperature value has been exceeded.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Send temperature value on change of value”
  - Setting: “enable”

Block time for sending of temperature value

Parameter	Settings
Block time for sending of temperature value (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the temperature value has to have passed in order for it to be sent again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Send temperature value on change of value”
  - Setting: “enable”

Note:

The block time does not apply to cyclic sending. If the block time is greater than the cycle time, the value is nonetheless sent at the end of the cycle time.

Send temperature value cyclically

Parameter	Settings
Send temperature value cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter determines if and at which intervals the determined temperature value is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Object "Temperature value"”
  - Setting: “enable”

Object "Failure"

Parameter	Settings
Object "Failure"	disable enable

Function:

The parameter is used to set whether the “Temperature sensor, failure” object is enabled or disabled. If a hardware fault leads to a failure of the temperature sensor, this is sent as an error (“logical 1”) via this object.

Other parameters/parameter cards:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”).

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature sensor, failure”

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [➙ 311]

8.3.2 Communication objects “Temperature sensor”

Temperature sensor, temperature value

No.	Object name	Function	Datapoint type	Flags
79	Temperature sensor, temperature value	°C value	9.001 temperature (°C)	CRT

Function:

The temperature sensor uses this object to send a temperature value. The current value can be queried using a read request via the bus at any time.

The measured range of the internal temperature sensor is between -45 and 130 °C.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object "Temperature value"“ (“Temperature sensor” parameter card)

– Setting: “enable”

Temperature sensor, failure

No.	Object name	Function	Datapoint type	Flags
80	Temperature sensor, failure	1 = Failure	1.005 alarm	CRT

Function:

If a hardware fault leads to a failure of the temperature sensor, this is sent as “1= failure” via this object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object "Failure"“ (“Temperature sensor” parameter card)
  – Setting: “enable”

8.4 Humidity sensor

The presence detector records the relative humidity of a room by means of an integrated humidity measuring element. This internal actual value can be adapted to environmental influences by means of a configurable offset. The adjusted value is used to determine the actual value.

The sensor values are sent via a separate communication object (percentage value (1 byte) or KNXFloat (2 bytes)). The sending interval can be set as a time or depending on the change in value.

A parameter is used to specify whether the humidity value determined by the device or an externally received humidity value is used for the other function blocks of the detector.

8.4.1 Parameters on the “Humidity sensor” parameter card

The “Humidity sensor” parameter card is displayed if the parameter “Humidity sensor” on the “Device settings” parameter card is set to “enable.”

Offset (% r.h.)

Parameter	Settings
Offset (% r.h.)	-100...100

Function:

The offset is an adjustment value for the internally measured relative humidity. It can be used to correct environmental factors.

Object "Relative humidity"

Parameter	Settings
Object "Relative humidity"	disable enable

Function:

The parameter is used to set whether the “Humidity sensor, relative humidity” object is enabled or disabled. This can be used to output the current value of the relative humidity and it can be queried via the bus.

Data type

Parameter	Settings
Data type	DPT 9.007 (KnxFloat) DPT 5.004 (percentage)

Function:

This parameter is used to set the data type in which the value of the relative humidity is output. This makes it possible to send the measured relative humidity via two different DPTs via the bus.

Send relative humidity on request

Parameter	Settings
Send relative humidity on request	disable enable

Function:

This parameter can be used to set whether the value of the relative humidity is sent on request or whether requests for the value will be rejected.

The request is triggered via the communication object “Send status values.”

Value change since last sent (% r.h.)

Parameter	Settings
Value change since last sent (% r.h.)	0...100

Function:

This parameter is used to define at which value change in % r.h., since the last value sent, the value of the communication object “humidity sensor, relative humidity” is sent again. Sending takes place if the minimum block time for sending of the relative humidity value has been exceeded.

Block time for sending of relative humidity

Parameter	Settings
Block time for sending of relative humidity (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the relative humidity value has to have passed in order for it to be sent again.

Note:

The block time does not apply to cyclic sending. If the block time is greater than the cycle time, the value is nonetheless sent at the end of the cycle time.

Send status cyclically

Parameter	Settings
Send status cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter determines if and at which intervals the determined relative humidity is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

Object "Failure"

Parameter	Settings
Object "Failure"	disable enable

Function:

The parameter is used to set whether the “Humidity sensor, fault“ communication object, temperature value” object is enabled or disabled. If a hardware fault leads to a failure of the humidity sensor, this is sent as an error (“logical 1”) via this object.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”).

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

8.4.2 Communication objects “humidity sensor”

Humidity sensor, relative humidity

No.	Object name	Function	Datapoint type	Flags
82	Humidity sensor, relative humidity	% r.h. value	5.004 percentage (0..255%)	CRT

Function:

The humidity sensor uses this object to send it relative humidity value. The current value can be queried using a read request via the bus at any time. The measured range of the internal humidity sensor is between 0 and 100 °% r.h.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Data type“ (“Humidity sensor“ parameter card)
  - Setting: “DPT 5.004 (percentage)”

Humidity sensor, relative humidity

No.	Object name	Function	Datapoint type	Flags
83	Humidity sensor, relative humidity	% r.h. value	9.007 humidity (%)	CRT

Function:

The humidity sensor uses this object to send it relative humidity value. The current value can be queried using a read request via the bus at any time.

The measured range of the internal humidity sensor is between 0 and 100 °% r.h.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Data type“ (“Humidity sensor“ parameter card)
  - Setting: “DPT 9.007 (KnxFloat)”

Humidity sensor, fault

No.	Object name	Function	Datapoint type	Flags
84	Humidity sensor, fault	1 = Failure	1.005 alarm	CRT

Function:

If a hardware fault leads to a failure of the humidity sensor, this is sent as “1= failure” via this object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object "Failure"“ (“Humidity sensor“ parameter card)
  - Setting: “enable”

8.5 CO2 sensing

The device allows the detection of CO2 concentration in the room in the range of 400 ppm to 10,000 ppm (± 30 ppm) with a resolution of 1 ppm. This internal actual value can be adapted to environmental influences by means of a configurable offset and an adjustment factor. The adjusted value is used to determine the actual value.

The sensor values are sent via a separate communication object (positive integer or KNXFloat). The sending interval can be set as a time or depending on the change in value.

A parameter is used to specify whether the CO2 value determined by the device or an externally received CO2 value is used for the other function blocks of the detector.

Notes on the CO2 sensor:

- The CO2 sensor determines the CO2 concentration by means of a non-dispersive infrared sensor (NDIR). Thanks to its inbuilt ABC (Automatic Baseline Correction) algorithm, the CO2 sensor is maintenance-free when operated in a normal environment. The algorithm stores the lowest measurement recorded within 8 days and corrects any measurement deviation that might occur. The CO2 sensor also includes auto-diagnostics for correct operation during its entire lifespan.
- Normal environments, such as offices, classrooms or other rooms that are not permanently occupied, typically reach the CO2 concentration of outdoor air (400 ppm) once a week. If the lowest CO2 concentration is not based on the outdoor air (400 ppm), this can lead to reduced precision and incorrect operation.
- Improper handling during transport, storage and assembly can affect the measurement during the initial operating period.
- The specified precision is reached after 25 days of continuous operation.
- The CO2 sensor is not suitable for safety applications, such as gas or smoke detectors.

8.5.1 Parameters on the “CO2 sensor” parameter card

The “CO2 sensor” parameter card is displayed if the parameter “CO2 sensor” on the “Device settings” parameter card is set to “enable.”

Offset (ppm)

Parameter	Settings
Offset (ppm)	-32768...32767

Function:

The offset is an adjustment value for the internally measured CO2 value. It can be used to correct environmental factors.

Adjustment factor (x 0.01)

Parameter	Settings
Adjustment factor (x 0.01)	1...2000

Function:

The CO2 measured by the CO2 sensor is multiplied by 0.01 times the configured adjustment factor.

Object "CO2 value"

Parameter	Settings
Object "CO2 value"	disable enable

Function:

The parameter is used to set whether the “CO2 sensor, CO2 value” object is enabled or disabled. This can be used to output the current CO2 value and query it via the bus.

Data type

Parameter	Settings
Data type	DPT 9.008 (KnxFloat) DPT 7.001 (positive integer)

Function:

This parameter is used to set the data type in which the CO2 value is output. This makes it possible to send the measured CO2 value via two different DPTs via the bus.

Send CO2 value on request

Parameter	Settings
Send CO2 value on request	disable enable

Function:

This parameter can be used to set whether the CO2 value is sent on request or whether requests for the CO2 value will be rejected.

The request is triggered via the communication object “Send status values.”

Send CO2 value on change of value

Parameter	Settings
Send CO2 value on change of value	disable enable

Function:

This parameter determines if the CO2 value is to be sent automatically for every change of value. When “enable” is selected, additional parameters are displayed that can be used to define which change of value (in ppm) since the last sending has to be exceeded and how much time must have passed since the last sending for the value to be sent again.

Value change since last sent (ppm)

Parameter	Settings
Value change since last sent (ppm)	0...65535

Function:

This parameter is used to define at which change of value in ppm since the last value sent the value of the communication object “CO2 sensor, CO2 value” is sent again. Sending takes place if the minimum block time for sending of the CO2 value has been exceeded.

Block time for sending of CO2 value

Parameter	Settings
Block time for sending of CO2 value (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the CO2 value has to have passed in order for it to be sent again.

Note:

The block time does not apply to cyclic sending. If the block time is greater than the cycle time, the value is nonetheless sent at the end of the cycle time.

Send CO2 value cyclically

Parameter	Settings
Send CO2 value cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter determines if and at which intervals the determined CO2 value is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

Note:

The block time does not apply to cyclic sending. If the block time is greater than the cycle time, the value is nonetheless sent at the end of the cycle time.

Object "Failure"

Parameter	Settings
Object "Failure"	disable enable

Function:

The parameter is used to set whether the “CO2 sensor, failure” object is enabled or disabled. If a hardware fault leads to a failure of the CO2 sensor, this is sent as a failure (logical 1) via this object.

Other parameters/parameter cards:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”).

Note:

The block time does not apply to cyclic sending. If the block time is greater than the cycle time, the value is nonetheless sent at the end of the cycle time.

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

8.5.2 Communication objects “CO2 measuring”

CO2 sensor, CO2 value

No.	Object name	Function	Datapoint type	Flags
85	CO2 sensor, CO2 value	ppm value	7.001 pulses	CRT

Function:

The CO2 sensor uses this object to send a CO2 value. The current value can be queried using a read request via the bus at any time.

The measured range of the internal CO2 sensor is between 400 and 10000 ppm.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter „Data type“ (“CO2 sensing” parameter card)
  - Setting: “DPT 7.001 (positive integer)”

Note:

For technical reasons, the measured values of the CO2 sensor that are output can be too high shortly after bus voltage recovery.

CO2 sensor, CO2 value

No.	Object name	Function	Datapoint type	Flags
86	CO2 sensor, CO2 value	ppm value	9.008 parts/million (ppm)	CRT

Function:

The CO2 sensor uses this object to send a CO2 value. The current value can be queried using a read request via the bus at any time.

The measured range of the internal CO2 sensor is between 400 and 10000 ppm.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter „Data type“ (“CO2 sensing” parameter card)
  - Setting: “DPT 9.008 (KnxFloat)”

Note:

For technical reasons, the measured values of the CO2 sensor that are output can be too high shortly after bus voltage recovery.

CO2 sensor, failure

No.	Object name	Function	Datapoint type	Flags
87	CO2 sensor, failure	1 = Failure	1.005 alarm	CRT

Function:

The CO2 sensor uses this object to send a CO2 value. The current value can be queried using a read request via the bus at any time.

The measured range of the internal CO2 sensor is between 400 and 10000 ppm.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter „Object "Failure"“ (“CO2 sensing” parameter card)
  - Setting: “enable”

Note:

For technical reasons, the measured values of the CO2 sensor that are output can be too high shortly after bus voltage recovery.

8.6 Calculator

Up to 12 independent calculators with up to 12 inputs each are available. Percentage values, temperature values, illuminance, humidity values or CO2 concentration can be selected as inputs. These values can be evaluated in terms of maximum value, minimum value or weighted value.

The calculators can be integrated as follows:

- Each calculator can be used independently. The calculator is then supplied with input values via KNX communication objects and sends the result via a KNX communication object.
- For the input values (sources) of the calculators, the sensor-internal measured values for brightness, temperature, humidity or CO2 content can be linked directly internally. A link via group addresses is not necessary.
- Each calculator and its result can be connected directly to a brightness controller, a room temperature controller (RTC), a humidity controller, an air quality controller or to dew point calculation. No connection via group addresses is required for this. This also reduces the bus load because the values are already forwarded and processed within the device.

Application

Cascading of several devices for calculating the largest or weighted control value of a room temperature controller

The output object of the calculator from the first device is linked to an input communication object of the calculator from the second device via the group address. This makes it possible to cascade the calculated control values of several devices.

Evaluation of the largest control value for room temperature control

For the evaluation of the largest control value for heating or cooling, the percentage value (%) DPT 5.001 is selected. Here, “Maximal value“ is preset in the calculation type of the calculator.

As a result, the largest control value of the assigned channels is determined and subsequently made available as the energy requirement of a primary system with KNX interface.

The following figure “Evaluation of the largest control value (example) [→ 97]“ illustrates this.

Evaluation of the weighted control value for room temperature control

For the evaluation of individually weighted control value for heating or cooling, the percentage value (%) DPT 5.001 is selected. Here, “Weighted value“ must be set in the calculation type of the calculator.

As a result, the weighted control value of the assigned channels is determined and subsequently made available as the energy requirement of a primary system with KNX interface.

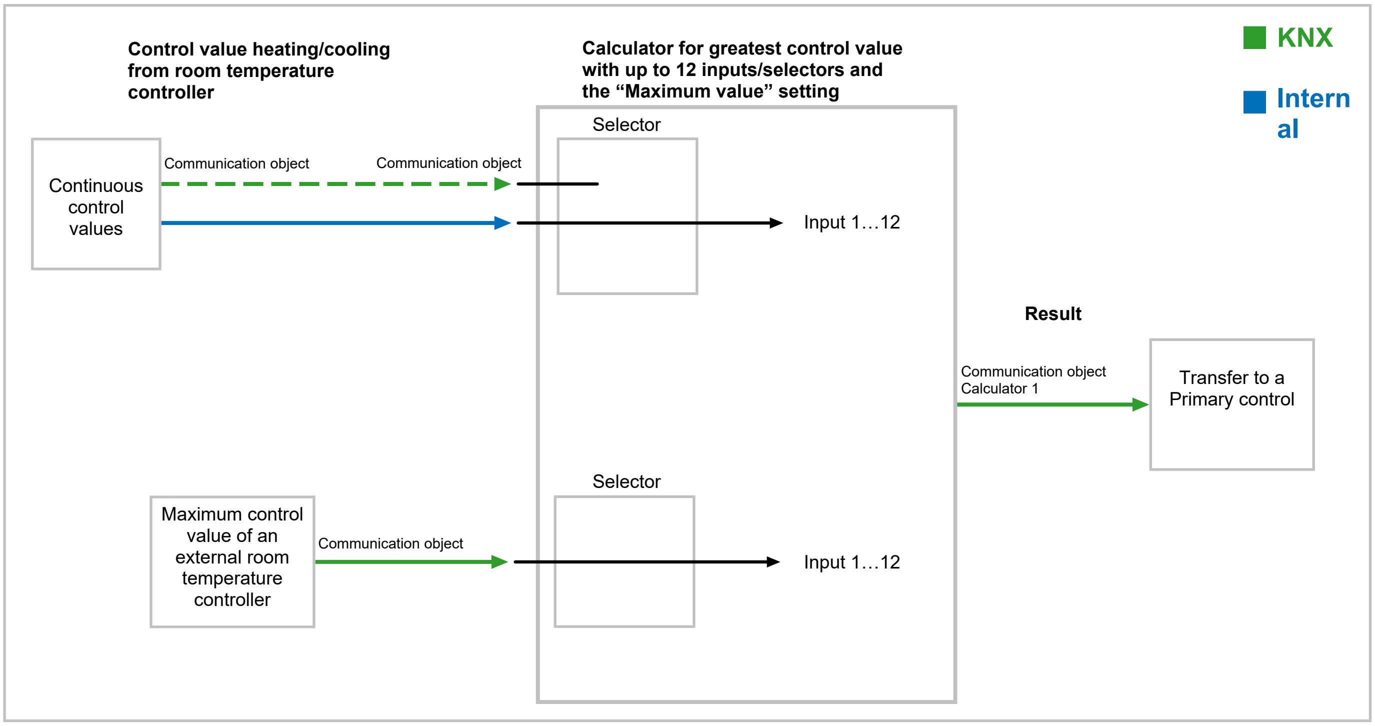


Fig. 20: Evaluation of the largest control value (example)

Weighting of several measured temperature values

For weighting different measured temperature values in the room, the temperature (°C) DPT 9.001 is selected. Here, “Weighted value“ is preset in the calculation type of the calculator. An offset in Kelvin and the degree of weighting can be set individually for each temperature source.

Depending on the room layout or placement of the various temperature sensors, a proportional weighting in the configuration is possible so that temperature sensors in exposed positions (e.g. entrance doors) can be included in the calculation in a more neutral way.

As the result, the weighted temperature of the different temperature sources is calculated. Internally, this calculated temperature can be made available directly to a room temperature controller. No connection via group addresses is required for this. This reduces the bus load because the values are already forwarded and processed within the device.

The following figure “Evaluation of the weighted value (example) [→ 97]“ illustrates this:

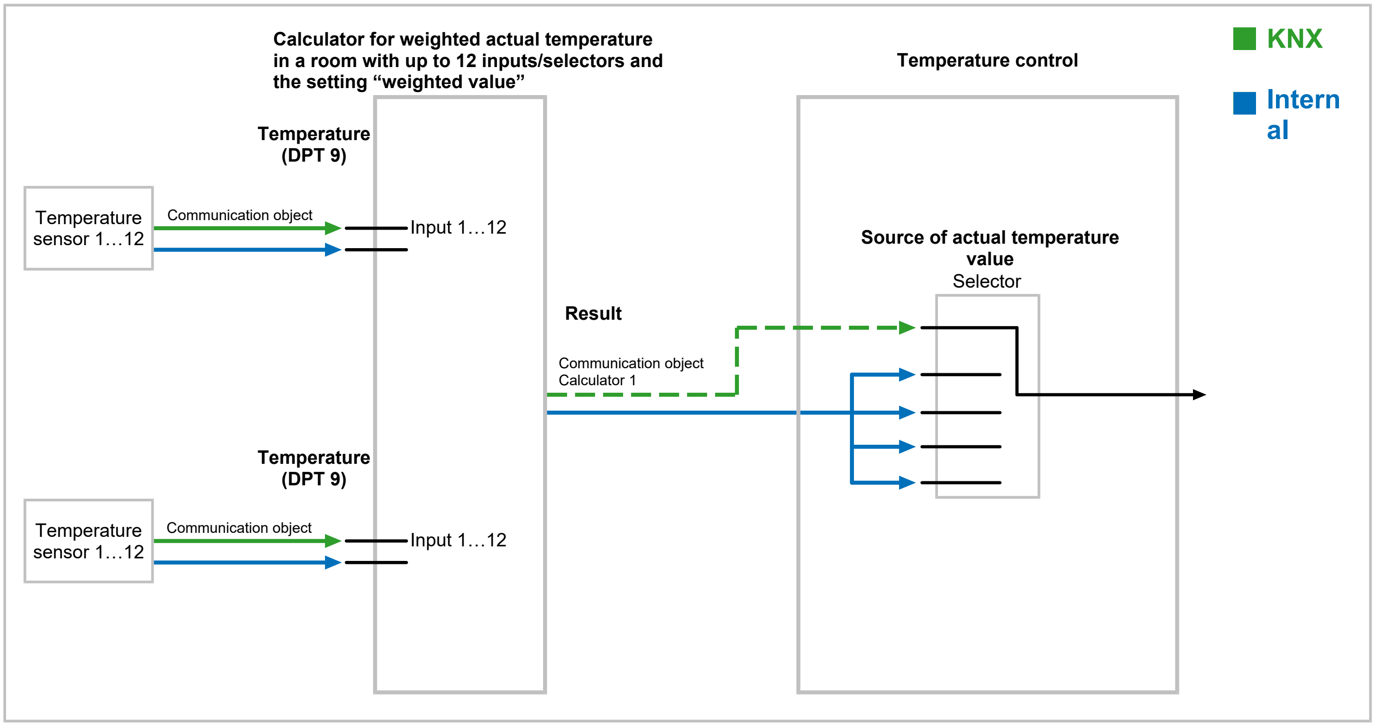


Fig. 21: Evaluation of the weighted value (example)

A detailed use case for the evaluation of a weighted value is described under "Use case: Weighted room temperature in an open-plan office [→ 115]."

More information:

- Temperature control: Actual temperature values [→ 167]

Using the calculator as a stand-alone unit

If the "Calculator" function module is used as a stand-alone unit, the input values can be linked to the KNX communication objects as required. For example, two input values of type temperature can be used and the result of the calculation for the maximum, minimum or weighted value can then be sent to a receiver via a communication object.

The calculator can also be used to evaluate percentage values, brightness values, humidity or CO2 values.

The following figure "Using the calculator as a stand-alone unit (example) [→ 98]" illustrates this:

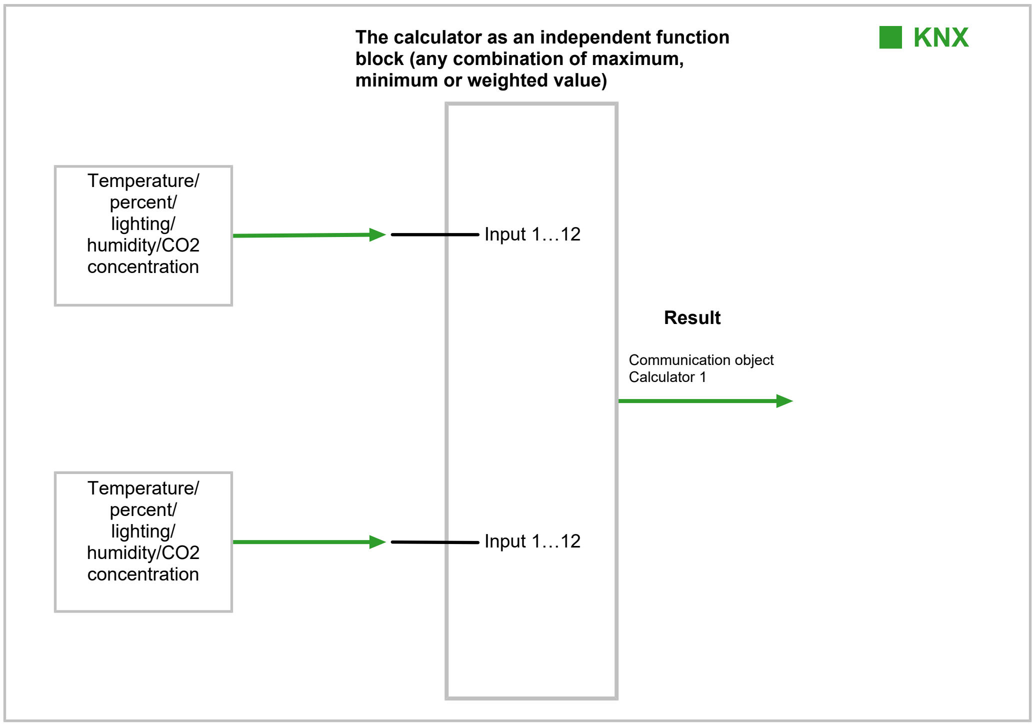


Fig. 22: Using the calculator as a stand-alone unit (example)

8.6.1 Parameters on the “Calculator” parameter card

The parameters are configured in the same way for all calculators and are therefore just described once for calculator 1.

Calculator 1

Parameter	Settings
Calculator 1	Deactivated Percentage (%) DPT 5.001 Temperature (°C) DPT 9.001 Illuminance (lx) DPT 9.004 Humidity (% r.H.) DPT 9.007 CO2 concentration (ppm) DPT 9.008

Function:

These parameters can be used to enable up to 12 calculators with up to 12 inputs each, which can be used to determine a maximum value, a minimum value or a weighted value from different physical values.

Other parameters/parameter cards:

- If the parameter “Calculator 1“ is set to “Percentage (%) DPT 5.001,” the “Calculator 1, percent” parameter card is displayed.
- If the parameter “Calculator 1“ is set to “Temperature (°C) DPT 9.001,” the “Calculator 1, temperature” parameter card is displayed.
- If the parameter “Calculator 1“ is set to “Illuminance (lx) DPT 9.004,” the “Calculator 1, brightness” parameter card is displayed.

- If the parameter “Calculator 1“ is set to “Humidity (% r.H.) DPT 9.007,” the “Calculator 1, humidity” parameter card is displayed.
- If the parameter “Calculator 1“ is set to “CO2 concentration (ppm) DPT 9.008,” the “Calculator 1, CO2” parameter card is displayed.

See also

- Parameter card “Calculator 1, percent” [→ 100]
- Parameter card “Calculator 1, temperature” [→ 103]
- Parameter card “Calculator 1, brightness” [→ 106]
- Parameter card “Calculator 1, humidity” [→ 108]
- Parameter card “Calculator 1, CO2” [→ 110]
- “Calculator” communication objects [→ 112]

8.6.2 Parameter card “Calculator 1, percent”

The “Calculator 1, percent” parameter card is displayed, if the parameter “Calculator 1“ on the “Calculator” parameter card is set to “Percentage (%) DPT 5.001.”

For evaluating the largest control value for heating or cooling applications, "Maximal value" is preset in the calculation type of the calculator. Alternatively, the setting "Weighted value" can be selected here to calculate an individual, weighted control value. The calculation result is then made available as the energy requirement of a primary system with a KNX interface.

Parameters in the “Calculator configuration” section

Calculation type

Parameter	Settings
Calculation type	Maximal value Minimal value Weighted value

Function:

This parameter can be used to set the calculation method.

The following settings are possible:

- Maximal value:

  With this method, up to 12 percentage values are used to determine the maximum value.
  This setting is preconfigured and is required to determine the largest control value for a heating or cooling requirement in a primary system.
- Minimal value:

  With this method, up to 12 percentage values are used to determine the minimum value.
- Weighted value:

  With this method, up to 12 percentage values are used to determine the weighted value. The weighting can be set via a parameter.
  This individually weighted control value is required for a heating or cooling demand request at a primary system.
  This allows, for example, less frequently used rooms to be weighted lower in the calculation of the total energy demand of the primary system.

Parameters in the “Inputs” section

Value count

Parameter	Settings
Value count	1...12

Function:

This parameter is used to set the number of control value status values (maximum 12).

Source for input value

Parameter	Settings
Source for input value	External object Air quality controller Humidity controller Temperature control

Function:

This parameter is used to select the source for the input value.

The following settings are possible:

- External object:
  An external object (= communication object) can be used as the source of the input value.
- Air quality controller:
  The internally available value of the status control value of the air quality controller is used as the source of the input value.
- Humidity controller:
  The internally available value of the status control value of the humidity controller is used as the source of the input value.
- Temperature control:
  The internally available value of the status control value of the temperature controller is used as the source of the input value. To determine the largest control value or a weighted control value, select temperature control.

Communication object:

If the “Source for input value” parameter is set to “External object,” the following communication object is displayed:

- “Calculator 1, % value 1”

Other parameters:

If the “Source for input value” parameter is set to “Temperature control,” and the temperature control is enabled in the “device settings” parameter card is enabled, the “Control value selection” parameter is displayed.

More information:

- Communication object “Calculator 1, percentage value 1”
- Parameter “Control value selection” [➙ 102]
- Parameter “Temperature control” (device settings) [➙ 39]

Control value selection

Parameter	Settings
Control value selection	Heating control value (%) (for system type “4-pipe system“) Heating control value (%), sequence 2 (for system type “4-pipe system“) Cooling control value (%) (for system type “4-pipe system“) Cooling control value (%), sequence 2 (for system type “4-pipe system“) Heating/cooling control value (%) (for system type “2-pipe system“) Heating/cooling control value (%), sequence 2 (for system type “2-pipe system“) Control value for fan control

Function:

This parameter is used to select the control value that is to be used as the input value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Temperature control” (“Device settings” parameter card)
  - Setting: “enable”
- Parameter “Source for input value”
  - Setting: “Temperature control”

Notes:

- The “Heating/cooling control value (%), sequence 2“ can only be used if the parameter “Sequence control“ is enabled on the “Heating/cooling”/”Heating”/”Cooling” parameter card.
- The control value of the fan control can only be used if the fan control is enabled via the "Ventilation control" parameter in the "Temperature control" parameter card.

More information:

- Parameter “Source for input value” [➙ 101]
- Parameter “Temperature control” (temperature control) [➙ 155]
- Parameter “Sequence control (temperature control) [➙ 193]

Weight

Parameter	Settings
Weight	1...255

Function:

This parameter is used to weight different measured values with respect to their percentage influence.

Example for calculating the weighting:

- Temperature 1: Weighting = 4, temperature 2: Weighting = 2, temperature 3: Weighting = 4
- Total of weightings: 10
- Influence per temperature: Own weighting factor divided by 10

For more information on the calculating scheme for weighting, see “Calculation scheme for specified weightings [➙ 116].”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Calculation type”
  – Setting: “Weighted value”
- Parameter “Source for input value”
  – Setting: “External object”

Parameters in the “Results calculator” section

Object result

Parameter	Settings
Object result	disable enable

Function:

This parameter is used to set whether the “Calculator 1, %, result” object is enabled or disabled.

This object is used to send the result of the calculation. The current result of the calculation can be queried using a read request via the bus at any time.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status (value) are displayed (for an explanation of the parameters, see the reference under “Additional information”).

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Calculator 1, %, result”

More information:

- Communication object “Calculator 1, %, result” [→ 113]
- Parameters that are visible if the “Status...(value)” parameter is set to “enable:” [→ 312]

8.6.3 Parameter card “Calculator 1, temperature”

The “Calculator 1, temperature” parameter card is displayed, if the parameter “Calculator 1“ on the “Calculator” parameter card is set to “Temperature (°C) DPT 9.001.”

Parameters in the “Calculator configuration” section

Calculation type

Parameter	Settings
Calculation type	Maximal value Minimal value Weighted value

Function:

This parameter can be used to set the calculation method.

The following settings are possible:

- Maximal value:

  With this method, up to 12 external measured values are used to determine the maximum value.
  This setting is pre-configured.
- Minimal value:

With this method, up to 12 external measured values are used to determine the minimum value.

- Weighted value:
  With this method, up to 12 external measured values are used to determine the weighted value. The weighting can be set via a parameter.

Parameters in the “Inputs” section

Value count

Parameter	Settings
Value count	1...12

Function:

This parameter is used to set the number of measured values (maximum 12).

Source for input value

Parameter	Settings
Source for input value	External object Temperature sensor

Function:

This parameter is preset to use an external object for transmitting the temperature as the source for the input value. Alternatively, the internal value from temperature measuring is used.

Other parameters:

If the parameter is set to “External object,” the following parameter is displayed:

- Parameter “Offset of external value 1 (K)”

More information:

- Parameter “Offset of external value 1 (K)“ [➙ 104]

Offset of external value 1 (K)

Parameter	Settings
Offset of external value 1 (K)	-10...10

Function:

This parameter can be used to set an offset for externally received temperature values. It can be used to correct environmental factors.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source for input value”
  - Setting: “External object”

More information:

- Parameter “Source for input value” [➙ 104]

Weight

Parameter	Settings
Weight	1...255

Function:

This parameter is used to weight different temperature readings with respect to their percentage influence.

Example for calculating the weighting:

- Temperature 1: Weighting = 4, temperature 2: Weighting = 2, temperature 3: Weighting = 4
- Total of weightings: 10
- Influence per temperature: Own weighting factor divided by 10

For more information on the calculating scheme for weighting, see “Calculation scheme for specified weightings [→ 116].”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Calculation type”
  - Setting: “Weighted value”

More information:

- Parameter “Calculation type” [→ 103]
- Use case: Weighted room temperature in an open-plan office [→ 115]

Parameters in the “Results calculator” section

Object result

Parameter	Settings
Object result	disable enable

Function:

This parameter is used to set whether the “Calculator 1, temperature, result” object is enabled or disabled.

This object is used to send the result of the calculation. The current result of the calculation can be queried using a read request via the bus at any time.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status (value) are displayed (for an explanation of the parameters, see the reference under “Additional information”).

Communication object:

If the “Object result” parameter is set to “enable,” the following communication object is displayed:

- “Calculator 1, temperature, result”

Notes:

- By making special settings for both the parameters “Value change since last sent (K)“ and “Value change since last sent (%),” small or large value changes can be sent preferentially. Both parameter settings work as an AND link.
- The result can be linked internally to the actual temperature of a temperature controller, to dew point calculation and to threshold monitoring. ||This link can be configured on the temperature controller (Parameter “Source of actual temperature value” on the “Actual temperature value” parameter card of temperature control.

More information:

- Communication object “Calculator 1, temperature, result” [→ 113]
- Parameter “Source of actual temperature value” (temperature control) [→ 168]
- Parameters that are visible if the “Status ...(value)” parameter is set to “enable” [→ 312]
- Temperature control [→ 140]
- Use case: Weighted room temperature in an open-plan office [→ 115]

8.6.4 Parameter card “Calculator 1, brightness”

The “Calculator 1, brightness” parameter card is displayed if the parameter “Calculator 1” on the “Calculator” parameter card is set to “Illuminance (lx) DPT 9.004.”

Parameters in the “Calculator configuration” section

Calculation type

Parameter	Settings
Calculation type	Maximal value Minimal value Weighted value

Function:

This parameter can be used to set the calculation method.

The following settings are possible:

- Maximal value:
  With this method, up to 12 external measured values are used to determine the maximum value.
  This setting is pre-configured.
- Minimal value:
  With this method, up to 12 external measured values are used to determine the minimum value.
- Weighted value:
  With this method, up to 12 external measured values are used to determine the weighted value. The weighting can be set via a parameter.

Parameters in the “Inputs” section

Value count

Parameter	Settings
Value count	1...12

Function:

This parameter is used to set the number of measured values (maximum 12).

Source for input value

Parameter	Settings
Source for input value	External object Brightness measuring

Function:

This parameter is preset to use an external object for transmitting the brightness value as the source for the input value. Alternatively, the internal value from brightness measuring is used.

Other parameters:

If the parameter is set to “External object,” the following parameter is displayed:

- Parameter “Offset of external value 1 (lx)”

More information:

- Parameter “Offset of external value 1 (lx)” [→ 106]

Offset of external value 1 (lx)

Parameter	Settings
Offset of external value 1 (lx)	-671088.6...670760.9

Function:

This parameter can be used to set an offset for externally received brightness values. It can be used to correct environmental factors.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source for input value”
  - Setting: “External object”

More information:

- Parameter “Source for input value” [➙ 106]

Weight

Parameter	Settings
Weight	1...255

Function:

This parameter is used to weight different brightness readings with respect to their percentage influence.

Example for calculating the weighting:

- Brightness value 1: Weighting = 4, brightness value 2: Weighting = 2, brightness value 3: Weighting = 4
- Total of weightings: 10
- Influence per brightness value: Own weighting factor divided by 10

For more information on the calculating scheme for weighting, see “Calculation scheme for specified weightings [➙ 116]” (example for weighting temperature values).

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Calculation type”
  - Setting: “Weighted value”

More information:

- Parameter “Calculation type” [➙ 106]

Parameters in the “Results calculator” section

Object "Result"

Parameter	Settings
Object "Result"	disable enable

Function:

This parameter is used to set whether the “Calculator 1, brightness, result” object is enabled or disabled.

This object is used to send the result of the calculation. The current result of the calculation can be queried using a read request via the bus at any time.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status (value) are displayed (for an explanation of the parameters, see the reference under “Additional information”).

Communication object:

If the “Object "Result"” parameter is set to “enable,” the following communication object is displayed:

- “Calculator 1, brightness, result”

Note:

- By making special settings for both the parameters “Value change since last sent (lx)“ and “Value change since last sent (%),” small or large value changes can be sent preferentially. Both parameter settings work as an AND link.
- The result can be linked internally to the 2-point control or constant lighting control (parameter “Source for brightness value (actual value)“ on the parameter card “2-point control,” “constant lighting control” or “threshold monitoring”).

More information:

- Communication object “Calculator 1, brightness, result” [➙ 114]
- Parameter “Source for brightness value (actual value)” (2-point control) [➙ 118]
- Parameter “Source for brightness value (actual value)” (constant lighting control) [➙ 126]
- Parameters that are visible if the “Status...(value)” parameter is set to “enable:” [➙ 312]
- 2-point brightness controller (switching) [➙ 117]
- Constant lighting controller (steady) [➙ 123]

8.6.5 Parameter card “Calculator 1, humidity”

The “Calculator 1, humidity” parameter card is displayed if the parameter “Calculator 1” on the “Calculator” parameter card is set to “Humidity (% r.H.) DPT 9.007.”

Parameters in the “Calculator configuration” section

Calculation type

Parameter	Settings
Calculation type	Maximal value Minimal value Weighted value

Function:

This parameter can be used to set the calculation method.

The following settings are possible:

- Maximal value:
  With this method, up to 12 external measured values are used to determine the maximum value.
  This setting is pre-configured.
- Minimal value:
  With this method, up to 12 external measured values are used to determine the minimum value.
- Weighted value:
  With this method, up to 12 external measured values are used to determine the weighted value. The weighting can be set via a parameter.

Parameters in the “Inputs” section

Value count

Parameter	Settings
Value count	1...12

Function:

This parameter is used to set the number of measured values (maximum 12).

Source for input value

Parameter	Settings
Source for input value	External object Humidity sensor

Function:

This parameter is preset to use an external object for transmitting the humidity value as the source for the input value. Alternatively, the internal value from humidity measuring is used.

Other parameters:

If the parameter is set to “External object,” the following parameter is displayed:

- Parameter “Offset of external value 1 (% r.h.)”

More information:

- Parameter “Offset of external value 1 (I% r.h)” [➙ 109]

Offset of external value 1 (% r.h.)

Parameter	Settings
Offset of external value 1 (% r.h.)	-100...100

Function:

This parameter can be used to set an offset for externally received humidity values. It can be used to correct environmental factors.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source for input value”
  - Setting: “External object”

More information:

- Parameter “Source for input value” [➙ 109]

Weight

Parameter	Settings
Weight	1...255

Function:

This parameter is used to weight different humidity readings with respect to their percentage influence.

Example for calculating the weighting:

- Humidity reading 1: Weighting = 4, humidity reading 2: Weighting = 2, humidity reading 3: Weighting = 4
- Total of weightings: 10
- Influence per brightness value: Own weighting factor divided by 10

For more information on the calculating scheme for weighting, see “Calculation scheme for specified weightings [➙ 116]” (example for weighting temperature values).

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Calculation type”
  - Setting: “Weighted value”

More information:

- Parameter “Calculation type”

Parameters in the “Results calculator” section

Object "Result"

Parameter	Settings
Object "Result"	disable enable

Function:

This parameter is used to set whether the “Calculator 1, humidity, result” object is enabled or disabled.

This object is used to send the result of the calculation. The current result of the calculation can be queried using a read request via the bus at any time.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status (value) are displayed (for an explanation of the parameters, see the reference under “Additional information”).

Communication object:

If the “Object "Result"” parameter is set to “enable,” the following communication object is displayed:

- “Calculator 1, humidity, result”

Notes:

- By making special settings for both the parameters “Value change since last sent (% r.h.)“ and “Value change since last sent (%),” small or large value changes can be sent preferentially. Both parameter settings work as an AND link.
- The result can be linked internally to the input value of the humidity controller. This link can be configured on the humidity controller (Parameter “Source of relative humidity value“ of the “Humidity controller,” “Dew point calculation” or “Threshold monitoring” parameter card)

More information:

- Communication object “Calculator 1, humidity, result” [→ 114]
- Parameter “Source of relative humidity value” (humidity controller) [→ 237]
- Parameters that are visible if the “Status...(value)” parameter is set to “enable:” [→ 312]
- Humidity controller [→ 235]

8.6.6 Parameter card “Calculator 1, CO2”

The “Calculator 1, CO2” parameter card is displayed if the parameter “Calculator 1” on the “Calculator” parameter card is set to “CO2 concentration (ppm) DPT 9.008.”

Parameters in the “Calculator configuration” section

Calculation type

Parameter	Settings
Calculation type	Maximal value Minimal value Weighted value

Function:

This parameter can be used to set the calculation method.

The following settings are possible:

- Maximal value:
  With this method, up to 12 external measured values are used to determine the maximum value.
  This setting is pre-configured.
- Minimal value:
  With this method, up to 12 external measured values are used to determine the minimum value.
- Weighted value:
  With this method, up to 12 external measured values are used to determine the weighted value. The weighting can be set via a parameter.

Parameters in the “Inputs” section

Value count

Parameter	Settings
Value count	1...12

Function:
This parameter is used to set the number of measured values (maximum 12).

Source for input value

Parameter	Settings
Source for input value	External object CO2 sensor

Function:
This parameter is preset to use an external object for transmitting the CO2 value as the source for the input value. Alternatively, the internal value from CO2 measuring is used.

Other parameters:
If the parameter is set to “External object,” the following parameter is displayed:
- Parameter “Offset of external value 1 (ppm)”

More information:
- Parameter “Offset of external value 1 (ppm)”

Offset of external value 1 (ppm)

Parameter	Settings
Offset of external value 1 (ppm)	-671088.6...670760.9

Function:
This parameter can be used to set an offset for externally received CO2 values. It can be used to correct environmental factors.

Availability:
The parameter is displayed if the following configuration has been made:
- Parameter “Source for input value”
  – Setting: “External object”

More information:
- Parameter “Source for input value” [→ 111]

Weight

Parameter	Settings
Weight	1...255

Function:
This parameter is used to weight different CO2 measured values with respect to their percentage influence.

Example for calculating the weighting:

- CO_2 measured value 1: Weighting = 4, CO_2 measured value 2: Weighting = 2, CO_2 measured value 3: Weighting = 4
- Total of weightings: 10
- Influence per CO_2 measured value: Own weighting factor divided by 10

For more information on the calculating scheme for weighting, see “Calculation scheme for specified weightings [➙ 116]” (example for weighting temperature values).

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Calculation type”
  – Setting: “Weighted value”

More information:

- Parameter “Calculation type”

Parameters in the “Results calculator” section

Object "Result"

Parameter	Settings
Object "Result"	disable enable

Function:

This parameter is used to set whether the “Calculator 1, CO2, result” object is enabled or disabled.

This object is used to send the result of the calculation. The current result of the calculation can be queried using a read request via the bus at any time.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status (value) are displayed (for an explanation of the parameters, see the reference under “Additional information”).

Communication object:

If the “Object "Result"” parameter is set to “enable,” the following communication object is displayed:

- “Calculator 1, CO2, result”

Notes:

- By making special settings for both the parameters “Value change since last sent (ppm)“ and “Value change since last sent (%),” small or large value changes can be sent preferentially. Both parameter settings work as an AND link.
- The result can be linked internally to the input value of an air quality controller. This link can be configured on the air quality controller. (Parameter “Source of air quality value“ of the “Air quality controller” or “Threshold monitoring” parameter card)

More information:

- Communication object “Calculator 1, CO2, result” [➙ 115]
- Parameter “Source of air quality value” (air quality controller)
- Parameters that are visible if the “Status...(value)” parameter is set to “enable:” [➙ 312]
- Air quality controller [➙ 254]

8.6.7 “Calculator” communication objects

As the communication objects for the 12 function blocks for the calculator are the same and only differ in their numbers, the following describes only the communication objects of function block 1. The respective numbers of the communication objects of the other function blocks are shown in the table of all communication objects (Communication objects for the calculator [➙ 19]).

Calculator 1, % value 1

No.	Object name	Function	Datapoint type	Flags
88	Calculator 1, % value 1	% value	5.001 percentage (0..100%)	CW

Function:

This object is used to receive the external measured value 1 (control value), with which the calculation is carried out.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Calculator 1”
  - Setting: “Percentage (%) DPT 5.001”

Calculator 1, %, result

No.	Object name	Function	Datapoint type	Flags
100	Calculator 1, %, result	% value	5.001 percentage (0..100%)	CRT

Function:

This object is used to send the result of the calculation. The current result of the calculation can be queried using a read request via the bus at any time.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object result”
  - Setting: “enable”

Calculator 1, temperature value 1

No.	Object name	Function	Datapoint type	Flags
88	Calculator 1, temperature value 1	°C value	9.001 temperature (°C)	CW

Function:

This object is used to receive the external measured value 1 (temperature value), with which the calculation is carried out.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Value count”
  - Setting greater than “0”

Calculator 1, temperature, result

No.	Object name	Function	Datapoint type	Flags
100	Calculator 1, temperature, result	°C value	9.001 temperature (°C)	CRT

Function:

This object is used to send the result of the calculation. The current result of the calculation can be queried using a read request via the bus at any time.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object result”
  - Setting: “enable”

Calculator 1, brightness value 1

No.	Object name	Function	Datapoint type	Flags
88	Calculator 1, brightness value 1	value in LUX	9.004 lux (Lux)	CW

Function:

This object is used to receive the external measured value 1 (brightness value), with which the calculation is carried out.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Value count”
  - Setting greater than “0”

Calculator 1, brightness, result

No.	Object name	Function	Datapoint type	Flags
100	Calculator 1, brightness, result	value in LUX	9.004 lux (Lux)	CRT

Function:

This object is used to send the result of the calculation. The current result of the calculation can be queried using a read request via the bus at any time.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object result”
  - Setting: “enable”

Calculator 1, relative humidity 1

No.	Object name	Function	Datapoint type	Flags
88	Calculator 1, relative humidity 1	% r.h. value	9.007 humidity (%)	CW

Function:

This object is used to receive the external measured value 1 (relative humidity), with which the calculation is carried out.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Value count”
  - Setting greater than “0”

Calculator 1, humidity, result

No.	Object name	Function	Datapoint type	Flags
100	Calculator 1, humidity, result	% r.h. value	9.007 humidity (%)	CRT

Function:

This object is used to send the result of the calculation. The current result of the calculation can be queried using a read request via the bus at any time.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object result”

– Setting: “enable”

Calculator 1, CO2 value 1

No.	Object name	Function	Datapoint type	Flags
88	Calculator 1, CO2 value 1	ppm value	9.008 parts/million (ppm)	CW

Function:

This object is used to receive the external measured value 1 (CO2 value), with which the calculation is carried out.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Value count”
  – Setting greater than “0”

Calculator 1, CO2, result

No.	Object name	Function	Datapoint type	Flags
100	Calculator 1, CO2, result	ppm value	9.008 parts/million (ppm)	CRT

Function:

This object is used to send the result of the calculation. The current result of the calculation can be queried using a read request via the bus at any time.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object result”
  – Setting: “enable”

8.6.8 Use case: Weighted room temperature in an open-plan office

The following scenario describes an example of the optimal calculation of a weighted room temperature in an open-plan office.

The open-plan office has the following characteristics:

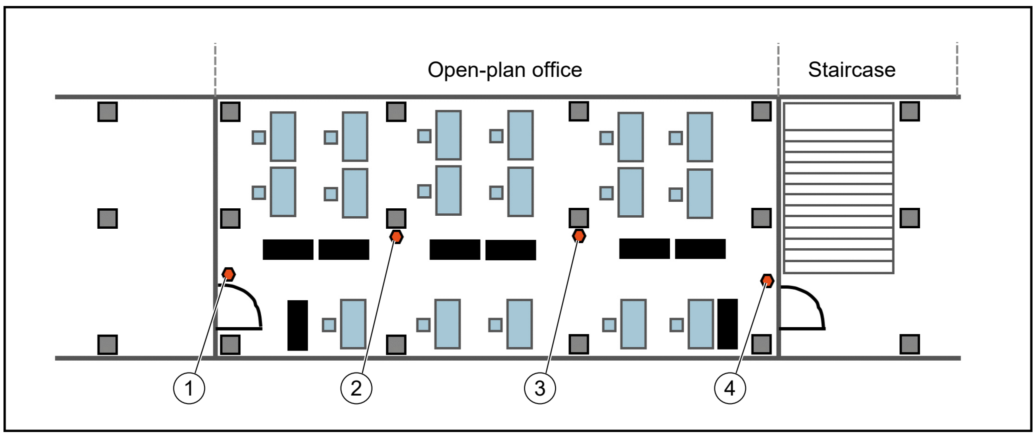


Fig. 23: Open-plan office (example)

1 − 4 Control panels incl. temperature sensor

1 Access from office next door,
Characteristics:

- People pass through frequently
- Low temperature variation

2, 3 Sensors measure the current central temperature No drafts thanks to shielding cabinets.

4 Access from the staircase
Characteristics:

- Larger temperature variations and temperature drops
- Drafts possible

The following table represents a recommendation for determining a room temperature that reflects the conditions in the room as realistically as possible:

Temperature sensor	Weighting	Percentage influence	Example 1	Example 2	Example 3
1	3	25 %	22 °C	20 °C	19 °C
2	4	33 %	23 °C	22 °C	23 °C
3	4	33 %	23 °C	22 °C	23 °C
4	1	10 %	21 °C	19 °C	18 °C
Total:	**12**	**100 %**	**22.6 °C**	**21.3 °C**	**21.6 °C**

Due to the weighting, the sensors that are exposed to a higher temperature disturbance have a lower influence (e.g. (4) in the figure “Open-plan office (example) [→ 115]“). The room temperature can thus be kept relatively even.

Calculation scheme for specified weightings

- For each sensor or imported temperature value, a weighting must be specified.
- The higher the weighting number, the more the read temperature value dominates over the other read temperature values.
- Regardless of the magnitude of the weighting specifications, they are always normalized to each other. That is, it does not matter whether "1" or "100" is assigned to each of three temperature values. The averaged result of three temperature values with the ratio of 1 : 1 : 1 is identical to the result of 100 : 100 : 100.
- All specified weightings are added for normalization. This results in the normalization sum.
- Each individual weighting is divided by this normalization sum. This results in the individual share.
- The individual share multiplied by "100" produces the proportional percentage value of this temperature value compared to the averaged temperature value.

Calculation formula:

$$\text{Individual share [\%]} = \frac{\text{Individual weighting}}{\text{Total [individual shares]}} \times 100$$

Examples with two temperature sensors

Example	Weighting of sensor 1	Weighting of sensor 2	Shares of sensor 1/ sensor 2
1	1	1	50 % / 50 %
2	2	1	66.6 % / 33.3 %

Example	Weighting of sensor 1	Weighting of sensor 2	Shares of sensor 1/ sensor 2
3	1	9	10 % / 90 %
4	4	10	28.6 % / 71.4 %
5	100	1	99.1 % / 0.9 %

Table 1: Examples with two temperature sensors

Examples with four temperature sensors

Example	Weighting of sensor 1	Weighting of sensor 2	Weighting of sensor 3	Weighting of sensor 4	Shares of sensor 1/2/3/4
1	1	1	1	1	25 % / 25 % / 25 % / 25 %
2	2	2	4	2	20 % /20 % / 40 % / 20 %
3	5	15	3	7	16.67 % /50 % / 10 % / 23.33 %

Table 2: Examples with four temperature sensors

8.7 2-point brightness controller (switching)

2-point control is the most basic form of lighting control. If the brightness controller is activated (automatic mode), the lighting is switched on as soon as the brightness falls below the configured lower brightness limit. The lighting is switched off once the configured upper brightness limit is exceeded. The brightness limits can be set using parameters or communication objects.

The split into two individual switching objects when the limit is exceeded or not reached, the controller can also be operated semi-automatically. This means that "On only" or "Off only" can be switched.

If the controller receives a switching or dimming command via one of the corresponding communication objects via KNX, then this is evaluated as an external override and the controller switches off automatic operation. At the same time, this change of state is sent to the bus via the “controller status” object, whereby the current status of the lighting is retained.

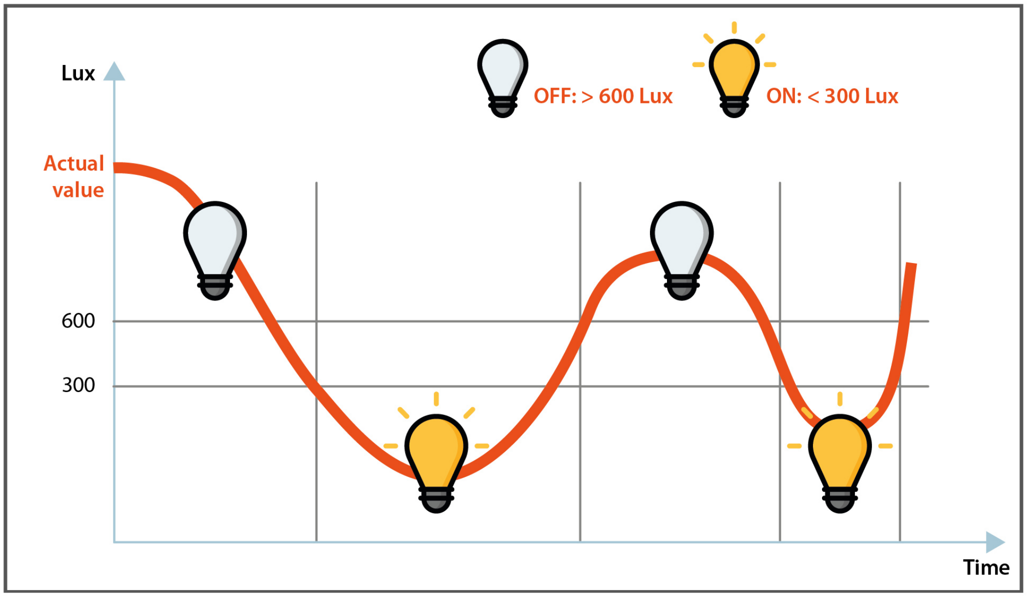


Fig. 24: 2-point control in automatic operation

If you want to give the controller a value in the format of an external brightness sensor, you must use the calculation function.

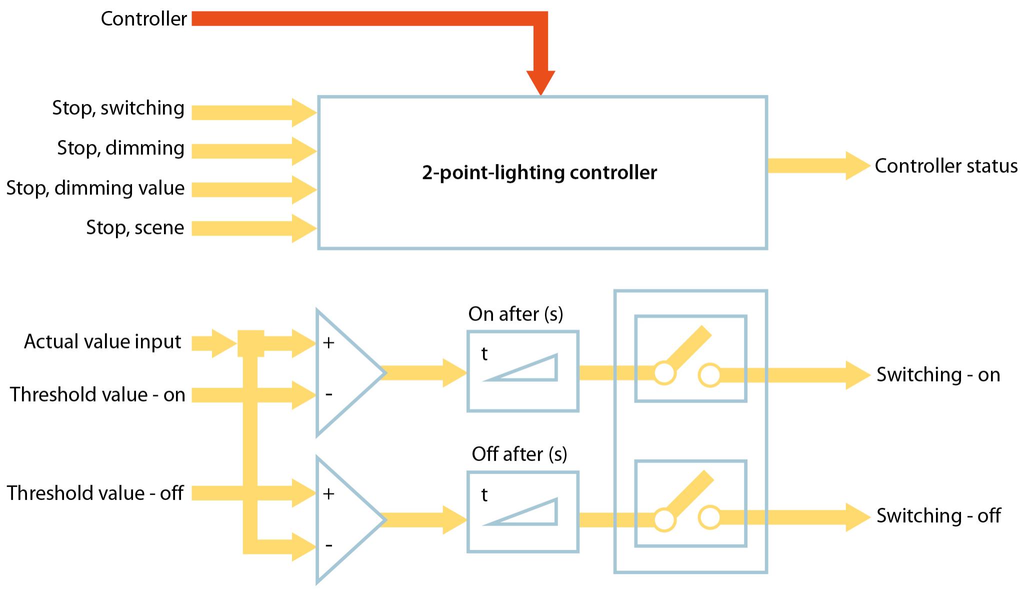


Fig. 25: 2-point control

8.7.1 Parameters on the “2-point control” parameter card

The “2-point control” parameter card is displayed if the parameter “2-point control” on the “Device settings” parameter card is set to “enable.”

Source for brightness value (actual value)

Parameter	Settings
Source for brightness value (actual value)	Internal value Calculated value

Function:

This parameter is used to select the source for the brightness value.

Index of calculator

Parameter	Settings
Index of calculator	1…12

Function:

This parameter is used to set the source for the calculated value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source for brightness value”
  - Setting: “Calculated value”

Note:

The calculator used must be configured with the correct data type.

Behavior controller at bus voltage recovery

Parameter	Settings
Behavior controller at bus voltage recovery	Off On As before bus voltage failure

Function:

This parameter can be used to set how the controller is to behave after bus voltage recovery.

The following settings are possible:

- Off:
  After bus voltage recovery, the controller is off.
- On:
  After bus voltage recovery, the controller is switched on and controlling is active.
- as before bus voltage failure: The controller remains in the same status as before bus voltage failure.

Behavior at controller off

Parameter	Settings
Behavior at controller off	Off No change

Function:

This parameter can be used to set whether the switching telegram “Off” is to be sent when the controller is switched off (setting: Off) or not (setting: “No change”).

Setpoint changeable via object

Parameter	Settings
Setpoint changeable via object	disable enable

Function:

This parameter is used to specify whether the setpoints are set as parameters to a fixed value during control, each of which can only be changed with the ETS, or whether the corresponding factory-set parameter values can be changed at any time via the bus using communication objects.

The values received via the communication objects immediately overwrite the factory-set parameter value and are stored permanently.

Control stop for scenes

Parameter	Settings
Control stop for scenes	disable enable

Function:

This parameter enables the "Scenes for controller stop" parameter card, where users can select scene numbers that switch off the controller when received on the "2-point control, stop at scenes" object.

Other parameters/parameter cards:

If the parameter is set to “enable,” the following parameters are displayed:

- “Scenes for controller stop”

Scene 1 (...64)

Parameter	Settings
Scene 1 (...64)	disable enable

Function:

This parameter can be used to enable the scene number that switches off the controller when received on the object “2-point control, stop for scenes.” The controller can only be switched on again by receiving “logical 1" at the "2-point control, controller" object.

Availability:

The parameter is displayed on the “Scenes for controller stop” parameter card, if the following parameters have been configured:

- Parameter “Controller stop for scenes”
  - Setting: “enable”

The parameter is available on the “Scenes for controller stop” parameter card.

Parameters in the “Switch on” section:

if brightness value <= xx LUX

Parameter	Settings
if brightness value <= xx LUX	20...670760

Function:

This parameter is used to specify from which brightness value onwards the “switch on” telegram is sent. If the selected brightness value for switching on is greater than the brightness limit for switching off, the controller sets the value for switching on to the same value as for switching off; i.e. both values are identical. Consequently, the controller only sends a telegram for switching on. In this case, manual switch off is required.

not before

Parameter	Settings
not before (hh:mm:ss.f)	00:00:00.0 ... 01:49:13.5

Function:

This parameter is used to set a delay after which the ON telegram is sent.

Parameters in the “Switch off” section

if brightness value >= xx LUX

Parameter	Settings
if brightness value >= xx LUX	20...670760

Function:

This parameter is used to define from which brightness value onwards the “Switch Off” telegram is sent.

not before

Parameter	Settings
not before (hh:mm:ss.f)	00:00:00.0 ... 01:49:13.5

Function:

This parameter is used to set a delay after which the OFF telegram is sent.

Controller status

Parameter	Settings
Controller status	disable enable

Function:

This parameter is used to set whether communication object “2-point control, controller status” is supposed to be available. The controller uses this object to communicate its status. This can either have the value "On,” i.e. the controller is operating in automatic mode, or the value “Off.”

Other parameters/parameter cards:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”).

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

8.7.2 Communication objects “2-point control”

2-p. lighting control, controller

No.	Object name	Function	Datapoint type	Flags
244	2-p. lighting control, controller	On/Off	1.001 switch	CW

Function:

This object can be used to switch the controller on or off. This information can come, for example, from a bus push button or from the output object of a presence detector.

2-p. lighting control, status controller

No.	Object name	Function	Datapoint type	Flags
245	2-p. lighting control, status controller	On/Off	1.002 boolean	CRT

Function:

The controller uses this object to share its internal status externally. The status can either have the value "On,” i.e. the controller is operating in automatic mode, or the value “Off.” No distinction is made whether the controller was switched off manually or by override ("Stop" objects)

2-p. lighting control, stop when switching

No.	Object name	Function	Datapoint type	Flags
246	2-p. lighting control, stop when switching	Switching	1.001 switch	CW

Function:

If a value is received via this object (logical 0 or 1), the controller switches off because it has been overwritten externally. The controller can only be switched on again by receiving “logical 1" at the "2-point control, controller" object.

2-p. lighting control, stop when dimming

No.	Object name	Function	Datapoint type	Flags
247	2-p. lighting control, stop when dimming	Dimming	3.007 dimming control	CW

Function:

If a value is received via this object (4-bit dimming command), the controller switches off because it has been overwritten externally. The controller can only be switched on again by receiving “logical 1" at the "2-point control, controller" object.

2-p. lighting control, stop at dimming value

No.	Object name	Function	Datapoint type	Flags
248	2-p. lighting control, stop at dimming value	Dimming value	5.001 percentage (0..100%)	CW

Function:

If a value is received via this object (8-bit dimming value), the controller switches off because it has been overwritten externally. The controller can only be switched on again by receiving “logical 1" at the "2-point control, controller" object.

2-p. lighting control, stop for scenes

No.	Object name	Function	Datapoint type	Flags
249	2-p. lighting control, stop for scenes	Scene	18.001 scene control	CW

Function:

If a scene value (0...63) is received via this object, the controller switches off, if the corresponding scene number is enabled on the parameter card “scenes for controller.” The controller can only be switched on again by receiving “logical 1" at the "2-point control, controller" object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller off for scenes” (parameter card “ 2-point control, stop for scenes”)
  - Setting: “enable”

2-p. lighting control, threshold - on

No.	Object name	Function	Datapoint type	Flags
250	2-p. lighting control, threshold - on	9.004 lux (Lux)	9.004 lux (Lux)	CRW

Function:

This object is used to externally set the threshold value for switching on the 2-point control. Until the first value is received, the value from the "Switch on when brightness value < = xx LUX" parameter is used as the default value.

This object is saved in case of a bus voltage failure and restored on bus voltage recovery.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Setpoint changeable via object” (parameter card “2-point control, threshold - On”)
  - Setting: “enable”

2-p. lighting control, threshold - off

No.	Object name	Function	Datapoint type	Flags
251	2-p. lighting control, threshold - off	Value in LUX	9.004 lux (Lux)	CRW

Function:

This object is used to externally set the threshold value for switching off the 2-point control. Until the first value is received, the value from the "Switch off when brightness value > = xx LUX" parameter is used as the default value.

This object is saved in case of a bus voltage failure and restored on bus voltage recovery.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Setpoint changeable via object” (parameter card “2-point control, threshold - Off”)
  – Setting: “enable”

2-p. lighting control, switching

No.	Object name	Function	Datapoint type	Flags
252	2-p. lighting control, switching	On	1.001 switch	CRT

Function:

This object is one of the two outputs of the 2-point controller. The object sends a value (On) if the brightness is below the configured or set brightness value in a certain period.

2-p. lighting control, switching

No.	Object name	Function	Datapoint type	Flags
253	2-p. lighting control, switching	Off	1.001 switch	CRT

Function:

This object is one of the two outputs of the 2-point controller. The object sends a value (Off) if the brightness is above the configured or set brightness value in a certain period.

8.8 Constant lighting controller (steady)

Constant lighting control is an advanced form of lighting control. The control uses natural light to balance out the artificial light that is necessary to light the room adequately, which reduces power consumption and therefore costs.

The illuminance of natural light entering a room through the window decreases the deeper it enters into the room.

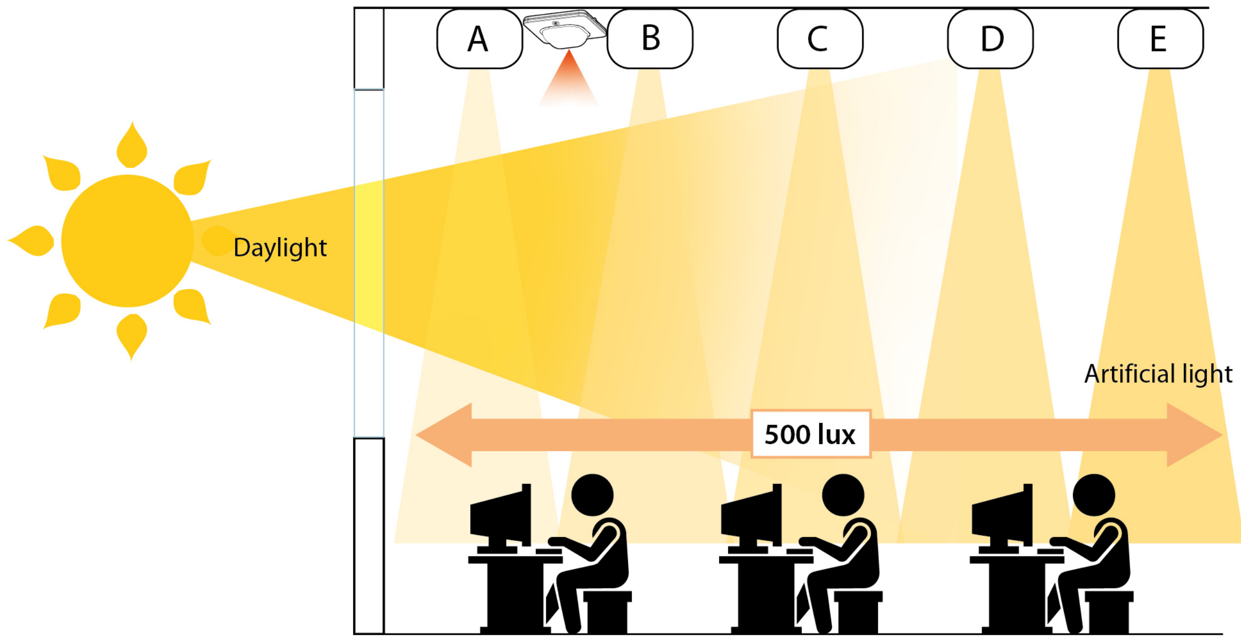


Fig. 26: Principle of constant lighting control for five groups of lights

Depending on the lamps, lighting is regulated using dimming actuators or switching/ dimming actuators to the specified target brightness value, whereby the setpoint can be selected as a parameter or as a communication object.

In order to use the entering natural light in the best possible way with constant lighting control, the presence detector offers the option to control a main lighting group directly and up to four additional sub-lighting groups, each via a separate characteristic curve and a separate controller (manager/subordinate mode). All lighting groups are supposed to be dimmed to the same setpoint (e.g. 500 lux). In this way, the brightness in a room can be regulated with a single presence detector with constant lighting control. Depending on whether the secondary lighting groups are closer to the window or further away from the window than the main lighting group ("manager"), the respective lighting group must be dimmed up or down accordingly.

To do so, you first need to determine where in the room the presence detector is installed. The presence detector can be installed on the ceiling at positions A - E. The position of the presence detector, which determines the main lighting group, is basically freely selectable. However, this position should be as close as possible to the window to best capture the natural light.

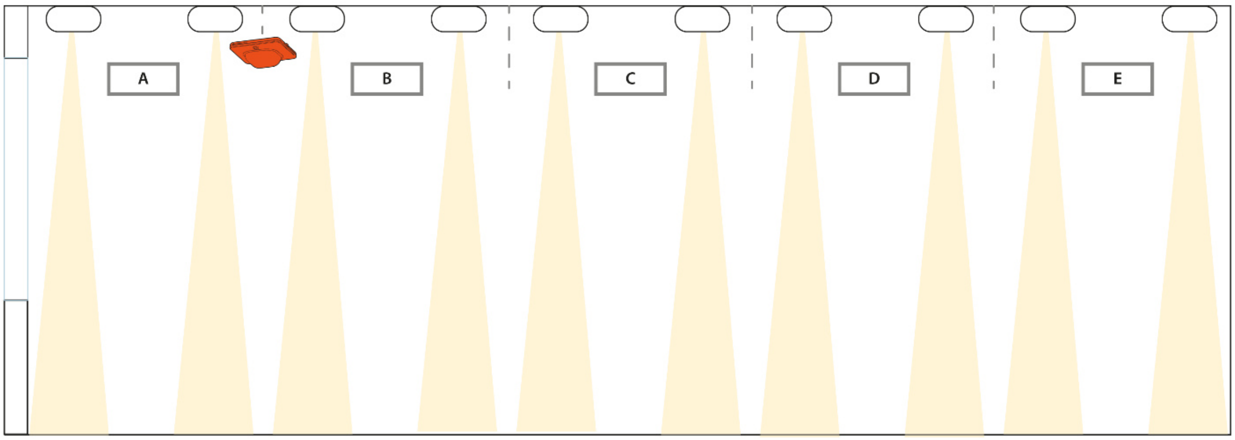


Fig. 27: Position of lighting group A-E

For manager/subordinate operation, the course of the natural light must be recorded under lighting groups A–E. To do this, the lighting in the room must be switched off completely so that the room is illuminated only by natural light. Ideally, the natural light is even (no shadows), bright and diffuse, e.g. on a bright day with a cloudy sky around midday. Under each of the lighting groups, the illuminance (lux) must then be measured manually and the values entered into the ETS.

In this case, sub group 1 corresponds to lighting group B, sub group 2 to lighting group C and so on. Lighting group A is the main group as it is the closest to the window.

The control characteristic cover for the sub lighting groups must be determined without natural light. To do this, the room must be darkened completely or the characteristic curve must be recorded at night. When a start signal is sent to object 179, the recording of the characteristic curve starts. The presence detector independently creates 15 discrete control values in the range of 0 % to 100 % for the main lighting group and the sub lighting groups. The presence detector records the resulting illuminance. The interval between measurements can be selected between 10 and 60 seconds in order to optimally preheat the luminaires at each individual setting value.

After successful completion or cancellation of the calibration, the controller is in the "inactive" state. If the calibration is completed successfully, the light groups all light up with 50 % control value; if the calibration is completed incorrectly, they light up with 6 % control value.

When in operation, constant lighting control can assume four internal states:

- **Active:** Actual controlling takes place in this state. This means that a comparison between the setpoint and actual value is carried out at certain intervals (configurable) and a control value is output depending on the deviation.
- **Inactive:** In this state, the controller is passive. That is, it is switched off and no longer performs any controlling activities.
- **Standby:** The controller is also passive in this state. Unlike in “inactive” state, the actual value is still compared to the target value here. If there is a certain difference between the setpoint and the actual value, the controller switches itself to active.
- **Off:** The control is stopped and the actuators (manager & subordinate) are switched off.

8.8.1 Parameters on the “Constant lighting control” parameter card

The “Constant lighting control” parameter card and additional parameter cards are displayed if the parameter “Constant lighting control” on the “Device settings” parameter card is set to “enable.”

Source for brightness value (actual value)

Parameter	Settings
Source for brightness value (actual value)	Internal value Calculated value

Function:

This parameter is used to set the source for the calculated value.

Index of calculator

Parameter	Settings
Index of calculator	1…12

Function:

This parameter is used to set the source for the calculated value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source for brightness value (actual value)”
  - Setting: “Calculated value”

Note:

The calculator used must be configured with the correct data type.

Parameters in the “Setpoint” section

Setpoint (lx)

Parameter	Settings
Setpoint (lx)	20...670760

Function:

This parameter is used to specify the brightness setpoint for constant lighting control.

If the "Change setpoint via object" parameter is set to "enable", this parameter specifies the start value if no valid value has yet been received via object.

Setpoint changeable over object

Parameter	Settings
Setpoint changeable over object	disable enable

Function:

This parameter is used to specify whether the setpoint is set as a parameter to a fixed value during control, which can only be changed with the ETS, or whether the corresponding factory-set parameter value can be changed at any time via the bus using communication objects.

The value received via the communication object immediately overwrites the factory-set parameter value and is stored permanently.

Minimum setpoint (lx)

Parameter	Settings
Minimum setpoint (lx)	20.00...670760.00

Function:

This parameter is used to set the lower limit that applies when specifying the setpoint via an object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change setpoint via object”
  - Setting: “enable”

Maximal setpoint (lx)

Parameter	Settings
Maximal setpoint (lx)	20...670760

Function:

This parameter is used to set the upper limit that applies when specifying the setpoint via an object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change setpoint via object”
  - Setting: “enable”

Reset setpoint at controller OFF

Parameter	Settings
Reset setpoint at controller OFF	disable enable

Function:

This parameter is used to set whether or not the setpoint set via object is to be reset when the controller is switched off. If the parameter is set to “enable,” when the controller is switched off, the setpoint is reset to the setpoint last received via the "Constant lighting control, setpoint absolute" object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change setpoint via object”
  - Setting: “enable”

Note:

If no absolute setpoint has yet been received via the object, the setpoint is reset to the setpoint configured via ETS when the controller is switched off.

Store current brightness value as setpoint via object

Parameter	Settings
Store current brightness value as setpoint via object	disable enable

Function:

This parameter can be used to set whether the current brightness value is to be stored as the new setpoint via the 1-bit object “Constant lighting control, store setpoint.”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change setpoint via object”
  - Setting: “enable”

Setpoint changes per dimming step by (%)

Parameter	Settings
Setpoint changes per dimming step by (%)	1...50

Function:

This parameter is used to specify the value by which the brightness setpoint for continuous constant lighting control is to change per dimming step if the "Constant lighting control, setpoint relative" object is used.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change setpoint via object”
  - Setting: “enable”

Status of setpoint

Parameter	Settings
Status of setpoint	disable enable

Function:

This parameter is used to set whether communication object “Constant lighting control, setpoint status” is supposed to be available. This object can be used to output or query the current setpoint.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change setpoint via object”
  - Setting: “enable”

Other parameters/parameter cards:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”).

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Parameters in the “Control On/Off” section

Behavior controller at bus voltage recovery

Parameter	Settings
Behavior controller at bus voltage recovery	Off On As before bus voltage failure

Function:

This parameter can be used to set how the controller is to behave after bus voltage recovery.

The following settings are possible:

- Off:
  After bus voltage recovery, the controller is off.
- On:
  After bus voltage recovery, the controller is switched on and controlling is active.
- As before bus voltage failure:
  The controller remains in the same status as before bus voltage failure.

Only switch on light at start of control when necessary

Parameter	Settings
Only switch on light at start of control when necessary	disable enable

Function:

This parameter can be used to set that when the control is started with sufficient brightness, the light is switched on only when needed. If the parameter is set to "enable," when the brightness is greater than the setpoint range and the last status dimming value received from the actuator was 0%, the controller switches to the "standby" state and does not send any control values. If there is a certain difference between the setpoint and the actual value, the controller then switches itself to active.

Behavior of light at controller off

Parameter	Settings
Behavior of light at controller off	Off No change

Function:

This parameter can be used to set whether the control value 0 % or the "Off" switching telegram is to be sent when the controller is switched off (setting: Off) or not (setting: "No changes").

Control stop for scenes

Parameter	Settings
Control stop for scenes	disable enable

Function:

This parameter enables the "Scenes for controller stop" parameter card, where users can select scene numbers that switch off the controller when received on the "Constant lighting control, stop for scenes" object.

Other parameters/parameter cards:

If this parameter is set to "enable," the parameter card "Scenes for controller stop" is displayed.

Scene 1 (…64)

Parameter	Settings
Scene 1 (…64)	disable enable

Function:

This parameter can be used to enable the scene number that switches off the controller when received on the object "Constant lighting control, stop for scene." The controller can only be switched on again by receiving "logical 1" at the "Constant lighting control, controller" object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Controller stop for scenes"
  - Setting: "enable"

The parameter is available on the "Scenes for controller stop" parameter card.

Start controller with setpoint greater than 0

Parameter	Settings
Start controller with setpoint greater than 0	disable enable

Function:

This parameter defines whether the controller should change to the "active" state if a setpoint greater than "0" is received via the "Constant lighting control, setpoint absolute" communication object. The specified value in lux is also the new setpoint.

Switch off at setpoint = 0

Parameter	Settings
Switch off at setpoint = 0	disable enable

Function:

This parameter is used to specify whether, after receiving the control value “0 lx” via the object “Constant lighting control, setpoint - absolute,” the controller is to switch to the “Off” state. This ends the controller's function and at the same time the actuators are switched off with the dimming value 0.

Controller status

Parameter	Settings
Controller status	disable enable

Function:

This parameter is used to set whether communication object “Constant lighting control, controller status” is supposed to be available. The controller uses this object to communicate its status. This can either have the value "On," i.e. the controller is operating in automatic mode, or the value “Off.”

Other parameters/parameter cards:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”).

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Parameters in the “Control” section

Max. deviation from setpoint(hysteresis) (+/- %)

Parameter	Settings
Max. deviation from setpoint(hysteresis) (+/- %)	5...20

Function:

This parameter defines the difference between the actual value and the setpoint at which the controller starts to control.

Send dimming value after (control speed)

Parameter	Settings
Send dimming value after (control speed) (hh:mm:ss.f)	00:00:00.1 ... 00:00:20.0

Function:

This parameter is used to define at which time intervals the controller outputs the calculated setpoints.

Time until the controller automatically shuts off (0 = never)

Parameter	Settings
Time until the controller automatically shuts off (0 = never) (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

If the control value of the controller in the active state has reached the minimum dimming value and at the same time the actual brightness value is greater than the brightness setpoint, the controller changes to the "Standby" state. If configured, it also sends the switching telegram with the value “Off.”

The time from reaching the above described conditions until changing to the "Standby" state is set by the above parameter. If the parameter is set to "0", the controller remains in the "Active" state with its minimum control values.

Automatic reactivation of controller

Parameter	Settings
Automatic reactivation of controller	disable enable

Function:

This parameter can be used to set whether automatic restarting of the controller from the "Standby" state should be prevented or not. When set to “disable,” the controller can only be switched on again by receiving “logical 1" at the “Constant lighting control, controller" object. If set to “enable,” and if there is a certain difference between the setpoint and the actual value, the controller then switches itself to active.

Additional hysteresis for automatic reactivation of the controller (%)

Parameter	Settings
Additional hysteresis for automatic reactivation of the controller (%)	5...70

Function:

In “standby” mode, if the actual value falls below the setpoint minus hysteresis minus additional hysteresis, the controller automatically switched to “active” mode.

Parameters in the “Controller output” section

First dimming value, when the controller starts

Parameter	Settings
First dimming value, when the controller starts	Adopt from parameter Query from dimming actuator's status Calculate start value Use last received value Calculate starting value considering last received value

Function:

This parameter is used to defined how the first dimming value (start value) of the controller is determined.

The following settings are possible:

- Adopt from parameter:
  With this setting, the controller starts with a fixed, configured dimming value. This setting makes sense when the other options are not viable.
- Query from dimming actuator's status:
  A status query is used to query the current control value from the dimming actuator, which is then used to start controlling. This is necessary because there is a chance that the settings of the dimming actuator were changed manually before starting the controller.
- Calculate start value:
  In doing so, the current actual value is measured before the control operation is started. The value represents mixed light (artificial light from the lamp + natural

light from outside). The measured room brightness value is then converted into a control value by using the characteristic curve and used as the starting value for controlling.

- Use last received value:
  This setting uses the last dimming value received via the object “Constant lighting control, Main group dimming value status” as the starting value when controlling starts. If no value is available, the value of the “First dimming value (%)” parameter is used.
- Calculate starting value considering last received value:
  In doing so, the current actual value is measured before the control operation is started. The value represents mixed light (artificial light from the lamp + natural light from outside). The last dimming value received via the object “Constant lighting control, Main group dimming value status” is used to calculate the external light portion. This is then converted into a control value by using the characteristic curve and used as the starting value for controlling.

First dimming value (%)

Parameter	Settings
First dimming value (%)	1...100

Function:

This parameter is used to set the start value of the controller setpoints. The setting “Adopt from parameter“ always uses this dimming value when control is started, the other settings (except “Calculate start value") use this dimming value if no value should be present.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “First dimming value, when the controller starts”
  - Setting: “Adopt from parameter”
  - Setting: “Query from dimming actuator's status”
  - Setting: “Use last received value”
  - Setting: “Calculate starting value considering last received value”

Minimum dimming value (%)

Parameter	Settings
Minimum dimming value (%)	1...100

Function:

This parameter is used to specify the minimum dimming value of the main group.

Maximum dimming value (%)

Parameter	Settings
Maximum dimming value (%)	1...100

Function:

This parameter is used to specify the maximum dimming value of the main group.

Note:

If the maximum dimming value was accidentally configured smaller than the minimum dimming value, the two values are switched automatically.

Max. increment when dimming (%)

Parameter	Settings
Max. increment when dimming (%)	1...10

Function:

This parameter is used to define the maximum increment when outputting the set-points.

Note:
The increment should be selected so that a change of dimming value does not change the illuminance by more than the hysteresis set for the setpoint.

Send additional switching telegram at start

Parameter	Settings
Send additional switching telegram at start	disable enable

Function:
This parameter is used to specify whether or not an additional switch on telegram is to be sent at the start of controlling (switch to the “active” state).

Send additional switching telegram at stop

Parameter	Settings
Send additional switching telegram at stop	disable enable

Function:
This parameter is used to specify whether or not an additional switch off telegram is to be sent at the end of controlling (leaving the “active” state).

Parameters in the “Calibration” section

Time until the next calibration value

Parameter	Settings
Time until the next calibration value hh:mm:ss.f	00:00:10.0 ... 00:01:00.0

Function:
This parameter sets the time between the individual brightness measurements of the controller during automatic calibration.
Note:
A high value should be selected for lamps that require a longer start-up time to reach full brightness.

8.8.2 Parameters on the “Sub groups” parameter card

Number of sub groups

Parameter	Settings
Number of sub groups	0…4

Function:
This parameter is used to set the number of subordinate groups.
Availability:
The parameter is available on the “Sub groups” parameter card.

Calculation type

Parameter	Settings
Calculation type	Calculate with characteristic curve Calculate with offset

Function:
This parameter determines which type of calculation is used for the dimming control values of the subordinate groups.
The following settings are possible:

- Calculate with characteristic curve:
  The dimming control values are derived from the dimming control value of the main lighting group via calibration curves that convert the measured (main) illuminance into a calculated illuminance on the position of each subordinate lighting group.
- Calculate with offset:
  The dimming control values are derived from the dimming control value of the main lighting group via an offset that is entered for each lighting sub group.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Number of sub groups”
  – Setting: “greater than 0”

Individually switch main/ sub groups

Parameter	Settings
Individually switch main/sub groups	disable enable

Function:

This parameter can be used to set whether or not the sub groups are to be switched separately from the main group for the calculation type “Calculate with characteristic curve.” That is, if this is set to “enable,” a target value/setpoint comparison is performed for each sub group so that the lighting sub groups are switched on and off individually.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Calculation type”
  – Setting: “Calculate with characteristic curve”

Sub group 1, minimum dimming value (%)

Parameter	Settings
Sub group 1, minimum dimming value (%)	1...100

Function:

This parameter is used to specify the minimum dimming value of the respective subordinate group (1 -4).

Sub group 1, maximum dimming value (%)

Parameter	Settings
Sub group 1, maximum dimming value (%)	1...100

Function:

This parameter is used to specify the maximum dimming value of the respective subordinate group (1 -4).

Note:

If the maximum dimming value was accidentally configured smaller than the minimum dimming value, the two values are switched automatically.

Sub group 1 [2…4], Sub group 1, Offset for the dimming value of the main group (%)

Parameter	Settings
Sub group 1, Offset for the dimming value of the main group (%)	-100...100

Function:

This parameter is used to specify the maximum offset dimming value of the respective subordinate group (1 -4) to the main group.

Availability:

The parameter is displayed if the following configuration has been made:
- Parameter “Calculation type”
  – Setting: “Calculate with offset”

Main group, measured brightness value (lx)

Parameter	Settings
Main group, measured brightness value (lx)	0...670760

Function:
This and the following parameters are used to determined at which position the main and subordinate lighting groups are located. The brightness value measured with a lux meter at the main group lights is entered here.

Availability:
The parameter is displayed if the following configuration has been made:
- Parameter “Calculation type”
  – Setting: “Calculate with characteristic curve”

Sub group 1, Measured brightness value (lx)

Parameter	Settings
Sub group 1, Measured brightness value (lx)	0...670760

Function:
This and the previous parameters are used to determined at which position the main and subordinate lighting groups are located. The brightness value measured with a lux meter at the sub group lights is entered here.

Availability:
The parameter is displayed if the following configuration has been made:
- Parameter “Calculation type”
  – Setting: “Calculate with characteristic curve”

8.8.3 Communication objects “Constant lighting control”

Constant lighting control, controller

No.	Object name	Function	Datapoint type	Flags
254	Constant lighting control, controller	On/Off	1.001 switch	CW

Function:
This object can be used to switch the controller on or off. This information can come, for example, from a bus push button or from the output object of a presence detector.

Constant lighting control, controller status

No.	Object name	Function	Datapoint type	Flags
255	Constant lighting control, controller status	On/Off	1.002 boolean	CRT

Function:
The controller uses this object to share its internal status externally. The status can either have the value "On,” i.e. the controller is operating in automatic mode, or the value “Off.” No distinction is made whether the controller was switched off manually or by override ("Stop" objects)

Constant lighting control, stop when switching

No.	Object name	Function	Datapoint type	Flags
256	Constant lighting control, stop when switching	Switching	1.001 switch	CW

Function:

If a value is received via this object (logical 0 or 1), the controller switches off because it has been overwritten externally. The controller can only be switched on again by receiving “logical 1" at the “Constant lighting control, controller" object.

Constant lighting control, stop at dimming value

No.	Object name	Function	Datapoint type	Flags
258	Constant lighting control, stop at dimming value	Dimming value	5.001 percentage (0..100%)	CW

Function:

If a value is received via this object (8-bit dimming value), the controller switches off because it has been overwritten externally. The controller can only be switched on again by receiving “logical 1" at the “Constant lighting control, controller" object.

Constant lighting control, stop for scenes

No.	Object name	Function	Datapoint type	Flags
259	Constant lighting control, stop for scenes	Scene	18.001 scene control	CW

Function:

If a scene value (0...63) is received via this object, the controller switches off, if the corresponding scene number is enabled on the parameter card “controller stop for scenes.” The controller can only be switched on again by receiving “logical 1" at the “Constant lighting control, controller" object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Control stop for scenes“ (“Constant lighting control” parameter card)
  – Setting: “enable”

Constant lighting control, setpoint - absolute

No.	Object name	Function	Datapoint type	Flags
260	Constant lighting control, setpoint - absolute	Value in LUX	9.004 lux (Lux)	CW

Function:

This object is used to set the setpoint for constant lighting control. Until the first value is received, the value from the “Setpoint (lx)“ parameter is used as the default value.

Note:

- When the setpoint is changed, depending on the calibration characteristic determined, a control process can take place even if the actual value is already within the range of the hysteresis around the new setpoint.
- The setpoint is limited by the parameters “Minimum setpoint (lx)“ and “Maximal setpoint (lx).”
- When a 0 is received, the setpoint is not changed.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Change setpoint via object“ (“Constant lighting control” parameter card)
  – Setting: “enable”

Constant lighting control, setpoint - relative

No.	Object name	Function	Datapoint type	Flags
261	Constant lighting control, setpoint - relative	brighter/ darker	3.007 dimming control	CW

Function:

This object can be used to change the setpoint. The controller increments or decrements the internal setpoint at the interval of the controller speed by a dimming step set via a parameter if dimming with stop telegram is used.

Note:

The setpoint is limited by the parameters “Minimum setpoint (lx)“ and “Maximal setpoint (lx).”

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Change setpoint via object“ (“Constant lighting control” parameter card)
  - Setting: “enable”

Constant lighting control, store setpoint

No.	Object name	Function	Datapoint type	Flags
262	Constant lighting control, store setpoint	1 = save	1.001 switch	CW

Function:

If a “logical 1” is received via this object, the current brightness value is used as the new setpoint.

Note:

The setpoint is limited by the parameters “Minimum setpoint (lx)“ and “Maximal setpoint (lx).”

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Change setpoint via object“ (“Constant lighting control” parameter card)
  - Setting: “enable”

Constant lighting control, setpoint status

No.	Object name	Function	Datapoint type	Flags
263	Constant lighting control, setpoint status	Value in LUX	9.004 lux (Lux)	CRT

Function:

The controller uses this object to share the current setpoint externally. The setpoint value is sent to the bus via this object when it is changed or can be queried at any time.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Change setpoint via object“ (“Constant lighting control” parameter card)
  - Setting: “enable”
- Parameter “Status of setpoint“ (“Constant lighting control” parameter card)
  - Setting: “enable”

Constant lighting control, Main group switching

No.	Object name	Function	Datapoint type	Flags
264	Constant lighting control, Main group switching	On/Off	1.001 switch	CRT

Function:

The controller uses this object to send switch-on and switch-off commands for the main lighting group. The controller sends the value “On” if the brightness is below the defined brightness value in a certain period. The controller sends the value "Off" when it has received a logical "0" via the communication object “Constant lighting control, controller” or when it changes from the "Active" state to the "Standby" state.

Constant lighting control, Main group dimming value

No.	Object name	Function	Datapoint type	Flags
265	Constant lighting control, Main group dimming value	Dimming value	5.001 percentage (0..100%)	CRT

Function:

The controller uses this object to send the dimming values for the main lighting group.

Constant lighting control, Main group dimming value status

No.	Object name	Function	Datapoint type	Flags
266	Constant lighting control, Main group dimming value status	Dimming value	5.001 percentage (0..100%)	CWTU

Function:

This object can be used to query the current dimming value of the dimming actuator of the main lighting group. This object should be linked to the object for the dimming value status of the dimming actuator.

Constant lighting control, subgroup 1 switching

No.	Object name	Function	Datapoint type	Flags
267	Constant lighting control, subgroup 1 switching	On/Off	1.001 switch	CRT

Function:

The controller sends switch-on and switch-off commands for the first slave light group via this object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Number of sub groups“ (“Constant lighting control” parameter card)
  - Setting: “greater than 0”

Constant lighting control, subgroup 1 dimming value

No.	Object name	Function	Datapoint type	Flags
268	Constant lighting control, subgroup 1 dimming value	Dimming value	5.001 percentage (0..100%)	CRT

Function:

The controller uses this object to send the dimming values for the subordinate lighting group.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Number of sub groups“ (“Constant lighting control” parameter card)
  - Setting: “greater than 0”

Constant lighting control, subgroup 2 switching

No.	Object name	Function	Datapoint type	Flags
269	Constant lighting control, subgroup 2 switching	On/Off	1.001 switch	CRT

Function:

The controller uses this object to send switch-on and switch-off commands for the second subordinate lighting group.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Number of sub groups“ (“Constant lighting control” parameter card)
  - Setting: “greater than 1”

Constant lighting control, subgroup 2 dimming value

No.	Object name	Function	Datapoint type	Flags
270	Constant lighting control, subgroup 2 dimming value	Dimming value	5.001 percentage (0..100%)	CRT

Function:

The controller uses this object to send the dimming values for the second subordinate lighting group.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Number of sub groups“ (“Constant lighting control” parameter card)
  - Setting: “greater than 1”

Constant lighting control, subgroup 3 switching

No.	Object name	Function	Datapoint type	Flags
271	Constant lighting control, subgroup 3 switching	On/Off	1.001 switch	CRT

Function:

The controller uses this object to send switch-on and switch-off commands for the third subordinate lighting group.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Number of sub groups” (“Constant lighting control” parameter card)
  - Setting: “greater than 2”

Constant lighting control, subgroup 3 dimming value

No.	Object name	Function	Datapoint type	Flags
272	Constant lighting control, subgroup 3 dimming value	Dimming value	5.001 percentage (0..100%)	CRT

Function:

The controller uses this object to send the dimming values for the third subordinate lighting group.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Number of sub groups” (“Constant lighting control” parameter card)
  - Setting: “greater than 2”

Constant lighting control, subgroup 4 switching

No.	Object name	Function	Datapoint type	Flags
273	Constant lighting control, subgroup 4 switching	On/Off	1.001 switch	CRT

Function:

The controller uses this object to send switch-on and switch-off commands for the fourth subordinate lighting group.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Number of sub groups” (“Constant lighting control” parameter card)
  - Setting: “4”

Constant lighting control, subgroup 4 dimming value

No.	Object name	Function	Datapoint type	Flags
274	Constant lighting control, subgroup 4 dimming value	Dimming value	5.001 percentage (0..100%)	CRT

Function:

The controller uses this object to send the dimming values for the fourth subordinate lighting group.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Number of sub groups” (“Constant lighting control” parameter card)
  - Setting: “4”

Constant lighting control, Calibration

No.	Object name	Function	Datapoint type	Flags
275	Constant lighting control, Calibration	1 = Start/0 = Stop	1.010 start/stop	CW

Function:

With a logical “1,” this object is used to start the calibration run of the controller. After the calibration has been completed, the controller is in the “Inactive” state. With a logical "0" via this object the calibration run of the controller can be stopped.

Note:

If calibration is completed successfully, the actuators are dimmed to 50 %. If calibration fails, the actuators are dimmed to 6 %. The criterion for successful calibration is that the measured brightness value also increases with each increase in the dimming value.

Constant lighting control, Diagnostic values

No.	Object name	Function	Datapoint type	Flags
276	Constant lighting control, Diagnostic values	Value in LUX	9.004 lux (Lux)	CRT

Function:

After completion of the calibration process started by the object “Constant lighting control, Calibration,” this object is used to send the 16 determined brightness values.

8.9 Temperature control

The device receives its own internal room temperature controller. This room temperature controller supplies various control values according to the configuration of the system type, the set heating/cooling operating modes and the sequence control. These control values are linked via communication objects to external thermal drive actuators, motor actuators or fan coil actuators that do not include a controller function.

Room temperature control (controller)

The room temperature can be controlled exclusively via “Heating“ or via “Cooling“ or via “Heating and cooling.” The room temperature control can be set separately for heating and cooling and can be performed either via a 2-point controller or a continuous PI controller or a continuous PI controller with sequence control.

2-point control

The 2-point control checks the current actual temperature value at discrete time intervals (cycle time). Depending on whether the actual value is above or below the setpoint, the heating or cooling is switched on or off (see figure "2-point control for “Heating” [→ 141]" and figure "2-point control for “Cooling” [→ 141]“).

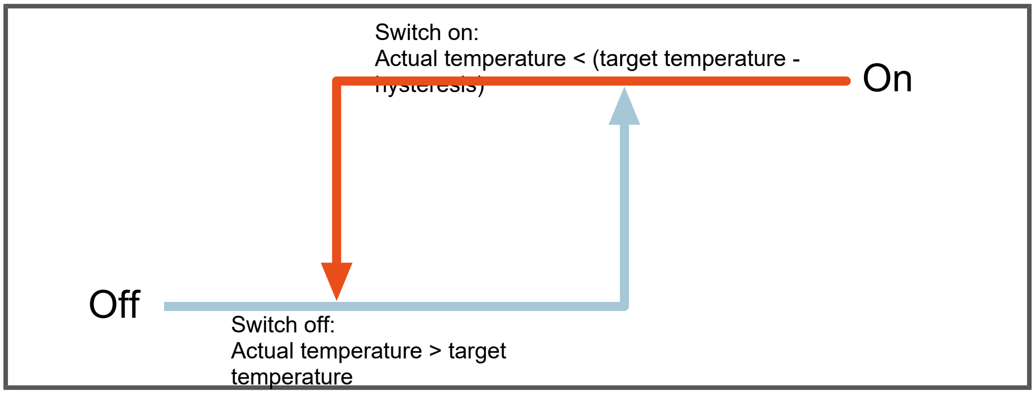


Fig. 28: 2-point control for “Heating”

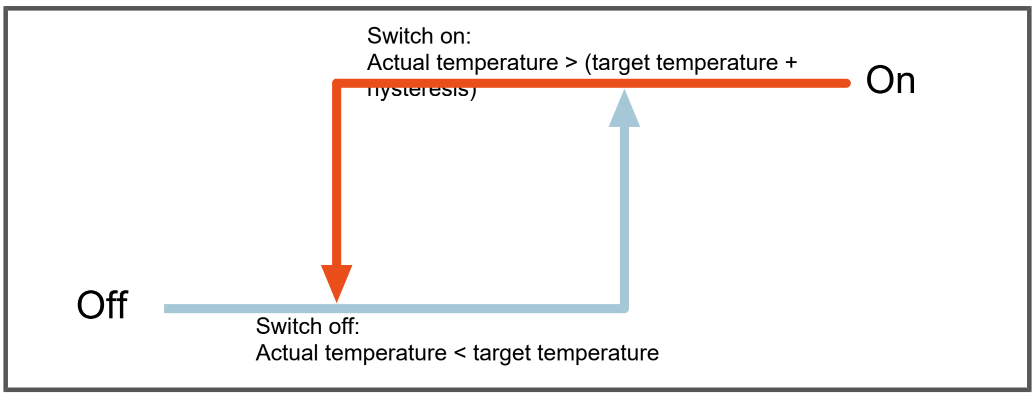


Fig. 29: 2-point control for “Cooling”

The cycle duration of the controller and the hysteresis of the 2-point controller can be configured. The 2-point control can be used in control scenarios in which a small fluctuation of the room temperature is permissible.

Continuous PI control

The PI control uses the input values actual value and setpoint to calculate a control value. This control value can be transferred as a continuous control value in the range of 0...100 % or as a pulse width modulated On/Off command via the KNX bus (see figure “PI control with continuous control value [→ 141]“ and figure “PI control with On/Off command [→ 142]“).

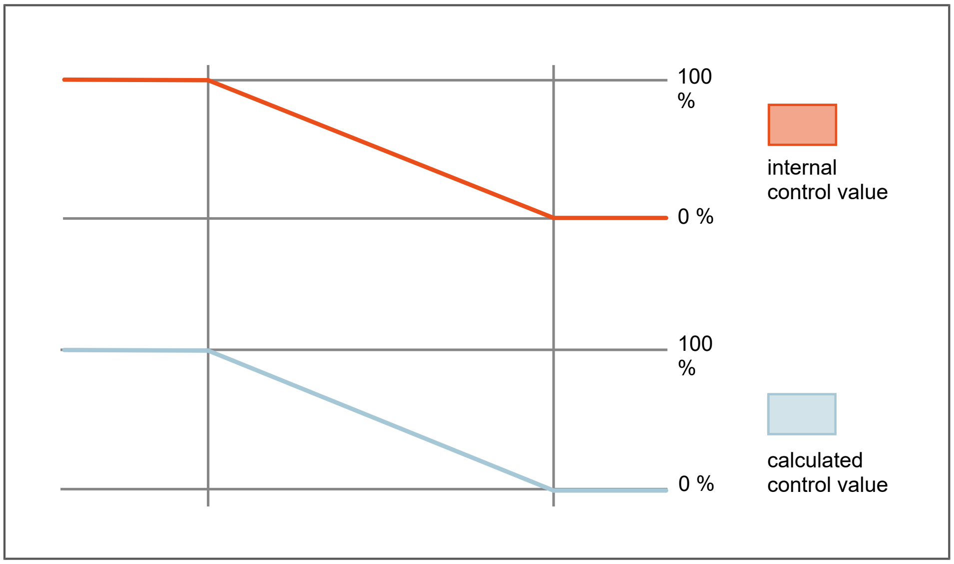


Fig. 30: PI control with continuous control value

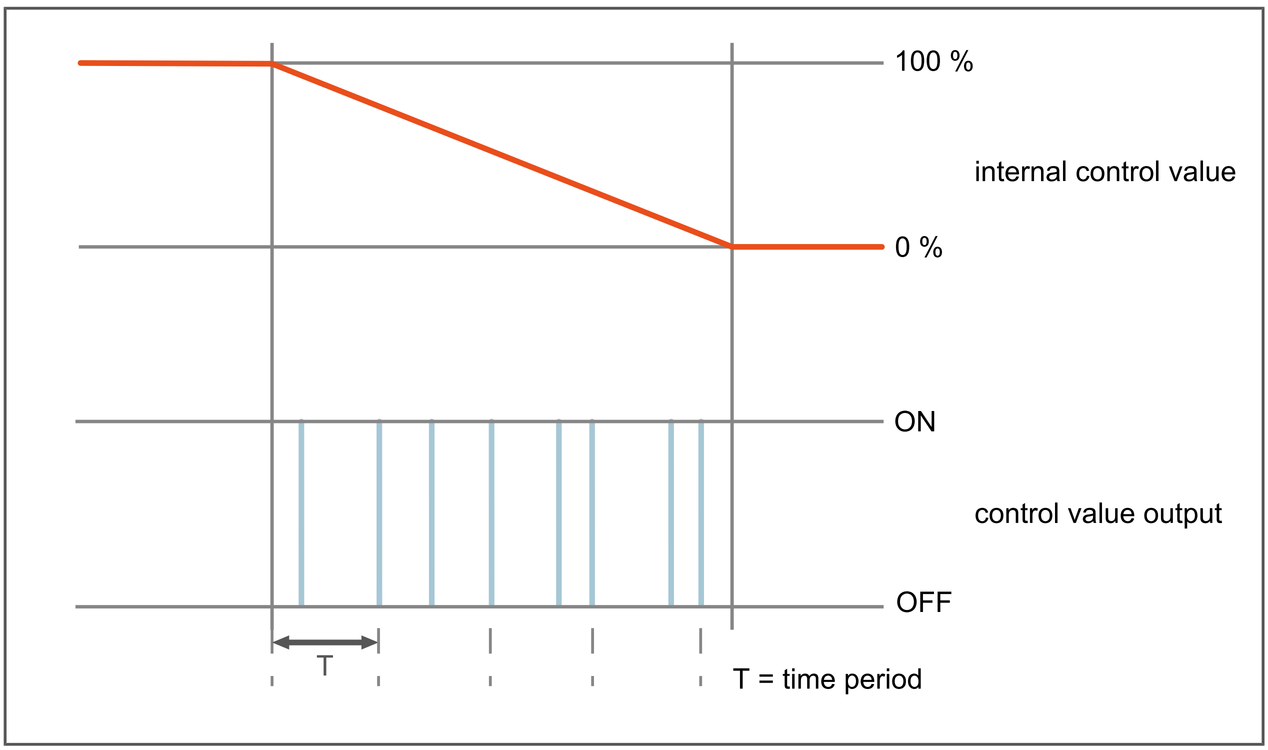


Fig. 31: PI control with On/Off command

The type of control value output, proportional range and delay time can be adjusted.

More information:

- Parameters on the “Heating,” “Cooling,” and “Heating/cooling” parameter cards [→ 187]

Room operating modes

You can set whether the control is to switch between two room operating modes (Comfort/protection mode), three room operating modes (Comfort/power saving/protection mode) or four room operating modes (Comfort/pre-comfort/power saving/protection mode).

More information:

- Parameters on the “Room operating mode” parameter card [→ 159]

Continuous PI control with sequence control

If a room can be heated in two different ways, sequential control makes sense. The two sources of heating and cooling are then controlled one after the other (in a sequence) rather than in parallel.

Example: Heating with underfloor heating and radiator heating in one room

- If the room temperature is below the setpoint, the valve on the underfloor heating is opened first (sequence 1).
- If the underfloor heating valve is open 100 % but the setpoint is still not reached, the valve on the radiator is opened (sequence 2).
- If, on the other hand, it is too warm in the room, the radiator valve is gradually closed first and the valve of the underfloor heating system is closed only thereafter.

Sequence control converts the internal control value calculated by the PI controller into two values (control value sequence 1, control value sequence 2).
The value of the controller control value at which sequence 2 starts is adjustable.
In addition, it can be set separately for each sequence from which change in control value the control value is supposed to be sent to the bus and at which intervals the control value is repeated cyclically. The control values are output as a continuous control value in the range of 0…100 % (1-byte) (see “Control values for sequence control [→ 143]l”).

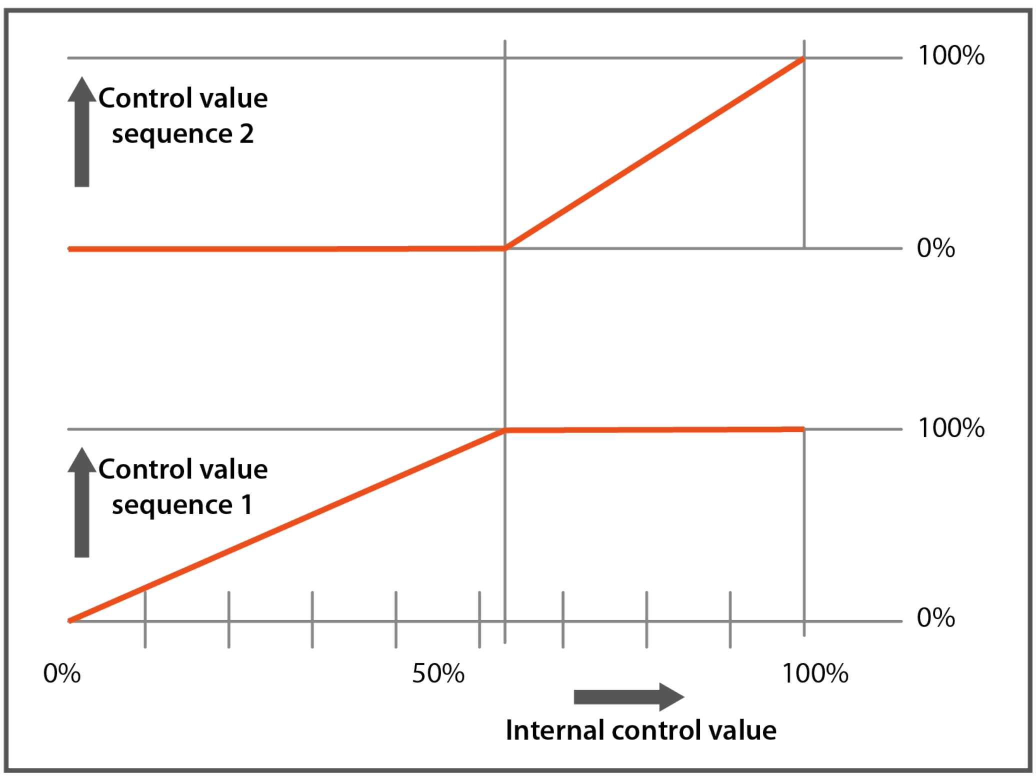


Fig. 32: Control values for sequence control

More information:

- Parameters on the "Heating," "Cooling," and "Heating/cooling" parameter cards [→ 187]

Actual value calculation

For processing the actual value of the room temperature, the internal values from sensors, the values of an external sensor or room control units can be used directly or several temperature values in the room can be weighted in advance via the internal calculator. This weighted value is then transferred internally to the room temperature controller.

More information:

- Temperature sensor [→ 87]
- Parameters on the "Actual temperature value" parameter card [→ 167]

Setpoint calculation

The actual setpoint can be determined using two different methods:

- From the current room operating mode and the respective absolute setpoint (method A: Absolute setpoints)
- From a basic setpoint in comfort mode and a respective setpoint shift for the other room operating modes pre-comfort mode, power saving mode, each related to heating and cooling. Protection mode for heating or cooling can be configured with fixed values. (Method B: Basic setpoint + setpoint shift)

  The basic setpoint refers to comfort mode. The basic setpoint can either be adjusted via the communication object "Temperature control 1, basic setpoint" or set to a fixed value via a parameter "Basic setpoint (°C)." If a basic setpoint is received, the (entire) setpoint and the setpoint shift are sent.

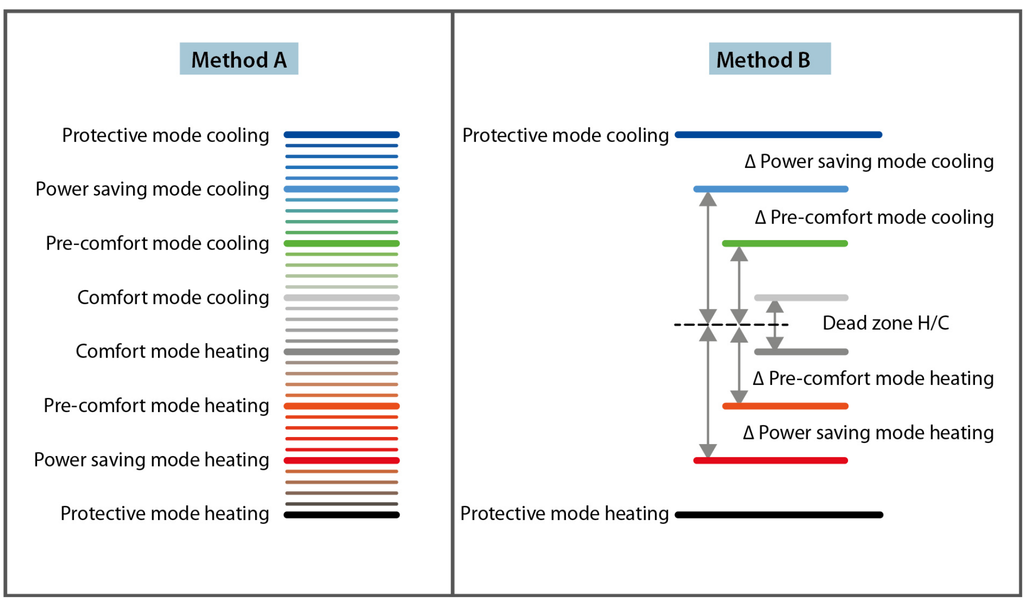


Fig. 33: Methods for setting a setpoint

The setpoints can be set to a fixed value either via communication objects or via parameters.

More information:

- Parameters on the "Temperature setpoints" parameter card [→ 174]

Room operating modes

Operating modes

Depending on the current use of the room, the requirements for the room temperature may vary. To this end, several room operating modes are available, with different setpoints assigned to each one:

- Comfort mode
- Pre-comfort mode
- Power saving mode
- Protection mode

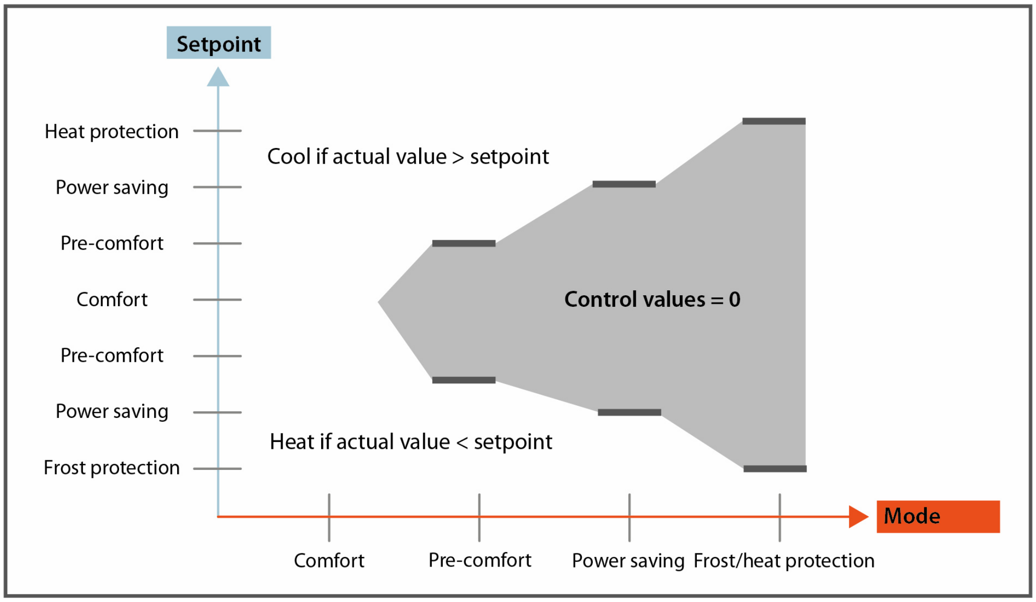
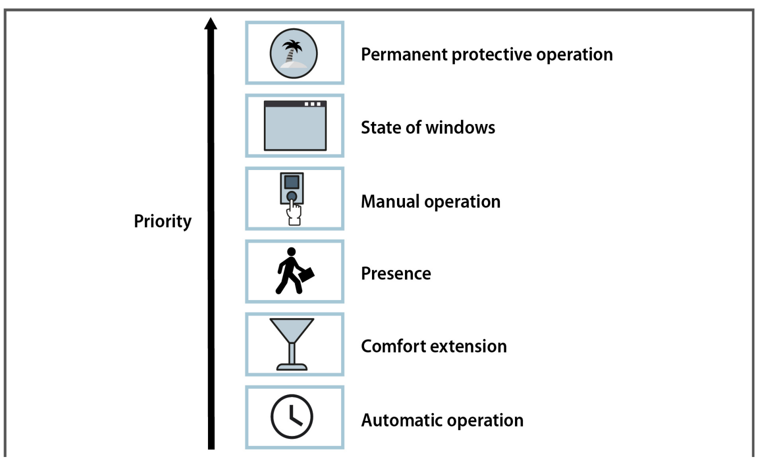


Fig. 34: Setpoint setting via basic setpoint + setpoint shift



Operating mode: Automatic operation and manual operation

The operating modes can be set in manual operation via local pushbuttons, room control units or a management station. Setting the operating mode via these operator interfaces immediately switches to manual operation. All operating mode settings in automatic mode, e.g. from a timer, are ignored.

Automatic operation must be activated via the local controls to allow automatic mode setting from a timer (fee figure “Switching room operating modes [→ 145]“).

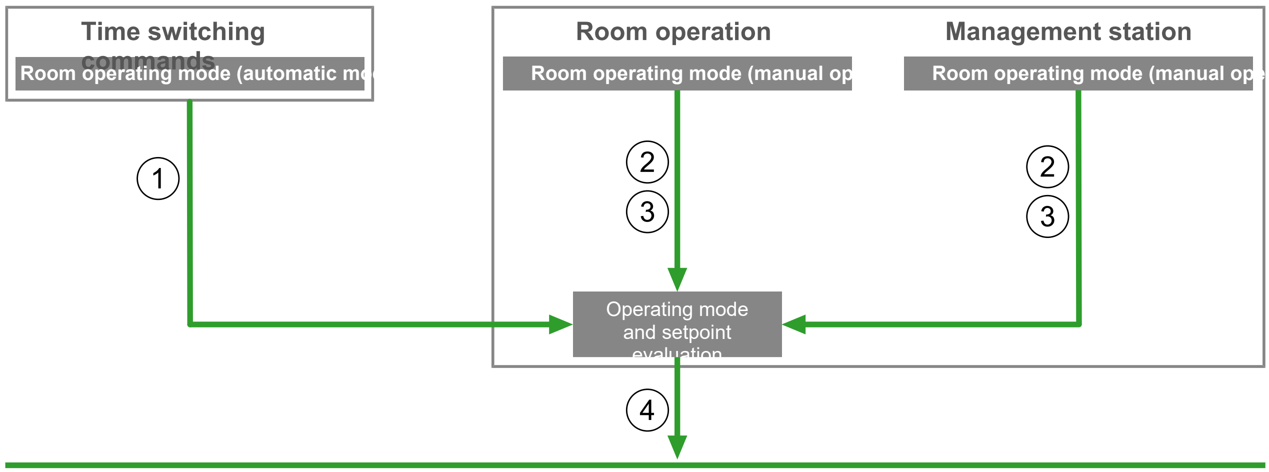


Fig. 35: Switching room operating modes

1 For switching the room operating mode to automatic operation.
8-bit communication object (1...4):
"Temperature control 1, room mode (automatic operation)"

- 1 = Comfort
- 2 = Pre-comfort
- 3 = Power saving mode
- 4 = Protection mode

2 For switching the room operating mode to and activating/deactivating automatic operation.
8-bit communication object (0...4):
"Temperature control 1, room mode (manual operation)"

- 0 = Automatic
- 1 = Comfort
- 2 = Pre-comfort
- 3 = Power saving mode
- 4 = Protection mode

3 For switching the room operating mode to and activating/deactivating automatic operation.
1-bit communication object (0...4):

- Automatic,
  Object: "Temperature control 1, room operating mode, automatic mode"
- Comfort,
  Object: "Temperature control 1, room operating mode (manual operation), comfort mode"
- Pre-comfort,
  Object: "Temperature control 1, room operating mode (manual operation), pre-comfort mode"
- Power saving mode,
  Object: "Temperature control 1, room operating mode (manual operation), power saving mode"
- Protection mode,
  Object: "Temperature control 1, room operating mode (manual operation), protection mode"

4 For reporting which room operating mode is active.

8-bit communication object: “Temperature control 1, status of room mode (manual operation)“

1-bit communication object (0...4):

- Automatic,
  Object: “Temperature control 1, status of room operating mode, automatic mode”
- Comfort,
  Object: “Temperature control 1, status of room operating mode (manual operation), comfort mode”
- Pre-comfort,
  Object: “Temperature control 1, status of room operating mode (manual operation), pre-comfort mode”
- Power saving mode,
  Object: “Temperature control 1, status of room operating mode (manual operation), power saving mode”
- Protection mode,
  Object: “Temperature control 1, status of room operating mode (manual operation), protection mode”

—— KNX

In case of bus voltage failure and recovery, you can use a parameter to specify which operating mode is to be used when starting. Whether the controller is in automatic or manual operation is stored prior to the bus voltage failure. The status is restored on bus voltage recovery.

Comfort extension

When operating in automatic mode without a motion sensor and with the windows closed, and “pre-comfort mode,” “power saving mode” or “protection mode” is switched on, “comfort mode” can be switched on for a limited time via a communication object (the “comfort extension”).

A comfort extension works like a classic timer switch: If the controller is not already in comfort mode, it is switched to comfort mode for a limited period of time by the comfort extension. This state is also evaluated as a new (temporary) operating mode and thus sent accordingly.

Switching the operating mode via manual operation terminates the comfort extension. An operating mode switch via automatic mode is saved and executed after the comfort extension has been terminated.

Behavior after the current room operating mode "Comfort:”

Existing comfort mode is time-limited.

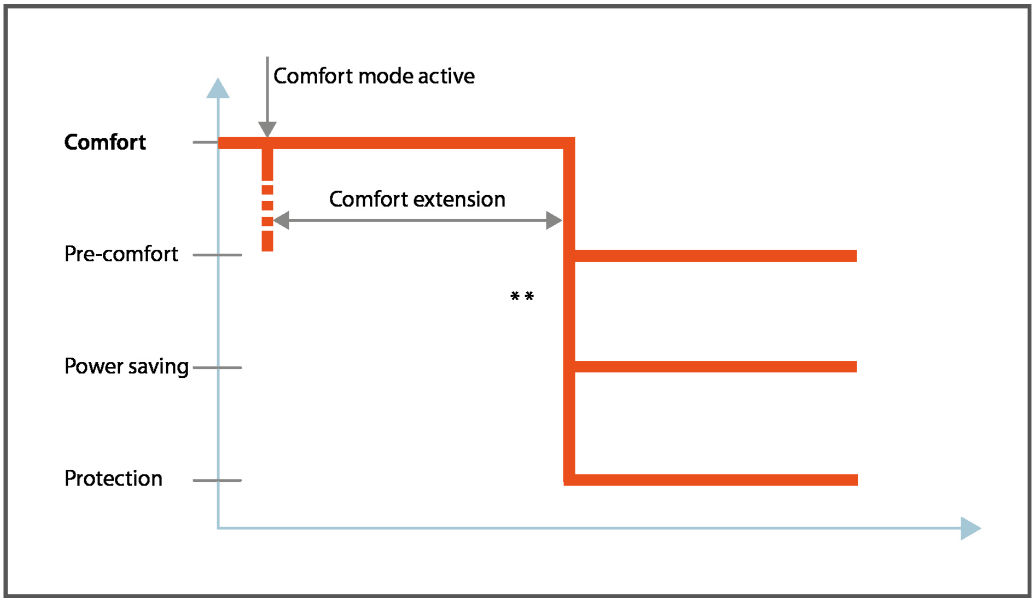


Fig. 36: Behavior in comfort mode

** Either the operating mode that existed before or the operating mode that was set during the comfort extension through newly arrived telegrams is set as the operating mode after the end of the comfort extension.

Behavior for “Pre-comfort,” “Power saving mode” and “Protection mode”:
Comfort mode is started for a limited time.

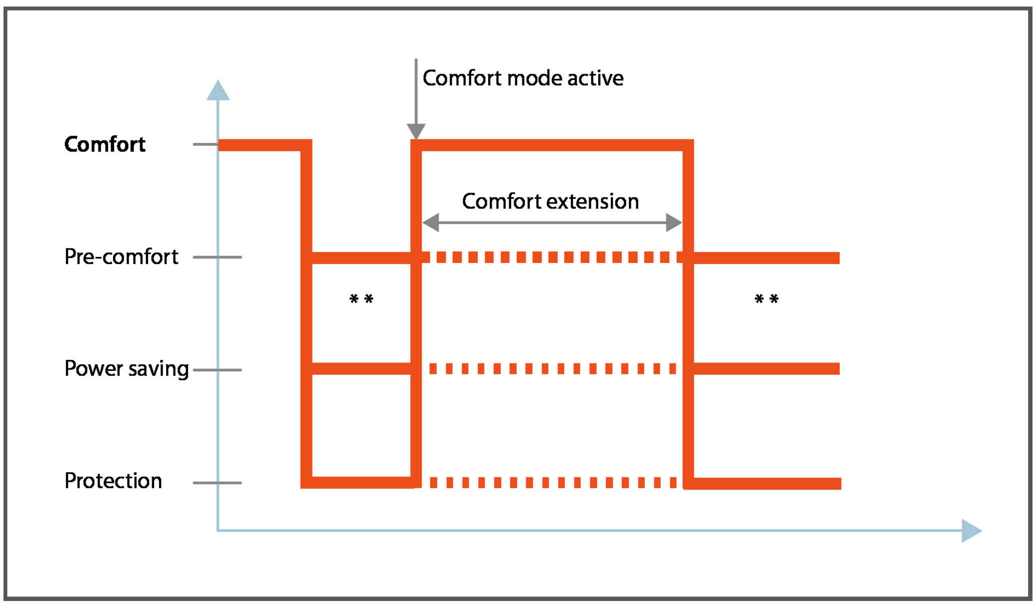


Fig. 37: Behavior if comfort mode is not set.

** Either the operating mode that existed before or the operating mode that was set during the comfort extension through newly arrived telegrams is set as the operating mode after the end of the comfort extension.

Permanent protection mode

If you want to switch room temperature control to protective mode permanently (e.g. while you are on vacation), communication object “Permanent protection mode” is available for this purpose. If this object is used to activate the room operating mode “protection mode,” this mode can only be deactivated again via this object. All telegrams or timer commands concerning an operating mode switch that are received are temporarily stored during protection mode.

In case of bus voltage failure/recover, permanent protection mode is deleted. On bus voltage recovery, a query is sent to the sensor or pushbutton regarding the activation of permanent protection mode.

If permanent protection mode is switched off in automatic mode via a telegram and nothing else is active (e.g. presence or comfort extension), the controller switches to the room operating mode that was activated by bus telegram (automatic or manual operation).
If permanent protection mode is switched off in manual mode via a telegram, the controller switches to the room operating mode that was activated by bus telegram (automatic or manual operation), see figure “Activating and deactivating permanent protection mode [→ 149].”

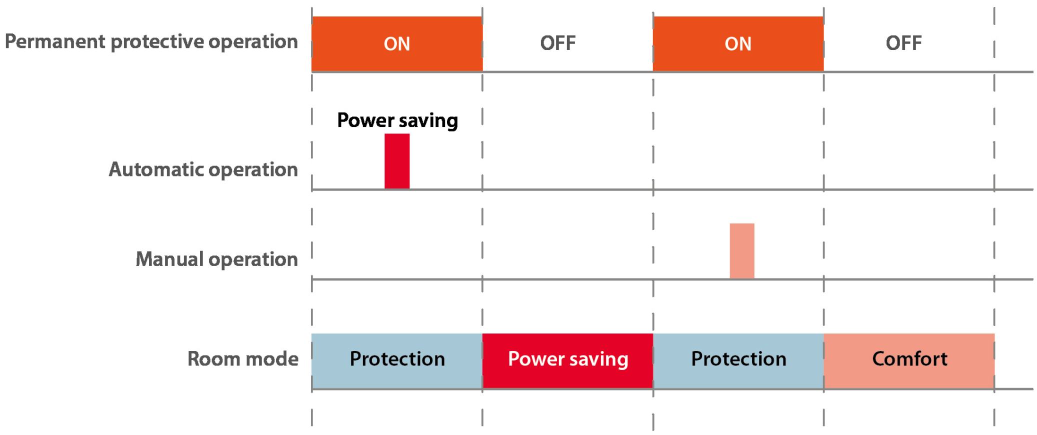


Fig. 38: Activating and deactivating permanent protection mode

Presence

The controller contains an optional communication object for the "Presence" state for use in rooms with a motion sensor. Messages via this communication object are evaluated for activating the “Comfort mode” room operating mode.

If the controller is in automatic mode and a presence telegram is received, Comfort mode is switched on. In presence mode, if a presence = “OFF” telegram is received, the controller immediately switches to the room operating mode that is activated via bus telegram.

If a window is opened during presence, protection mode is activated. In manual operation, the telegrams from a motion sensor to activate presence are ignored but temporarily stored (see figure “Activating and deactivating the “Presence” state [→ 150]“).

If a presence is transmitted by the motion sensor during manual operation, the presence is only temporarily stored. The presence is active immediately upon switching from manual operation to automatic operation.

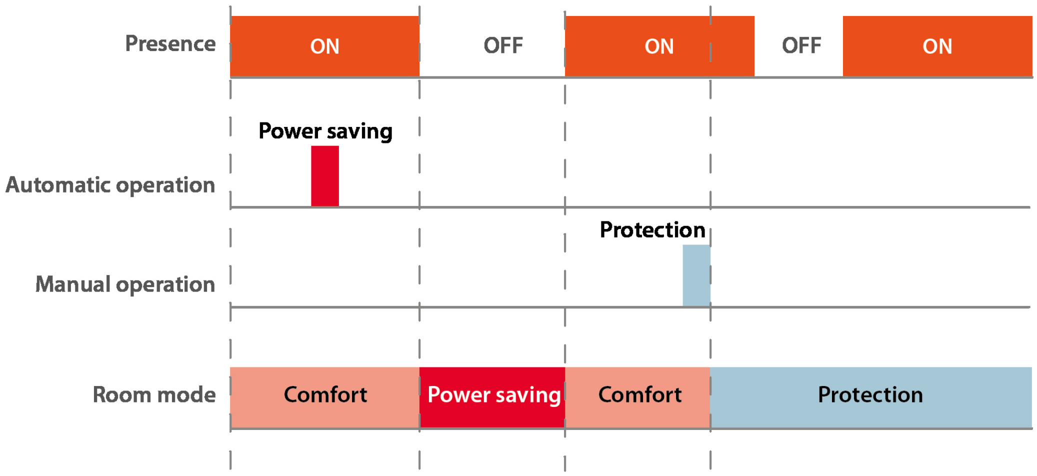


Fig. 39: Activating and deactivating the "Presence" state

Status of windows

Evaluation of the window statuses allows the controller to react to the opening of windows and doors. To do this, the controller can be assigned up to four window objects that are linked to each other using a logical OR function in the controller. If one or more of the window objects are set to logical 1 (window open), the system switches to protection mode.

If all windows are closed again (that is, all window objects are back on logical 0), a switch is made to the new operating mode received via the bus and buffered while the window or door was open.
A parameter controls if the opening of a window is supposed to lead to protection mode immediately or only after a time delay (e.g. 30 seconds) so that there is no response to briefly opening a window, if appropriate (see figure "Evaluation of the window statuses (example with 30 s) [→ 150]").

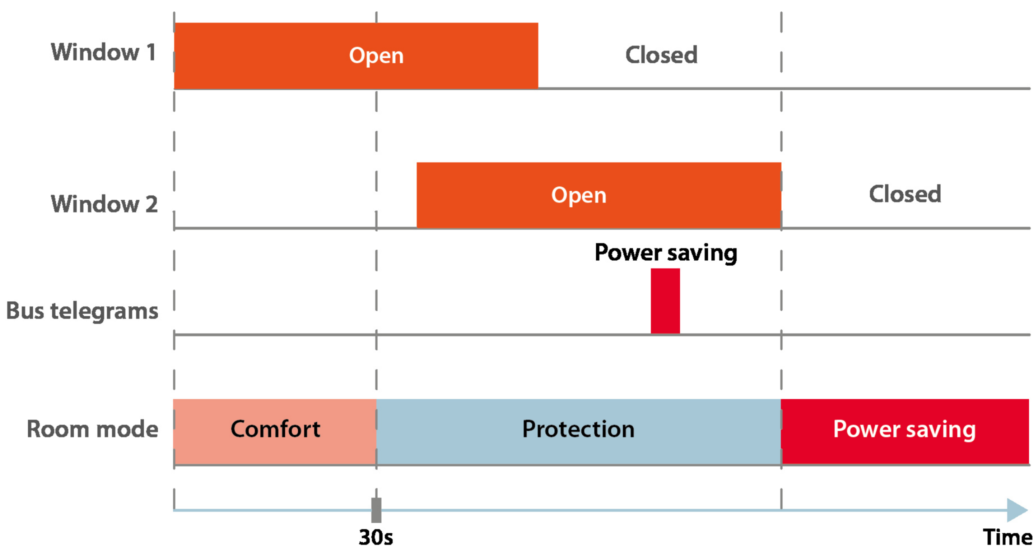


Fig. 40: Evaluation of the window statuses (example with 30 s)

More information:

- Parameters on the "Room operating mode" parameter card [→ 159]

Dew point mode

If a dew point monitor engages in cooling mode, the controller internally switches to “dew point mode.” In doing so, the control value for cooling is set to 0 % as long as the dew point alarm is present. The “dew point alarm” signal is received by a dew point monitor via a corresponding communication object.

The presence detector can also trigger a dew point alarm itself by using the measured humidity value in combination with the “threshold monitoring” function to output as a dew point alarm.

Examples:

- If the humidity value exceeds 80 %, a dew point alarm is to be triggered.
- Another use case is measuring with an external temperature sensor in a particularly cold part of the room. In this case, the dew point in the presence detector is calculated using the measured values for the temperature and humidity (dew point calculation). This threshold value that indicates the temperature at which the condensation of the air must be expected, is then compared to the current value from an external temperature sensor, positioned, for instance, at a window or thermal bridge. This comparison is performed using the “comparator” function in the presence detector. If the external temperature value falls below the calculated dew point, a dew point alarm is triggered.

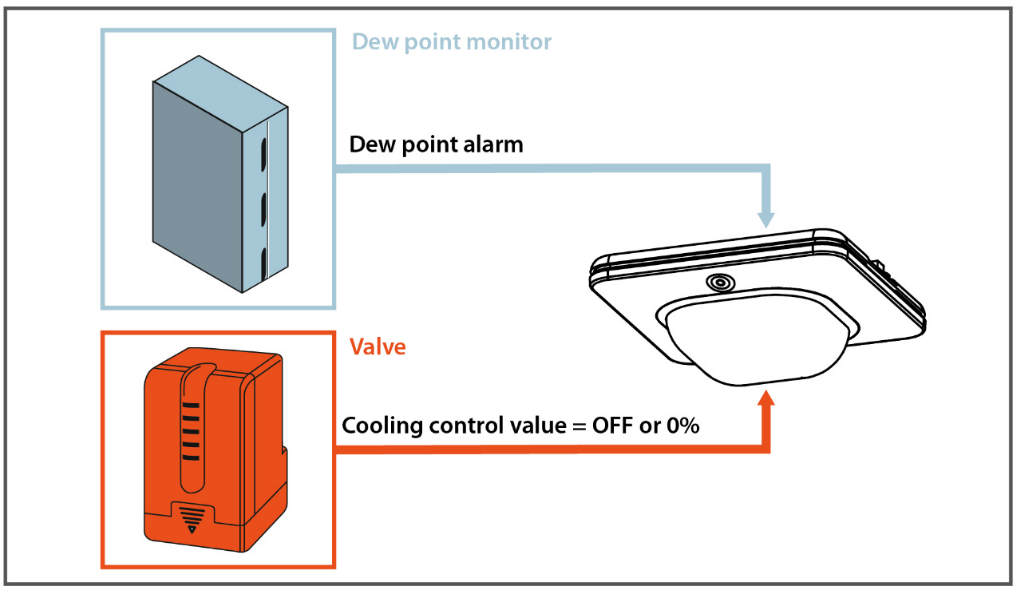


Fig. 41: Dew point mode

More information:

- Parameters on the “Dew point monitoring for cooling” parameter card [→ 205]

Fan control

The controller is used to operate and control fan coil actuators or any other corresponding actuator. Up to three fan levels are possible. An 8-bit communication object is used to send the number of rotations in % directly as a continuous value. The table “Converting the fan level to a continuous value [→ 151]” applies to the conversion of the fan level to a continuous value. The threshold values for scaling can be configured.

NOTICE! **Configure the values of the fan levels in ascending order: Speed level 1 < Speed level 2 < Speed level 3.**

Example:
When there are three fan levels, fan level 2 corresponds to a 67 % rotation speed.

Fan level	Number of configured fan levels		
	1	2	3
OFF	0 %	0 %	0 %
1	1 – 100 %	1 – 50 %	1 – 33 %
2	0	51 – 100 %	34 – 67 %
3	0		68 – 100 %

Table 3: Converting the fan level to a continuous value

In manual operation, it is possible to set a fan level manually via a communication object. When manually switching to fan level 0, the fan is switched off.

Automatic activation of the fan levels

The fan switches to automatic operation if this has been configured via the corresponding object.

In the case of automatic control of the fan levels with a continuous controller, the fan levels are set depending on the “Heating” or “Cooling” control value.

Example:
According to the table “Converting the fan level to a continuous value [→ 151],” a control value 50 % corresponds to fan level 2 if there are three fan levels.

When using automatic control of the fan levels with a 2-point controller, the fan levels are set depending on the temperature difference from the current setpoint and can be set for each level.

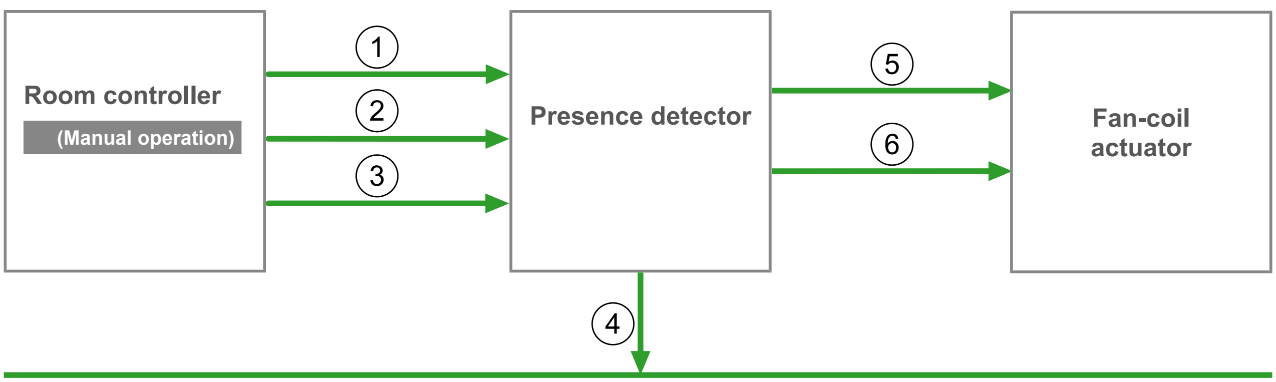


Fig. 42: Automatic activation of the fan levels

1	Ventilator mode (Automatic/manual operation)
2	Fan speed (manual operation) (1...100)
3	Fan level (manual operation) in level [1...3] %
4	Status of ventilation mode (automatic/manual operation)
5	Fan, Control value for manual operation
6	Fan, current control value
——	KNX

More information:

- Parameters on the “Fan control” parameter card [→ 206]

8.9.1 Parameters on the “Temperature control” parameter card

The “Temperature control” parameter card and the following parameter cards are displayed if the parameter “Temperature control” on the “Device settings” parameter card is set to “enable.”

System type

Parameter	Settings
System type	2-pipe system 4-pipe system

Function:

This parameter is used to select the system type.

The following settings are possible:

- 2-pipe system:
  There is only one cycle for heating/cooling. The change between heating and cooling mode (change-over mode) is executed via the object “Temperature control 1, controller mode.”
- 4-pipe system:
  The switch between heating and cooling mode takes place automatically via the room temperature controller, depending on the difference between actual and target temperature.

Other parameters/parameter cards:

If the “2-pipe system” parameter is set to “,” the “Controller mode” parameter is displayed and the parameter cards for setting up heating and cooling according to the setting of parameter “Controller mode” are displayed.

If the parameter is set to “4-pipe system,” the “Heating” and “Cooling” parameter cards are displayed. The parameter “Controller mode” is hidden.

More information:

- Parameter “Controller operating mode” [→ 153]

Controller mode

Parameter	Settings
Controller mode	Heating Cooling Heating and cooling

Function:

This parameter is used to set whether the room is heated and/or cooled.

Other parameters:

If the “Heating” parameter is set to “,” the additional parameter is displayed:

- “Control value in emergency mode, heating (%)”

If the “Cooling” parameter is set to “,” the additional parameter is displayed:

- “Control value in emergency mode, cooling (%)”

If the parameter is set to “Heating and cooling,” the following additional parameters are displayed:

- “Control value in emergency mode, heating (%)”
- “Control value in emergency mode, cooling (%)”

Communication object:

Depending on the setting in parameter “Controller mode“ and parameter “Control behavior,” (“Heating,” “Cooling,” or “Heating/cooling” parameter card), the following communication objects are displayed:

Parameter “Controller mode”	Parameter “Control behavior”	
	Setting “2-point control”	Setting “PI control”
Setting “Heating”	“Temperature control 1, heating, control value switching”	“Temperature control 1, heating, control value steady”
Setting “Cooling”	“Temperature control 1, cooling, control value switching”	“Temperature control 1, cooling, control value steady”
Setting “Heating and cooling“ (System type “2-pipe system”)	“Temperature control 1, heating/ cooling, control value switching”	“Temperature control 1, heating/ cooling, control value steady”
Setting “Heating and cooling“ (System type “4-pipe system”)	“Temperature control 1, heating, control value switching” “Temperature control 1, cooling, control value switching”	“Temperature control 1, heating, control value steady” “Temperature control 1, cooling, control value steady”

Table 4: Communication objects

More information:

- Communication object “Temperature control 1, heating, switching control value”
- Communication object “Temperature control 1, heating, continuous control value” [→ 227]
- Communication object “Temperature control 1, cooling, switching control value” [→ 225]
- Communication object “Temperature control 1, cooling, continuous control value” [→ 226]
- Communication object “Temperature control 1, heating/cooling, switching control value” [→ 226]
- Communication object “Temperature control 1, heating/cooling, continuous control value” [→ 228]
- Parameter “Control value in emergency mode, heating (%)” [→ 154]
- Parameter “Control value in emergency mode, cooling (%)” [→ 155]
- Parameter “Control behavior” (“Heating,” “Cooling,” or Heating/cooling” parameter card) [→ 187]

Control value in emergency mode, heating (%)

Parameter	Settings
Control value in emergency mode, heating (%)	0...100

Function:

This parameter is used to set the value of the control value in emergency “heating” mode via a percentage value.

This control value prevents the rooms from cooling down in the absence of the actual temperature value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “System type”
  – Setting: “2-pipe system”
- Parameter “Controller mode”
  – Setting: “Heating” or “Heating and cooling”

or

- Parameter “System type”
  – Setting: “4-pipe system”

Note:

The control values for emergency mode are used if the temperature control can no longer be executed correctly. This happens, for example, if the actual temperature fails.

More information:

- Parameter “System type” [➙ 153]
- Parameter “Controller operating mode” [➙ 153]
- Parameter “Actual temperature value monitoring” (“Actual temperature value” parameter card) [➙ 169]

Control value in emergency mode, cooling (%)

Parameter	Settings
Control value in emergency mode, cooling (%)	0...100

Function:

This parameter is used to set the value of the control value in emergency “cooling” mode via a percentage value.

This control value prevents the rooms from overheating in the absence of the actual temperature value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “System type”
  - Setting: “2-pipe system”
- Parameter “Controller mode”
  - Setting: “Cooling” or “Heating and cooling”

or

- Parameter “System type”
  - Setting: “4-pipe system”

Note:

The control values for emergency mode are used if the temperature control can no longer be executed correctly. This happens, for example, if the actual temperature fails.

More information:

- Parameter “System type” [➙ 153]
- Parameter “Controller operating mode” [➙ 153]
- Parameter “Actual temperature value monitoring” (“Actual temperature value” parameter card) [➙ 169]

Ventilation control

Parameter	Settings
Ventilation control	disable enable

Function:

This parameter can be used to enable or block fan control. Communication objects are made available for controlling the fan and for reporting fan status messages.

Other parameters/parameter cards:

If the parameter is set to “enable,” the “Fan control” parameter card with additional parameters is displayed.

Communication objects:

If the parameter is set to “enable,” the following communication objects are displayed:

- “Temperature control 1, ventilator mode”
- “Temperature control 1, ventilator speed (manual operation)”
- “Temperature control 1, ventilator level (manual operation)”

More information:

- Communication object “Temperature control 1, fan operating mode” [→ 228]
- Communication object “Temperature control 1, fan speed (manual operation)” [→ 229]
- Communication object “Temperature control 1, fan level (manual operation)” [→ 229]

Controller status

Parameter	Settings
Controller status	disable enable

Function:

This parameter is used to set whether communication object “Temperature control 1, controller status” is supposed to be available.

The controller uses this object to share its internal status externally. This can either have the value "On,” i.e. the controller is switched on and temperature control is active, or the value “Off.”

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, controller status”

More information:

- Communication object “Temperature control 1, controller status” [→ 209]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Controller status (DPT_HVACContrMode)

Parameter	Settings
Controller status (DPT_HVACContrMode))	locking enable

Function:

This parameter is used to set whether the 8-bit communication object “Temperature control 1, controller status (DPT_HVACContrMode)” (DPT 20.105) is supposed to be available.

This object can be used to report different controller statuses.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication objects are displayed:

- “Temperature control 1, controller status (DPT_HVACContrMode)”

More information:

- Communication object “Temperature control 1, controller status (DPT_HVACContrMode)” [→ 232]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Status of current controller mode

Parameter	Settings
Status of current controller mode	locking enable

Function:

This parameter is used to set whether communication object “Temperature control 1, controller mode status” is supposed to be available.

This object communicates the current operating mode to the controller. It can either have the value “0” for cooling or the value “1” for heating.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, controller mode status”

More information:

- Communication object “Temperature control 1, controller operating mode status” [→ 230]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Collective status (RTSM)

Parameter	Settings
Collective status (RTSM)	locking enable

Function:

This parameter is used to set whether the 8-bit communication object “Temperature control 1, collective status (RTSM)” (DPT 21.107) is supposed to be available.

This object can be used to report different controller statuses.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, collective status (RTSM)”

More information:

- Communication object “Temperature control 1, combined status (RTSM)“ [→ 230]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Collective status (RTC)

Parameter	Settings
Collective status (RTC)	locking enable

Function:

This parameter is used to set whether the 16-bit communication object “Temperature control 1, collective status (RTC)“ (DPT 22.103) is to be made available.

This object can be used to report different controller statuses.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, collective status (RTC)”

More information:

- Communication object “Temperature control 1, combined status (RTC)“ [→ 231]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Controller status (Eberle)

Parameter	Settings
Controller status (Eberle)	locking enable

Function:

This parameter is used to set whether the 8-bit communication object “Temperature control 1, controller status (Eberle)” is supposed to be available.

This object can be used to report different controller statuses.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, controller status (Eberle)”

More information:

- Communication object “Temperature control 1, controller status (Eberle)” [→ 231]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Controller status (RHCC)

Parameter	Settings
Controller status (RHCC)	locking enable

Function:

This parameter is used to set whether the 16-bit communication object “Temperature control 1, controller status (RHCC)“ (DPT 22.101) is to be made available.

This object can be used to report different controller statuses.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, controller status (RHCC)”

More information:

- Communication object: “Temperature control 1, controller status (RHCC)” [➙ 232]
- Parameters that are visible if the “Status...” parameter is set to “enable” [➙ 311]

8.9.2 Parameters on the “Room operating mode” parameter card

The “Room operating mode” parameter card is displayed if the parameter “Temperature control” on the “Device settings” parameter card is set to “enable.”

Parameters in the “Setting room operating modes” section

Preselection of room operating modes

Parameter	Settings
Preselection of room operating modes	Comfort/protection mode Comfort/power saving/protection mode Comfort/pre-comfort/power saving/ protection mode

Function:

This parameter can be used to select which operating modes are used. Depending on the selection of operating modes, one of these can be used as the initial operating mode after bus voltage recovery.

Other parameters:

Depending on the selection of the room operating mode, the selection of the initial operating mode after bus voltage recovery in parameter “Initial value after bus voltage recovery“ and the selection of parameters on the “Temperature setpoints” parameter card change.

More information:

- Parameters on the “Temperature setpoints” parameter card [➙ 174]
- Parameter “Initial value after bus voltage recovery” [➙ 160]

Parameters in the “Behavior after bus voltage recovery” section

Initial value after bus voltage recovery

Parameter	Settings
Initial value after bus voltage recovery	As before bus voltage failure Comfort mode Pre-comfort mode Power saving mode Building protection mode

Function:

This parameter is used to set the initial room operating mode to be used after bus voltage recovery.

Depending on the selection of operating modes in parameter “Preselection of room operating modes,” one of these can be used as the initial operating mode after bus voltage recovery.

The following settings are possible:

- As before bus voltage failure:
  The room operating mode that is currently active at the time of bus voltage failure is saved and then restored after bus voltage recovery.
- Comfort mode:
  Comfort mode is used as the initial operating mode.
- Pre-comfort mode:
  Pre-comfort mode is used as the initial operating mode.
- Power saving mode:
  Power saving mode is used as the initial operating mode.
- Building protection mode:
  Building protection mode is used as the initial operating mode.

Note:

The following applies to all settings: Whether the controller is in automatic operation or manual operation is stored before bus voltage failure, and this operating mode is restored after bus voltage recovery.

Parameters in the “Room operating mode (manual operation)” section

Room operating mode (manual operation) switchover via

Parameter	Settings
Room operating mode (manual operation) switchover via	1-bit objects (DPT_Switch) 8-bit object (DPT_HVACMode)

Function:

This parameter is used to set whether the room operating mode is switched over via manual operation via a 1-bit object or an 8-bit object, see also the figure ‘Switching the room operating modes [→ 145].”

The following settings are possible:

- 1-bit objects (DPT_Switch):
  The room operating mode can be switched over to manual operation via the corresponding communication object.
- 8-bit object (DPT_HVACMode):
  This setting can be used to activate or deactivate automatic operation and the room operating mode can be switched over.

Communication object:

If the parameter is set to “1-bit objects (DPT_Switch),” the following communication objects are displayed:

- “Temperature control 1, room operating mode (manual operation), [operating mode]”

If the parameter is set to “8-bit object (DPT_HVACMode),” the following communication object is displayed:

- “Temperature control 1, room operating mode (manual operation)”

Note:

If the parameter “Room operating mode (manual operation) switchover via” is set to “1-bit objects (DPT_Switch),” , a communication object named “Temperature control 1, room operating mode (manual operation), [operating mode]” is displayed for each room operating mode in manual operation that was selected under “Preselection of room operating modes.”
Example: “Temperature control 1, room operating mode (manual operation), comfort mode”

More information:

- Communication object “Temperature control 1, room operating mode (manual operation)” [→ 210]
- Communication object “Temperature control 1, room operating mode (manual operation), comfort mode” [→ 211]
- Communication object “Temperature control 1, room operating mode (manual operation), protection mode” [→ 211]
- Communication object “Temperature control 1, room operating mode (manual operation, pre-comfort mode” [→ 211]
- Communication object “Temperature control 1, room operating mode (manual operation), power saving mode” [→ 211]

Parameters in the “Comfort extension” section

Comfort extension object

Parameter	Settings
Comfort extension object	disable enable

Function:

This parameter can be used to make available communication object “Temperature control 1, comfort extension.”

This object can be used to extend the time for a comfort mode that is currently active or set a start time for comfort mode from different room operating modes that are currently active.

Other parameters:

If the parameter is set to “enable,” the following parameters are displayed:

- “Time period comfort extension”
- “Status of comfort extension”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, comfort extension”

More information:

- Communication object “Temperature control 1, comfort extension” [→ 214]
- Parameter “Time period comfort extension” [→ 162]
- Parameter “Status of comfort extension” [→ 162]

Time period comfort extension

Parameter	Settings
Time period comfort extension (hh:mm)	00:00 ... 23:59

Function:

This parameter can be used to configure the length of the comfort extension that can be started via communication object “Temperature control 1, comfort extension.”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Comfort extension object”
  - Setting: “enable”

More information:

- Parameter “Comfort extension object” [→ 161]

Status of comfort extension

Parameter	Settings
Status of comfort extension	locking enable

Function:

This parameter is used to activate or deactivate the communication object for the status of the comfort extension.

This object is used to report whether the comfort extension is enabled or disabled.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Comfort extension object”
  - Setting: “enable”

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change”
- “Block time for sending of status”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, comfort extension status”

More information:

- Communication object “Temperature control 1, comfort extension status” [→ 214]
- Parameter “Comfort extension object” [→ 161]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Parameters in the “Permanent protection mode” section

Object permanent protective mode

Parameter	Settings
Object permanent protective mode	locking enable

Function:

This parameter can be used to make available communication object “Temperature control 1, permanent protective mode.”

This object can be used to switch the controller permanently to the “Protection mode" room operating mode.

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, permanent protective mode”

More information:

- Communication object “Temperature control 1, permanent protection mode” [➙ 214]

Parameters in the “Presence” section

Object presence

Parameter	Settings
Object presence	locking enable

Function:

This parameter can be used to make available communication object “Temperature control 1, presence.”

This object is used to receive the status of a presence detector.

Messages from a motion sensor via this communication object are evaluated for activating the “comfort mode” room operating mode.

If a presence telegram is received, comfort mode is switched on.

In presence mode, if a presence = “OFF” telegram is received, the controller immediately switches to the room operating mode that is activated via bus telegram. In manual operation, the motion sensor telegrams are ignored but saved temporarily.

Note:

On bus voltage recovery, a request is sent to the motion sensor via the communication object to obtain the current status of the presence.

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, presence”

More information:

- Communication object “Temperature control 1, presence” [➙ 217]

Parameters in the “Window contacts” section

Number of window contacts

Parameter	Settings
Number of window contacts	0...4

Function:

This parameter is used to set the number of windows or doors equipped with a window contact that are in the room. The corresponding number of communication objects “Temperature control, window [1-4]” is then made available. The status of these windows is logically linked in the controller via an OR function.

A maximum of 4 window contacts can be evaluated.

Other parameters:

If the parameter is set to >0, the following additional parameters are displayed:

- “Delay of reaction to open windows”
- “Invert window contacts”
- “Window contact status”

Communication object:

If the parameter is set to >0, the following communication object is displayed (example for 1 window):

- “Temperature control 1, window 1”

More information:

- Communication object “Temperature control 1, window 1” [→ 217]
- Parameter “Delay of reaction to open windows” [→ 164]
- Parameter “Invert window contacts” [→ 164]
- Parameter “Window contact status” [→ 165]

Delay of reaction to open windows

Parameter	Settings
Delay of reaction to open windows (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to set the time for monitoring the window status. The status “window open” has the effect that the room temperature setpoint, depending on the setting, is set either immediately or after a certain delay time. For heating mode, it is set to the value for frost protection and for cooling mode, it is set to the value for heat protection. Protection mode is then activated.

The purpose of setting a delay time is that it avoids that any brief opening of windows immediately leads to a switch to protection mode.

The preset value 00:00:30 means that the setpoint changes are executed after 30 s.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Number of window contacts”
  - Setting > 0

More information:

- Parameter “Number of window contacts” [→ 163]

Invert window contacts

Parameter	Settings
Invert window contacts	No Yes

Function:

This parameter is used to set whether the input value of communication object “Temperature control 1, window 1” should be used directly or in inverted form (example for 1 window contact). This setting applies to all window contacts together.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Number of window contacts”
  - Setting: > 0

More information:

- Parameter “Number of window contacts” [→ 163]

Window contact status

Parameter	Settings
Window contact status	locking enable

Function:

This parameter is used to set whether communication object “Temperature control 1, window contact status” is supposed to be available.

This object is used to report the status of all windows. This status can either have the value “0,” meaning all windows are closed, or, as soon as a window is opened, the value “1,” meaning at least one window is open.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Number of window contacts”
  - Setting: > 0

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change of status”
- “Block time for sending of status”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, window contact status”

More information:

- Communication object “Temperature control 1, window contact status” [→ 216]
- Parameter “Number of window contacts” [→ 163]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Parameters in the “Room operating modes status” section

Status of room mode (manual operation)

Parameter	Settings
Status of room mode (manual operation)	locking enable

Function:

This parameter is used to set, whether the communication objects “Temperature control 1, status of room mode (manual operation)” and “Temperature control 1, status of room operating mode, automatic mode” are to be made available.

The object “Temperature control 1, status of room mode (manual operation)” is used to report the set room operating mode, which was set using the object “Temperature control 1, room operating mode (manual operation).”

The thermal drive actuator uses object “Temperature control 1, status of room operating mode, automatic mode” to report that automatic mode is active.

Other parameters:

If the parameter is set to “enable,” the following additional parameter is displayed:

- “Message via”

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under "Additional information"):

- "Send status on request"
- "Send status on change"
- "Block time for sending of status"
- "Send status cyclically"

Communication object:

If the parameter is set to "enable," the following communication objects are displayed:

- "Temperature control 1, status of room mode (manual operation)"
- "Temperature control 1, status of room operating mode, automatic mode"

Note:

If the parameter "Message via" is set to "1-bit objects (DPT_Switch)," , a communication object named "Temperature control 1, room operating mode status (manual operation), [operating mode]" is displayed for each room operating mode that was selected under "Preselection of room operating modes."
Example: "Temperature control 1, status of room operating mode (manual operation), comfort mode"

More information:

- Communication object "Temperature control, 1, status of room operating mode (manual operation)" [→ 212]
- Communication object "Temperature control, 1, status of room operating mode, automatic operation" [→ 212]
- Parameter "Temperature control" [→ 39]
- Parameter "Message via" [→ 166]
- Parameters that are visible if the "Status..." parameter is set to "enable" [→ 311]

Message via

Parameter	Settings
Message via	1-bit objects (DPT_Switch) 8-bit object (DPT_HVACMode)

Function:

This parameter is used to define whether the status of the room operating mode in manual operation is sent via 1-bit objects or via an 8-bit object.

The following settings are possible:

- 1-bit objects (DPT_Switch):
  The status for the room operating mode can be reported via the corresponding communication objects in manual operation.
- 8-bit object (DPT_HVACMode):
  This setting can be used to report the status for the room operating mode and automatic mode "On" via the corresponding communication object in manual operation.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Status of room mode (manual operation)"
  - Setting: "enable"

Communication objects:

If the parameter is set to “1-bit objects (DPT_Switch),” the following communication object is displayed:

- “Temperature control 1, status of room operating mode (manual operation), [operating mode]”

If the parameter is set to “8-bit object (DPT_HVACMode),” the following communication object is displayed:

- “Temperature control 1, status of room mode (manual operation)”

Note:

If the parameter “Message via“ is set to “1-bit objects (DPT_Switch),” , a communication object named “Temperature control 1, room operating mode status (manual operation), [operating mode]” is displayed for each room operating mode that was selected under “Preselection of room operating modes.”
Example: “Temperature control 1, status of room operating mode (manual operation), comfort mode”

More information:

- Communication object “Temperature control, 1, status of room operating mode (manual operation)” [→ 212]
- Parameter “Status of room operating mode (manual operation)” [→ 165]

Status of current room mode

Parameter	Settings
Status of current room mode	disable enable

Function:

This parameter is used to set whether communication object “Temperature control 1, room mode status” is supposed to be made available.

This object can be used to output or query the current room operating mode (1...4).

It also shows whether there are any changes in the default setting of manual or automatic operation that lead to a change in the operating mode (e.g. presence, permanent protection mode, open windows).

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change”
- “Block time for sending of status”
- “Send status cyclically”

Communication object:

If the parameter is set to “Status of current room mode,” the following communication object is displayed:

- “Temperature control 1, room mode status”

More information:

- Communication object “Temperature control, 1, status of room operating mode” [→ 213]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

8.9.3 Parameters on the “Actual temperature value” parameter card

The “Temperature actual value” parameter card is displayed if the parameter “Temperature control 1” on the “Device settings” parameter card is set to “enable.”

Parameters in the “Setting the actual temperature value” section

Source of actual temperature value

Parameter	Settings
Source of actual temperature value	External object Temperature sensor Calculator evaluation

Function:

This parameter is used to select the source for the temperature value.

The following settings are possible:

- External object:
  A communication object that receives the actual temperature value via the bus is used as the source.
- Temperature sensor:
  The temperature value from temperature measuring is used as the source.
- Calculator evaluation:
  The result that comes directly from a calculator with the setting "Temperature (°C) DPT 9.001" from the device is used as the source. An additional parameter is then displayed for the assignment.

Other parameters:

- If the parameter is set to “External object,” the following parameter is displayed:
  - “Offset (K)”
- If the parameter is set to “Calculator evaluation,” the following parameter is displayed:
  - “Select calculator”

More information:

- Parameter “Offset (K)” [→ 169]
- Parameter “Source of actual temperature value” [→ 168]

Select calculator

Parameter	Settings
Select calculator	Calculator [1 - 12], result (°C)

Function:

This parameter is used to select the source for the calculated value, which is linked to an enabled calculator.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Source of actual temperature value”
  - Setting: “Calculator evaluation”

Note:

A source can only be selected if at least one calculator has been activated and the corresponding data format “Temperature (°C) DPT 9.001” has been selected (“Calculator” parameter card).

More information:

- Parameter “Source of actual temperature value” [→ 168]
- Calculator: Parameter “Result object” [→ 105]

Offset (K)

Parameter	Settings
Offset (K)	-671088.6...670760.9

Function:

This parameter can be used to set an offset for externally received actual temperature values. It can be used to correct environmental factors.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Source of actual temperature value”
  - Setting: “External object”

More information:

- Parameter “Source of actual temperature value” [➙ 168]

Parameters in the “Actual temperature value monitoring” section

Monitoring actual temperature value

Parameter	Settings
Monitoring actual temperature value	locking enable

Function:

This parameter is used to enable or disable monitoring of the cyclically received actual temperature value. If the parameter is set to "enable" and the actual temperature value fails, the control value "OFF" is output when using the 2-point control and the configured control value for temperature controller emergency mode is output when using the PI control.

Note:

If the controller does not receive the current temperature values from an external temperature sensor, but from the “Calculator” function block, it is only monitored whether the temperature values are received regularly from the calculator.

Other parameters:

If the parameter is set to “enable,” the following parameters are displayed:

- “Monitoring time”
- “Actual temperature value error status”

More information:

- Parameter “Monitoring time” [➙ 203]
- Parameter “Actual temperature value error status” [➙ 170]

Monitoring time

Parameter	Settings
Monitoring time (hh:mm)	00:00 ... 23:59

Function:

This parameter is used to specify the monitoring time for the actual temperature value. If no actual temperature is received within this configured time, the object “Temperature control 1, status error actual temperature value” can be used to output an error message.
With a parameter value of 00:00, no monitoring takes place.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Monitoring actual temperature value”
  - Setting: “Monitoring actual temperature value”

More information:

- Communication object “Temperature control 1, actual temperature value error status” [➙ 216]
- Parameter “Monitoring time” [➙ 203]
- Parameter “Actual temperature value error status” [➙ 170]

Actual temperature value error status

Parameter	Settings
Actual temperature value error status	disable enable

Function:

This parameter can be used to enable or disable the “Temperature control 1, status error actual temperature value” communication object.

If no actual temperature value is received during the configured monitoring time, there is an error. To this end, an error message can be sent in the form of a logical “1.”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Monitoring actual temperature value”
  – Setting: “enable”

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change of status”
- “Block time for sending of status”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, status error actual temperature value”

More information:

- Communication object “Temperature control 1, actual temperature value error status” [➙ 216]
- Parameter “Actual temperature value monitoring” [➙ 169]
- Parameters that are visible if the “Status...” parameter is set to “enable” [➙ 311]

Parameters in the “Heat alarm” section

If the room temperature exceeds a configured heat alarm limit due to external factors, a heat alarm can be output.

Limit (°C)

Parameter	Settings
Limit (°C)	-273...670760

Function:

This parameter can be used to specify in °C the temperature at which the heat alarm is triggered.

The heat alarm is activated if the actual temperature value is greater than or equal to the configured threshold.

Hysteresis (K)

Parameter	Settings
Hysteresis (K)	0...670760

Function:

This parameter can be used to set the allowed variation of the temperature limit for the heat alarm (= hysteresis) in the range of “0...670760.”

The heat alarm remains deactivated if the actual temperature value is less than or equal to the configured threshold value minus the value of the hysteresis.

Object "Temperature control 1, heat alarm"

Parameter	Settings
Object "Temperature control 1, heat alarm"	disable enable

Function:

This parameter can be used to enable or disable the “Temperature control 1, heat alarm” communication object.

This object is used to report whether a heat alarm is active.

Other parameters:

If the parameter is set to “enable,” the following additional parameters are displayed:

- “Send alarm on request”
- “Send alarm on change of value”
- “Send alarm cyclically”
- “Block time for sending the alarm”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, heat alarm”

More information:

- Communication object “Temperature control 1, heat alarm” [→ 215]
- Parameter “Send alarm on request” [→ 171]
- Parameter “Send alarm on change of value” [→ 172]
- Parameter “Send alarm cyclically” [→ 172]
- Parameter “Block time for sending of alarm” [→ 172]

Send alarm on request

Parameter	Settings
Send alarm on request	disable enable

Function:

This parameter can be used to set whether the alarm is sent on request or whether requests for the alarm will be rejected.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Object "Temperature control 1, heat alarm"”
  - Setting: “enable”

More information:

- Parameter “Object "Temperature control, heat alarm" [→ 171]

Send alarm on change of value

Parameter	Settings
Send alarm on change of value	disable enable

Function:

This parameter is used to define whether an alarm should be sent automatically each time the value changes.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Object "Temperature control 1, heat alarm"”
  - Setting: “enable”

More information:

- Parameter “Object "Temperature control, heat alarm" [→ 171]

Send alarm cyclically

Parameter	Settings
Send alarm cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set whether and at what intervals the alarm is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Object "Temperature control 1, heat alarm"”
  - Setting: “enable”

More information:

- Parameter “Object "Temperature control, heat alarm" [→ 171]

Block time for sending the alarm

Parameter	Settings
Block time for sending the alarm (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the status has to have passed in order for it to be sent again. Hence, no additional bus load is generated by status telegrams generated in quick succession during bus mode.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Object "Temperature control 1, heat alarm"”
  - Setting: “enable”

More information:

- Parameter “Object "Temperature control, heat alarm" [→ 171]

Parameters in the “Frost alarm” section

If the room temperature falls below a configured frost alarm limit due to external factors, a frost alarm can be output (e.g. if windows are open).

Limit (°C)

Parameter	Settings
Limit (°C)	-273...670760

Function:

This parameter can be used to specify in °C the maximum actual temperature value for the frost alarm.

The frost alarm is activated if the actual temperature value is lower than or equal to the configured threshold.

Hysteresis (K)

Parameter	Settings
Hysteresis (K)	0...670760

Function:

This parameter can be used to set the allowed variation of the temperature limit for the frost alarm (= hysteresis) in the range of “0...670760.”

The triggered frost alarm is deactivated if the actual temperature value is greater than or equal to the configured threshold value plus the value of the hysteresis.

Object "Temperature control 1, frost alarm"

Parameter	Settings
Object "Temperature control 1, frost alarm"	disable enable

Function:

This parameter can be used to enable or disable the “Temperature control 1, frost alarm” communication object.

This object is used to report whether a frost alarm is active.

Other parameters:

If the parameter is set to “enable,” the following parameters are displayed:

- “Send alarm on request”
- “Send alarm on change of value”
- “Send alarm cyclically”
- “Block time for sending the alarm”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, frost alarm”

More information:

- Communication object “Temperature control 1, frost alarm” [➙ 215]
- Parameter “Send alarm on request” [➙ 173]
- Parameter “Send alarm on change of value” [➙ 174]
- Parameter “Send alarm cyclically” [➙ 174]
- Parameter “Block time for sending of alarm” [➙ 215]

Send alarm on request

Parameter	Settings
Send alarm on request	disable enable

Function:

This parameter can be used to set whether the alarm is sent on request or whether requests for the alarm will be rejected.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Object "Temperature control 1, frost alarm"”
  - Setting: “enable”

More information:

- Parameter “Object “Temperature control, frost alarm"" [→ 173]

Send alarm on change of value

Parameter	Settings
Send alarm on change of value	disable enable

Function:

This parameter is used to define whether an alarm should be sent automatically each time the value changes.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Object "Temperature control 1, frost alarm"”
  - Setting: “enable”

More information:

- Parameter “Object “Temperature control, frost alarm"" [→ 173]

Send alarm cyclically

Parameter	Settings
Send alarm cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set whether and at what intervals the alarm is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Object "Temperature control 1, frost alarm"”
  - Setting: “enable”

More information:

- Parameter “Object “Temperature control, frost alarm"" [→ 173]

Block time for sending the alarm

Parameter	Settings
Block time for sending the alarm (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the frost alarm has to have passed in order for it to be sent again. Hence, no additional bus load is generated by status telegrams generated in quick succession during bus mode.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Object "Temperature control 1, frost alarm"”
  - Setting: “enable”

More information:

- Parameter “Object “Temperature control, frost alarm"" [→ 173]

8.9.4 Parameters on the “Temperature setpoints” parameter card

The “Temperature setpoints” parameter card is displayed if the parameter “Temperature control” on the “Device settings” parameter card is set to “enable.”

Parameters in the “Setting the temperature setpoints” section

Setpoint setting via

Parameter	Settings
Setpoint setting via	Absolute setpoints Basic setpoint + setpoint shift

Function:

This parameter is used to select whether the setpoints for temperature control are to be set using absolute setpoints (method A) or a basic setpoint and setpoint offsets to be taken into account (method B).

On this subject, refer to the figure “Methods for setting a setpoint [→ 144].”

Other parameters:

Depending on the whether method A or B is selected, different parameters are displayed:

- Parameters for use with method A [→ 175]
- Parameters for use with method B [→ 178]

Parameters that can be used for both methods are described under “Parameters for both methods [→ 180].”

Parameters for use with method A

To avoid continuous switching between heating and cooling, there should be a sufficiently large temperature difference between the setpoints for heating and cooling.

The following section describes all parameters for the available room operating modes.

The following parameters are shown if the parameter “Setpoint setting via” is set to “absolute setpoints” (method A):

Comfort mode:Heating setpoint (°C)

Parameter	Settings
Comfort mode:Heating setpoint (°C)	-273...670760

Function:

This parameter is used to set the setpoint for the "Heating" operating mode in comfort mode.

Pre-comfort mode:Heating setpoint (°C)

Parameter	Settings
Pre-comfort mode:Heating setpoint (°C)	-273...670760

Function:

This parameter is used to set the setpoint for the "Heating" operating mode in pre-comfort mode.

Power saving mode:Heating setpoint (°C)

Parameter	Settings
Power saving mode:Heating setpoint (°C)	-273...670760

Function:

This parameter is used to set the setpoint for the "Heating" operating mode in power saving mode.

Protective mode:Heating setpoint (°C)

Parameter	Settings
Protective mode:Heating setpoint (°C)	-273...670760

Function:

This parameter is used to set the setpoint for the "Heating" operating mode in protection mode.

Comfort mode:Cooling setpoint (°C)

Parameter	Settings
Comfort mode:Cooling setpoint (°C)	-273...670760

Function:

This parameter is used to set the setpoint for the “Cooling" operating mode in comfort mode.

Pre-comfort mode:Cooling setpoint (°C)

Parameter	Settings
Pre-comfort mode:Cooling setpoint (°C)	-273...670760

Function:

This parameter is used to set the setpoint for the “Cooling" operating mode in pre-comfort mode.

Power saving mode:Cooling setpoint (°C)

Parameter	Settings
Power saving mode:Cooling setpoint (°C)	-273...670760

Function:

This parameter is used to set the setpoint for the “Cooling" operating mode in power saving mode.

Protective mode:Cooling setpoint (°C)

Parameter	Settings
Protective mode:Cooling setpoint (°C)	-273...670760

Function:

This parameter is used to set the setpoint for the “Cooling" operating mode in protection mode.

Object heating setpoints

Parameter	Settings
Object heating setpoints	disable enable

Function:

This parameter is used to set whether the communication objects “Temperature control 1, heating setpoints (°C)” and “Temperature control 1, heating setpoint, [operating mode]” are to be made available.

This 8-byte communication object can be used to change the respective setpoints for the four room operating modes in heating mode at any time via the bus by means of a telegram. The values received via the communication objects immediately overwrite the factory-set parameter values and are stored permanently.

The setpoints for heating are received both individually for each room operating mode as 2-byte communication objects and also as one 8-byte communication object. When an 8-byte communication object is used, the values for all four room operating modes in "Heating" operating mode are transferred in one object.

Communication objects:

If the parameter is set to “enable,” the following communication objects are displayed:

- “Temperature control 1, heating setpoints (°C)”
- “Temperature control 1, heating setpoint, comfort mode”
- “Temperature control 1, heating setpoint, pre-comfort mode”
- “Temperature control 1, heating setpoint, power saving mode”
- “Temperature control 1, heating setpoint, protection mode”

More information:

- Communication object “Temperature control 1, heating setpoints (°C)” [→ 220]
- Communication object “Temperature control 1, heating setpoint, comfort mode” [→ 219]
- Communication object “Temperature control 1, heating setpoint, pre-comfort mode” [→ 219]
- Communication object “Temperature control 1, heating setpoint, power saving mode” [→ 219]
- Communication object “Temperature control 1, heating setpoint, protection mode” [→ 219]

Object cooling setpoints

Parameter	Settings
Object cooling setpoints	disable enable

Function:

This parameter is used to set, whether or not the communication objects “Temperature control 1, cooling setpoint (°C)” and “Temperature control 1, cooling setpoint, [operating mode]” are to be made available.

This 8-byte communication object can be used to change the respective setpoints for the four room operating modes in cooling mode at any time via the bus by means of a telegram. The value received via the communication object immediately overwrites the factory-set parameter values and is stored permanently.

The setpoints for cooling are received both individually for each room operating mode as 2-byte communication objects and also as one 8-byte communication object. When an 8-byte communication object is used, the values for all four room operating modes in “Cooling" operating mode are transferred in one object.

Communication object:

If the parameter is set to “enable,” the following communication objects are displayed:

- “Temperature control 1, cooling setpoint (°C)”
- “Temperature control 1, cooling setpoint, comfort mode”
- “Temperature control 1, cooling setpoint, pre-comfort mode”
- “Temperature control 1, cooling setpoint, power saving mode”
- “Temperature control 1, cooling setpoint, protection mode”

More information:

- Communication object “Temperature control 1, cooling setpoints (°C)” [→ 221]
- Communication object “Temperature control 1, cooling setpoint, comfort mode” [→ 221]
- Communication object “Temperature control 1, cooling setpoint, pre-comfort mode” [→ 221]
- Communication object “Temperature control 1, cooling setpoint, power saving mode” [→ 221]
- Communication object “Temperature control 1, cooling setpoint, protection mode” [→ 221]

Parameters for use with method B

The following parameters are shown if the parameter “Setpoint setting via“ is set to “Basic setpoint + setpoint shift” (method b).

Basic setpoint (°C)

Parameter	Settings
Basic setpoint (°C)	-273...670760

Function:

This parameter is used to set the setpoint for comfort mode. The setpoints of the other room operating modes (pre-comfort mode and power saving mode) are then calculated using the respective setpoint shifts via this value. The values for protection mode in heating and/or cooling operating mode are set as discrete values.

Pre-comfort mode: Heating setpoint shift (K)

Parameter	Settings
Pre-comfort mode: Heating setpoint shift (K)	-670760...0

Function:

This parameter is used to set the setpoint shift for the "Heating" operating mode in pre-comfort mode. This is used to set by which value the setpoint is to be increased from the basic setpoint if the operating mode is switched to “pre-comfort mode” while in heating mode.

Power saving mode: Heating setpoint shift (K)

Parameter	Settings
Power saving mode: Heating setpoint shift (K)	-670760...0

Function:

This parameter is used to set the setpoint shift for the "Heating" operating mode in power saving mode. This is used to set by which value the setpoint is to be increased from the basic setpoint if the operating mode is switched to “power saving mode” while in heating mode.

Protective mode:Heating setpoint (°C)

Parameter	Settings
Protective mode:Heating setpoint (°C)	-273...670760

Function:

This parameter is used to set the setpoint for the "Heating" operating mode in protection mode.

Pre-comfort mode:Cooling setpoint shifts (K)

Parameter	Settings
Pre-comfort mode:Cooling setpoint shifts (K)	0...670760

Function:

This parameter is used to set the setpoint shift for the “Cooling" operating mode in pre-comfort mode. This is used to set by which value the setpoint is to be increased from the basic setpoint if the operating mode is switched to “pre-comfort mode” while in cooling mode.

Power saving mode: Cooling setpoint shift (K)

Parameter	Settings
Power saving mode: Cooling setpoint shift (K)	0...670760

Function:

This parameter is used to set the setpoint shift for the “Cooling" operating mode in power saving mode. This is used to set by which value the setpoint is to be increased from the basic setpoint if the operating mode is switched to “power saving mode” while in cooling mode.

Protective mode:Cooling setpoint (°C)

Parameter	Settings
Protective mode:Cooling setpoint (°C)	-273...670760

Function:

This parameter is used to set the setpoint for the “Cooling" operating mode in protection mode.

Basic setpoint object

Parameter	Settings
Basic setpoint object	disable enable

Function:

This parameter is used to set whether or not communication object “Temperature control 1, basic setpoint” is supposed to be made available.

This object can be used to change the preset basic setpoint via the bus at any time. The basic setpoint refers to comfort mode, see also the figure “Methods for setting a setpoint [→ 144].”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- Communication object “Temperature control 1, basic setpoint”

More information:

- Communication object “Temperature control 1, basic setpoint” [→ 219]
- Figure “Methods for setting a setpoint [→ 144]”

setpoint offset object

Parameter	Settings
setpoint offset object	disable enable

Function:

This parameter is used to set whether or not communication object “Temperature control 1, setpoint offset” is supposed to be made available.

This object can be used to set a setpoint offset via the bus at any time. This offset is then applied to all setpoints of the four room operating modes, refer also to the figure “Methods for setting a setpoint [→ 144].”

Communication object:

If the parameter is set to “enable,” the following communication objects are displayed:

- “Temperature control 1, setpoint offset”

More information:

- Communication object “Temperature control 1, setpoint offset” [→ 219]
- Figure “Methods for setting a setpoint [→ 144]”

Dead zone between heating and cooling (±K)

Parameter	Settings
Dead zone between heating and cooling (±K)	0...670760

Function:

This parameter is used to set the dead zone between heating and cooling. The respective dead zone is above and below the respective setpoints for the basic setpoint (comfort mode), refer also to the figure “Methods for setting a setpoint [→ 144].” The purpose of this is to prevent constant switching between heating and cooling mode when there are slight fluctuations in temperature.

More information:

- Figure “Methods for setting a setpoint [→ 144]”

Status of current basic setpoint

Parameter	Settings
Status of current basic setpoint	disable enable

Function:

This parameter is used to set whether communication object “Temperature control 1, status of current basic setpoint” is supposed to be made available.

This object can be used to output or query the current setpoint.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send value on request”
- “Send value on change of value”
- “Value change since last sent (K)”
- “Block time for sending of value”
- “Send value cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, status of current basic setpoint”

More information:

- Communication object “Temperature control, 1, status of current basic setpoint” [→ 221]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Parameters for both methods

The following parameters apply for both setpoint setting methods:

Minimum possible setpoint (°C)

Parameter	Settings
Minimum possible setpoint (°C)	-273...670760

Function:

This parameter is used to set the lower limit that is possible when specifying the setpoint via parameters and object.

Note:

The limitation or correction takes place in the device and not when the setpoints are configured in the ETS.

Maximum possible setpoint (°C)

Parameter	Settings
Maximum possible setpoint (°C)	-273...670760

Function:

This parameter is used to set the upper limit that is possible when specifying the set-point via parameters and object.

Note:

The limitation or correction takes place in the device and not when the setpoints are configured in the ETS.

Update cooling setpoint dependent on outside temperature

Parameter	Settings
Update cooling setpoint dependent on outside temperature	disable enable

Function:

This parameter is used to set whether the setpoint temperature in cooling mode should track the ambient temperature. If “enable” is selected, communication object “Temperature control 1, outside temperature” is created and the target temperature is adjusted according to the ambient temperature, if this exceeds 26 °C and is 6 K above the preselected comfort target temperature. In this case, the new target temperature is always 6 K lower than the ambient temperature.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “System type” (“Temperature control” parameter card of the corresponding temperature controller)
  - Setting: “4-pipe system”

or

- Parameter “System type”
  - Setting: “2-pipe system” (“Temperature control” parameter card of the corresponding temperature controller)
- Parameter “Controller mode”
  - Setting: “Heating and cooling” or “Cooling”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, outside temperature”

More information:

- Communication object “Temperature control, 1, ambient temperature” [➙ 218]
- Parameter “System type” [➙ 153]
- Parameter “Controller operating mode” [➙ 153]

Ambient temperature offset (K)

Parameter	Settings
Ambient temperature offset (K)	-671088.6...670760.9

Function:

This parameter can be used to set an offset for the externally received ambient temperature. It can be used to correct environmental factors.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Update cooling setpoint dependent on outside temperature”
  - Setting: “enable”

More information:

- Parameter “Update cooling setpoint dependent on ambient temperature” [➙ 181]

Ambient temperature monitoring

Parameter	Settings
Ambient temperature monitoring	disable enable

Function:

This parameter is used to enable or disable monitoring of the ambient temperature that is received cyclically.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Update cooling setpoint dependent on outside temperature“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Other parameters:

If the parameter is set to “enable,” the following parameter is displayed:

- “Monitoring time”

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change of status”
- “Block time for sending of status”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, status error ambient temperature”

More information:

- Communication object “Temperature control, 1, status of ambient temperature error” [→ 218]
- Parameter “Update cooling setpoint dependent on ambient temperature” [→ 181]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Monitoring time

Parameter	Settings
Monitoring time (hh:mm)	00:00 ... 23:59

Function:

This parameter is used to specify the monitoring time of the ambient temperature. If no ambient temperature is received within this configured time, the object “Temperature control 1, status error ambient temperature” can be used to output an error message. With a parameter value of 00:00, no monitoring takes place.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Update cooling setpoint dependent on outside temperature”
  - Setting: “enable”

More information:

- Communication object “Temperature control, 1, status of ambient temperature error” [→ 218]
- Parameter “Update cooling setpoint dependent on ambient temperature” [→ 181]

Status of current setpoint

Parameter	Settings
Status of current setpoint	disable enable

Function:

This parameter is used to set whether communication object “Temperature control 1, status of current setpoint” is supposed to be made available.

This object can be used to output and query the real setpoint taking into account the current room operating mode and the current offset.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send value on request”
- “Send value on change of value”
- “Value change since last sent (K)”
- “Block time for sending of value”
- “Send value cyclically”

Communication object:

If the parameter is set to “enable,” the following communication objects are displayed:

- “Temperature control 1, status of current setpoint”

More information:

- Communication object “Temperature control 1, status of current setpoint” [→ 222]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Status of setpoint offset

Parameter	Settings
Status of setpoint offset	disable enable

Function:

This parameter is used to set whether communication object “Temperature control 1, setpoint offset status” is supposed to be made available.

This object can be used to output or query the setpoint offset.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send value on request”
- “Send value on change of value”
- “Value change since last sent (K)”
- “Block time for sending of value”
- “Send value cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, setpoint offset status”

More information:

- Communication object “Temperature control 1, status of setpoint offset” [→ 222]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Status of effective cooling setpoint (DPT 9.001)

Parameter	Settings
Status of effective cooling setpoint (DPT 9.001)	locking enable

Function:

This parameter is used to set whether the communication object “Temperature control 1, status of effective cooling setpoint” is displayed.

This object can be used to output and query the real cooling setpoint taking into account the current room operating mode and the current offset.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “System type” (“Temperature control” parameter card of the corresponding temperature controller)
  - Setting: “4-pipe system”

or

- Parameter: “System type” (“Temperature control” parameter card of the corresponding temperature controller)
  - Setting: “2-pipe system”
- Parameter: “Controller mode”
  - Setting: “Heating and cooling” or “Cooling”

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send value on request”
- “Send value on change of value”
- “Value change since last sent (K)”
- “Block time for sending of value”
- “Send value cyclically”

Communication object:

If the parameter is set to “enable,” the following communication objects are displayed:

- “Temperature control 1, status of effective cooling setpoint”

More information:

- Communication object “Temperature control 1, status of effective cooling setpoint” [→ 222]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]
- Parameter “System type” [→ 153]
- Parameter “Controller operating mode” [→ 153]

Status of effective heating setpoint (DPT 9.001)

Parameter	Settings
Status of effective heating setpoint (DPT 9.001)	locking enable

Function:

This parameter is used to set whether the communication object “Temperature control 1, status of effective heating setpoint” is to be supplemented.

This object can be used to output and query the real heating setpoint taking into account the current room operating mode and the current offset.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “System type” (“Temperature control” parameter card of the corresponding temperature controller)
  - Setting: “4-pipe system”

or

- Parameter: “System type”
  - Setting: “2-pipe system” (“Temperature control” parameter card of the corresponding temperature controller)
- Parameter: “Controller mode”
  - Setting: “Heating and cooling” or “Heating”

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send value on request”
- “Send value on change of value”
- “Value change since last sent (K)”
- “Block time for sending of value”
- “Send value cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, status of effective heating setpoint”

More information:

- Communication object “Temperature control 1, status of effective heating setpoint” [➙ 223]
- Parameters that are visible if the “Status...” parameter is set to “enable” [➙ 311]
- Parameter “System type” [➙ 153]
- Parameter “Controller operating mode” [➙ 153]

Status of effective cooling setpoints (DPT 275.100)

Parameter	Settings
Status of effective cooling setpoints (DPT 275.100)	locking enable

Function:

This parameter is used to set whether the communication object “Temperature control 1, status of effective cooling setpoints” is to be supplemented.

This object can be used to output and query the real cooling setpoints, taking into account the current offset. This object also contains all the setpoint temperatures for the four different operating modes.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “System type” (“Temperature control” parameter card of the corresponding temperature controller)
  - Setting: “4-pipe system”

or

- Parameter: “System type”
  - Setting: “2-pipe system” (“Temperature control” parameter card of the corresponding temperature controller)
- Parameter: “Controller mode”

– Setting: “Heating and cooling” or “Cooling”

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send value on request”
- “Send value on change of value”
- “Value change since last sent (K)”
- “Block time for sending of value”
- “Send value cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, status of effective cooling setpoints”

More information:

- Communication object “Temperature control 1, status of effective cooling setpoints (°C)” [→ 223]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]
- Parameter “System type” [→ 153]
- Parameter “Controller operating mode” [→ 153]

Status of effective heating setpoints (DPT 275.100)

Parameter	Settings
Status of effective heating setpoints (DPT 275.100)	locking enable

Function:

This parameter is used to set whether the communication object “Temperature control 1, status of effective heating setpoints” is to be supplemented.

This object can be used to output and query the real heating setpoints, taking into account the current offset. This object also contains all the setpoint temperatures for the four different operating modes.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “System type” (“Temperature control” parameter card of the corresponding temperature controller)
  – Setting: “4-pipe system”

or

- Parameter: “System type”
  – Setting: “2-pipe system” (“Temperature control” parameter card of the corresponding temperature controller)
- Parameter: “Controller mode”
  – Setting: “Heating and cooling” or “Heating”

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send value on request”
- “Send value on change of value”
- “Value change since last sent (K)”

- “Block time for sending of value”
- “Send value cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, status of effective heating setpoints”

More information:

- Communication object “Temperature control 1, status of effective heating setpoints” [→ 223]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]
- Parameter “System type” [→ 153]
- Parameter “Controller operating mode” [→ 153]

8.9.5 Parameters on the “Heating,” “Cooling,” and “Heating/cooling” parameter cards

The “Heating,” “Cooling” or “Heating/cooling” parameter cards are displayed if the parameter “Temperature control” on the “Device settings” parameter card is set to “enable.” Depending on the settings of parameters “System type” and “Controller mode” on the “Temperature control” parameter card. the parameter card(s) for “Heating,” “Cooling” or “Heating/cooling” is/are displayed.

The parameters of the "Heating" sub parameter card are identical to the parameters of the "Cooling" and “Heating/cooling" sub-parameter cards and are therefore only described once.

Control behavior

Parameter	Settings
Control behavior	2-point control PI control

Function:

This parameter is used to set the control behavior of the room temperature controller.

The following settings are possible:

A distinction is made between a switching 2-point control and a continuous proportional/integral control (PI):

- For switching 2-point control, a simple temperature control algorithm is used. For this control, a setpoint is specified with a hysteresis. The control values are transferred from the controller via switch-on and switch-off commands (1 bit). On this subject, refer to the figures “2-point control for “Heating” [→ 141]” and “2-point control for “Cooling” [→ 141].”
- PI control uses an algorithm consisting of a proportional and an integral part. This combination of these control characteristics achieves fast and accurate control of the room temperature with no or only slight control deviations. On this subject, refer to the figures “PI control with continuous control value [→ 141]” and “PI control with On/Off command [→ 142].”

Other parameters:

Depending on the selected setting, additional parameters for the control behavior of the heating or cooling appear:

- Control via switching commands (for 2-point control) [→ 188]
- Control via positioning commands in percent (with continuous control) [→ 189]

More information:

- Figure “2-point control for “Heating” [→ 141]”
- Figure “2-point control for “Cooling” [→ 141]”
- Figure “PI control with continuous control value [→ 141]”
- Figure “PI control with On/Off command [→ 142]”

Control via switching commands (for 2-point control)

The following parameters are shown if the parameter “Control behavior“ is set to “2-point control:”

Hysteresis (K)

Parameter	Settings
Hysteresis (K)	0...670760

Function:

This parameter is used to set the switching hysteresis of the 2-point controller for heating/cooling mode. The smaller the hysteresis, the more accurately the room temperature setpoint is maintained, but the switching frequency of the controller is also increased.

Example for cooling mode:

Setpoint on 23 °C and hysteresis on 0.5 K:

- The actual value increases to 23.4. The switching control value is still “OFF.”
- The actual value increases to 23.5. The switching control value is “ON.”
- The actual value drops to 23.1. The switching control value is still “ON.”
- The actual value drops to 23.0. The switching control value is “OFF.”

Double hysteresis in power saving/protective mode

Parameter	Settings
Double hysteresis in power saving/ protective mode	locking enable

Function:

This parameter can be used to set that twice as large fluctuations (hysteresis) of the room temperature are permissible in energy saving and protection mode in order to save further heating/cooling energy or to reduce the switching frequency.

Cycle time

Parameter	Settings
Cycle time (hh:mm)	00:01 ... 23:59

Function:

This parameter is used to set the time interval after which the outputs are switched. For example, if the setpoint is reached 2 minutes after switching on the output, although a time of 5 minutes has been configured, the output remains switched on until the 5 minutes have elapsed. This parameter therefore prevents increase thermal valve wear.

Invert control value

Parameter	Settings
Invert control value	No Yes

Function:

This parameter is used to define whether the control value is to be output in inverted form. The setting for this parameter depends on the type of valve used (whether de-energized open or closed) and the actuator.

Send control value on request

Parameter	Settings
Send control value on request	locking enable

Function:

This parameter can be used to set whether the control value is sent on request or whether requests for the control value will be rejected.

The request is triggered via the communication object “Send status values.”

Send control value on change

Parameter	Settings
Send control value on change	locking enable

Function:

This parameter is used to define if the control value is to be sent automatically for every change of value.

When “enable” is selected, additional parameters are displayed that can be used to define which change of value (in %) since the last sending has to be exceeded and how much time must have passed since the last sending for the control value to be sent again.

Block time for sending of control value

Parameter	Settings
Block time for sending of control value (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the control value has to have passed in order for it to be sent again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Send control value on change”
  - Setting: “Steady (8-bit)”

Note:

The block time does not apply to cyclic sending. If the block time is greater than the cycle time, the value is nonetheless sent at the end of the cycle time.

Send control value cyclically

Parameter	Settings
Send control value cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter determines if and at which intervals the determined control value is sent via the bus.

If this is set to “00:00:00,” then cyclic sending is deactivated.

Control via positioning commands in percent (with continuous control)

The parameters described below are displayed if the parameter “Control behavior” to “PI control.”

The system types for heating and cooling can be selected. There are already preset heating or cooling modes for this purpose, such as "Fan coil unit heating/cooling (5 K, 30 min)." The setting “User defined” can be used to individually configure the proportional range and delay time.

Even minor adjustments to the proportional range and/or delay time can have a significant influence on the controller behavior.

With the setting “PI control,” a sequence control can also be configured (on this subject, see also “Continuous PI control with sequence control [→ 143].”

Heating/cooling system type

Parameter	Settings
Heating/cooling system type	User defined Fan coil unit heating/cooling (5 K, 30 min) Heating/cooling ceiling (5 K, 60 min) Underfloor heating/cooling (5 K, 120 min) Radiator heating (5 K, 60 min)

Function:

This parameter can be used to select the system type for heating and cooling in order to be able to adjust the PI control according to the system type.

The following settings are possible:

- User defined:
  With this setting, the proportional range in Kelvin and the delay time in minutes can be configured individually.
- Fan coil unit heating/cooling (5 K, 30 min):
  The preset proportional range is 5 Kelvin and the preset delay time is 30 minutes.
- Heating/cooling ceiling (5 K, 60 min):
  The preset proportional range is 5 Kelvin and the preset delay time is 60 minutes.
- Underfloor heating/cooling (5 K, 120 min):
  The preset proportional range is 5 Kelvin and the preset delay time is 120 minutes.
- Radiator heating (5 K, 60 min):
  The preset proportional range is 5 Kelvin and the preset delay time is 60 minutes.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “System type” (Temperature control parameter card)
  - Setting: “2-pipe system”
- Parameter: “Controller mode”
  - Setting: “Heating” or “Heating and cooling”

or

- Parameter: “System type” (Temperature control parameter card)
  - Setting: “4-pipe system”

Other parameters:

If the parameter is set to “User defined,” the following parameters are displayed:

- “Proportional range (K)”
- “Reset time”

More information:

- Parameter “System type” [→ 153]
- Parameter “Controller operating mode” [→ 153]

- Parameter “Proportional range (K)” [➙ 192]
- Parameter “Delay time” [➙ 192]

Heating system type

Parameter	Settings
Heating system type	User defined Fan coil heating (5 K, 30 min) Heating ceiling (5 K, 60 min) Underfloor heating (5 K, 120 min) Radiator heating (5 K, 60 min)

Function:

This parameter can be used to select the system type for heating in order to be able to adjust the PI control according to the system type.

The following settings are possible:

- User defined:
  With this setting, the proportional range in Kelvin and the delay time in minutes can be configured individually.
- Fan coil heating (5 K, 30 min):
  The preset proportional range is 5 Kelvin and the preset delay time is 30 minutes.
- Heating ceiling (5 K, 60 min):
  The preset proportional range is 5 Kelvin and the preset delay time is 60 minutes.
- Underfloor heating (5 K, 120 min):
  The preset proportional range is 5 Kelvin and the preset delay time is 120 minutes.
- Radiator heating (5 K, 60 min):
  The preset proportional range is 5 Kelvin and the preset delay time is 60 minutes.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “System type” (Temperature control parameter card)
  – Setting: “2-pipe system”
- Parameter: “Controller mode”
  – Setting: “Heating”

Other parameters:

If the parameter is set to “User defined,” the following parameters are displayed:

- “Proportional range (K)”
- “Reset time”

More information:

- Parameter “System type” [➙ 153]
- Parameter “Controller operating mode” [➙ 153]
- Parameter “Proportional range (K)” [➙ 192]
- Parameter “Delay time” [➙ 192]

Cooling system type

Parameter	Settings
Cooling system type	User defined Fan coil cooling (5 K, 30 min) Cooling ceiling (5 K, 60 min) Underfloor cooling (5 K, 120 min)

Function:

This parameter can be used to select the system type for cooling in order to be able to adjust the PI control according to the system type.

The following settings are possible:

- User defined:
  With this setting, the proportional range in Kelvin and the delay time in minutes can be configured individually.
- Fan coil cooling (5 K, 30 min):
  The preset proportional range is 5 Kelvin and the preset delay time is 30 minutes.
- Cooling ceiling (5 K, 60 min):
  The preset proportional range is 5 Kelvin and the preset delay time is 60 minutes.
- Underfloor cooling (5 K, 120 min):
  The preset proportional range is 5 Kelvin and the preset delay time is 60 minutes.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “System type” (Temperature control parameter card)
  - Setting: “2-pipe system”
- Parameter: “Controller mode”
  - Setting: “Cooling”

Other parameters:

If the parameter is set to “User defined,” the following parameters are displayed:

- “Proportional range (K)”
- “Reset time”

More information:

- Parameter “System type” [→ 153]
- Parameter “Controller operating mode” [→ 153]
- Parameter “Proportional range (K)” [→ 192]
- Parameter “Delay time” [→ 192]

Proportional range (K)

Parameter	Settings
Proportional range (K)	1...10

Function:

This parameter sets the proportional range of the PI controller for heating/cooling mode.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “System type [heating/cooling]”
  - Setting: “User defined”

Example:

A proportional range of 3 K means that a control deviation between actual value and setpoint of 3 K results in a control value change of 100 %.

More information:

- Parameter “System type” [→ 153]

Reset time

Parameter	Settings
Reset time (hh:mm)	00:05 ... 02:00

Function:

This parameter is used to set the delay time (I component) of the PI controller for heating/cooling mode.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “System type [heating/cooling]”
  - Setting: “User defined”

Example:

A delay time of 30 minutes means that within this time the I component is equal to the P component. Small deviations of the actual temperature from the set temperature are thus magnified over the course of the operating time and lead to readjustment of the valve.

More information:

- Parameter “System type” [→ 153]

Parameters for sequence control

If a room can be heated in two different ways, sequential control makes sense. The two sources of heating and cooling are then controlled one after the other (in a sequence) rather than in parallel.

Example: Heating with underfloor heating and radiator heating in one room

- If the room temperature is below the setpoint, the valve on the underfloor heating is opened first (sequence 1).
- If the underfloor heating valve is open 100 % but the setpoint is still not reached, the valve on the radiator is opened (sequence 2).
- If, on the other hand, it is too warm in the room, the radiator valve is gradually closed first and the valve of the underfloor heating system is closed only thereafter.

Sequence control converts the internal control value calculated by the PI controller into two values (control value sequence 1, control value sequence 2).
The value of the controller control value at which sequence 2 starts is adjustable.
In addition, it can be set separately for each sequence from which change in control value the control value is supposed to be sent to the bus and at which intervals the control value is repeated cyclically. The control values are output as a continuous control value in the range of 0…100 % (1-byte) (see “Control values for sequence control [→ 143]l”).

Sequence control

Parameter	Settings
Sequence control	disable enable

Function:

This parameter can be used to set whether sequence control (sequence 1 control value and sequence 2 control value) is to take effect.

Other parameters:

If the parameter is set to “enable,” the following parameter is displayed:

- “Value of control value at which sequence 2 starts (%)”

More information:

- Parameter “Value of controller value at which sequence 2 starts (%)” [→ 193]

Value of control value at which sequence 2 starts (%)

Parameter	Settings
Value of control value at which sequence 2 starts (%)	0...100

Function:

This parameter is used to set from which calculated control value of the "Heating" or "Cooling" controller output sequence 2 is to start.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Sequence control”
  - Setting: “enable”

More information:

- Parameter “Sequence control” [➙ 193]

The parameters of sequence 1 and 2 are identical and are therefore described only once.

Type of control value output

Parameter	Settings
Type of control value output	Switching (1-bit) Steady (8-bit)

Function:

This parameter is used to set whether the control value is output via a 1-bit communication object (PWM) or an 8-bit communication object.

Other parameters:

If the parameter is set to “Switching (1-bit),” the following parameters are displayed:

- “Invert control value”
- “Valve always closed if control value lower than (%)”
- “Valve always open if control value greater than (%)”
- “Period duration of pulse width modulation”

If the parameter is set to “Steady (8-bit),” the following parameters are displayed:

- “Invert control value”
- “Scaling of control value (%)”
- “Maximum control value (%)”
- “Minimum control value (%)”

Communication object:

If the parameter is set to “Switching (1-bit),” the following communication object is displayed:

- “Temperature control 1, [heating/cooling], switching control value”

If the parameter is set to “Steady (8-bit),” the following communication object is displayed:

- Communication object “Temperature control 1, [heating/cooling], continuous control value”

Note:

The control value of the room temperature controller can be used as a source for the control value setting at the valve output. The assignment is made in parameter card “Source of control value” of the “Control value configuration” parameter card of the corresponding valve output.

More information:

- Communication object “Temperature control 1, [heating/cooling], switching control value” [➙ 226]
- Communication object “Temperature control 1, [heating/cooling], continuous control value” [➙ 228]

- Parameter “Invert control value” [➙ 195]
- Parameter “Valve always closed if control value lower than (%)” [➙ 195]
- Parameter “Valve always open if control value greater than (%)” [➙ 195]
- Parameter “Period duration of pulse width modulation” [➙ 196]
- Parameter “Scaling of control value (%)” [➙ 197]
- Parameter “Maximum control value (%)” [➙ 198]
- Parameter “Minimum control value (%)” [➙ 199]

Invert control value

Parameter	Settings
Invert control value	No Yes

Function:

This parameter is used to define whether the control value is to be output in inverted form. The setting for this parameter depends on the type of valve used (whether de-energized open or closed) and the actuator.

Valve always closed if control value lower than (%)

Parameter	Settings
Limit: Valve always closed if control value lower than (%)	1...100

Function:

This parameter is used to set the percentage of the control value up to which the control value output is always 0 % (“OFF”). By reducing the switching frequency in this way, the valve characteristics can be included, therefore making it possible to save energy.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Switching (1-bit)”

More information:

- Parameter “Type of control value output” [➙ 194]

Valve always open if control value greater than (%)

Parameter	Settings
Valve always open if control value greater than (%)	0...99

Function:

This parameter is used to set the percentage of the control value from which the control value output is always 100 % (“ON”). To reduce the switching frequency, this can be adapted to the valve characteristics.

For examples, see figure “Setting the maximum and minimum control value [➙ 196]“ and figure “Valve completely open above 85 %, closed below 25 % [➙ 196].”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Switching (1-bit)”

Examples:

Example 1:

- Valve completely open above: 100 %
- Valve completely open below: 1 %

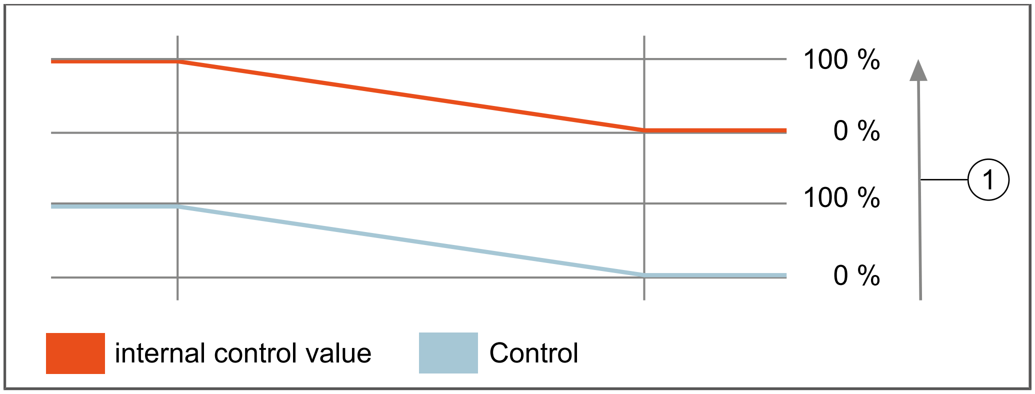


Fig. 43: Valve completely open above 100 %, closed below 1 %

1 Control of control value specification

Example 2:

- Valve completely open above: 85 %
- Valve completely open below: 25 %

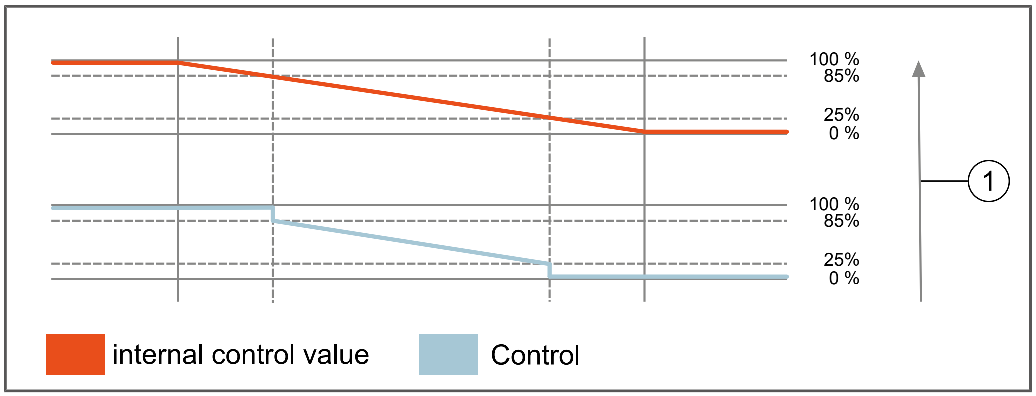


Fig. 44: Valve completely open above 85 %, closed below 25 %

1 Control of control value specification

More information:

- Parameter “Type of control value output” [→ 194]

Period duration of pulse width modulation

Parameter	Settings
Period duration of pulse width modulation (hh:mm)	00:01 ... 00:30

Function:

This parameter is used to set the period duration for the pulse width modulation of the switching control value output. The control value corresponds to the pulse duty ratio (time ratio) between "ON" (1) and "OFF" (0) within one period.

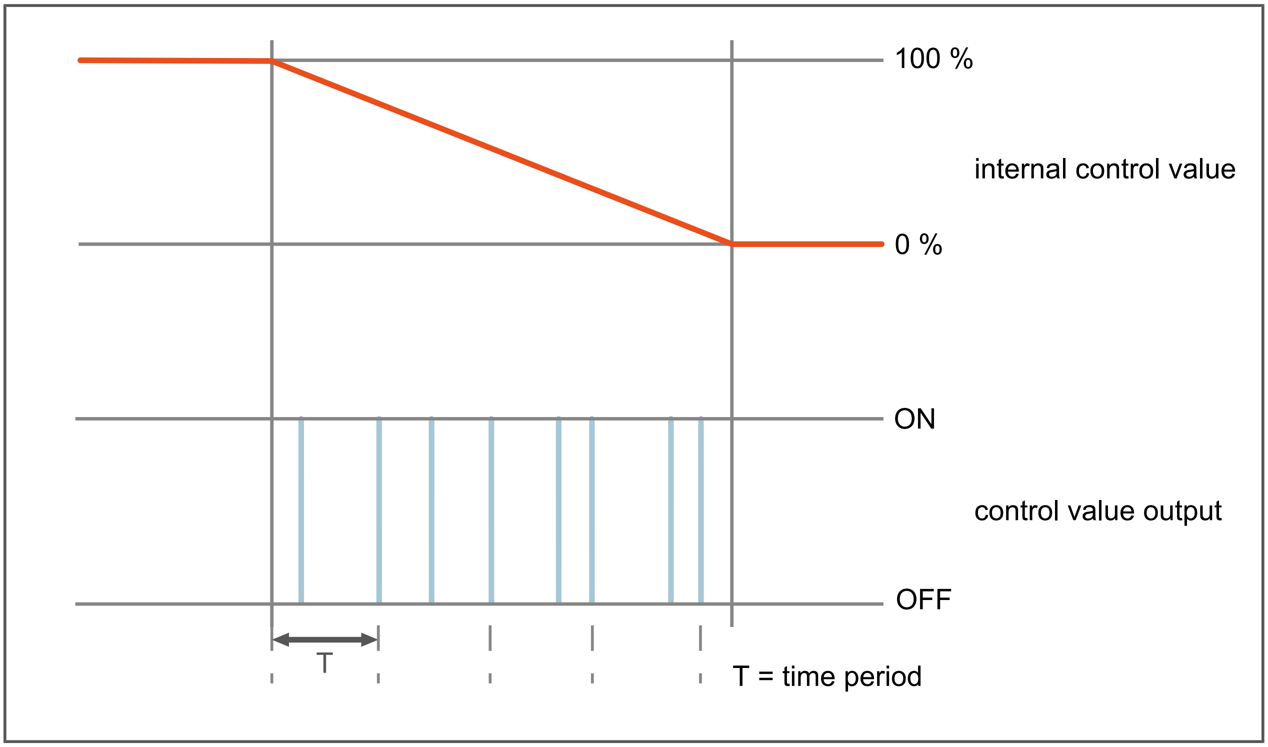


Fig. 45: Switching output of the control value

Note:
The selected period duration of pulse width modulation must not be shorter than the sum of the heating and cooling time of the thermal drives.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Switching (1-bit)”

More information:

- Parameter “Type of control value output” [➙ 194]

Scaling of control value (%)

Parameter	Settings
Scaling of control value (%)	1...100

Function:

This parameter is used to set in which form the control value is output.

The control value can only be used with continuous control value output (8 bit) (parameter “Type of control value output”).

Reducing the percentage achieves a compression (scaling) of the control value.

For an example, see figure “Example 1: Scaling of the control value: 60 % [➙ 198]“ and figure “Example 2: Scaling of the control value: 100 %, inverted control value [➙ 198].”

The setting depends on the valve type and actuator used.

The scaling takes effect prior to a limitation by the parameters "Minimum control value (%)” and “Maximum control value (%).”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

Examples:

Example 1:
Scaling of the control value: 60 %

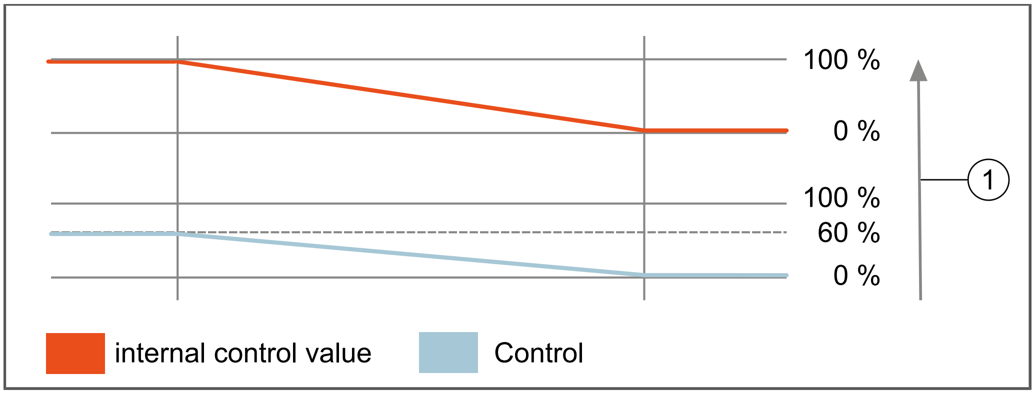


Fig. 46: Example 1: Scaling of the control value: 60 %

1 Control of control value specification

Example 2:
Scaling of the control value: 100 %, inverted control value

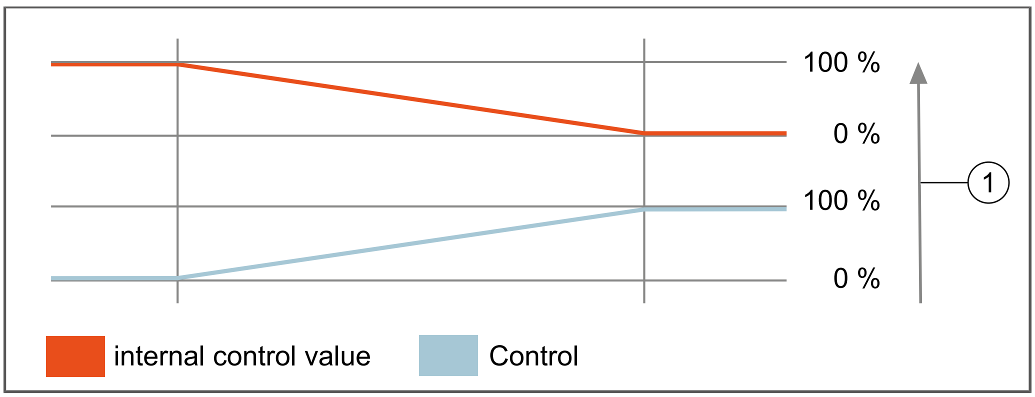


Fig. 47: Example 2: Scaling of the control value: 100 %, inverted control value

1 Control of control value specification

More information:

- Parameter “Type of control value output” [→ 194]

Maximum control value (%)

Parameter	Settings
Maximum control value (%)	0...100

Function:

This parameter can be used to set an upper threshold for the calculated heating or cooling control value. Above this value, the maximum control value is retained.

For an example, see figure “Parameters on the “Heating,” “Cooling,” and “Heating/cooling” parameter cards [→ 199].”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  – Setting: “Steady (8-bit)”

More information:

- Parameter “Type of control value output” [→ 194]

Minimum control value (%)

Parameter	Settings
Minimum control value (%)	0...100

Function:

This parameter can be used to set a lower threshold for the calculated heating or cooling control value. Below this value, the minimum control value is retained. When the controller is switched off, the control value 0 % is output.

For an example, see figure “Parameters on the “Heating,” “Cooling,” and “Heating/cooling” parameter cards [→ 199].”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  – Setting: “Steady (8-bit)”

More information:

- Parameter “Type of control value output” [→ 194]

Example:

Example of using a maximum control value of 80 % and a minimum control value of 20 %:

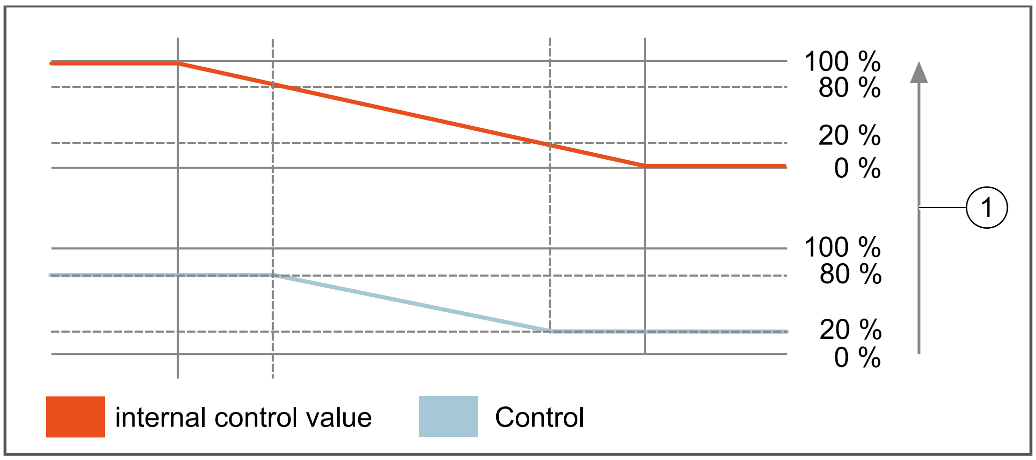


Fig. 48: Setting the maximum and minimum control value

1 Control of control value specification

Send control value on request

Parameter	Settings
Send control value on request	locking enable

Function:

This parameter can be used to set whether the control value is sent on request or whether requests for the control value will be rejected.

The request is triggered via the communication object “Send status values.”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

More information:

- Parameter “Type of control value output” [→ 194]

Send control value on change

Parameter	Settings
Send control value on change	locking enable

Function:

This parameter is used to define if the control value is to be sent automatically for every change of value.

When “enable” is selected, additional parameters are displayed that can be used to define which change of value (in %) since the last sending has to be exceeded and how much time must have passed since the last sending for the control value to be sent again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

More information:

- Parameter “Type of control value output” [→ 194]

Change of control value since last sent (%)

Parameter	Settings
Change of control value since last sent (%)	0...100

Function:

This parameter is used to define at which value change since the last sending the control value is sent again. Sending takes place if the block time for sending of the control value has been exceeded.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”
- Parameter “Send control value on change”
  - Setting: “enable”

More information:

- Parameter “Type of control value output” [→ 194]
- Parameter “Send control value on change” [→ 200]

Block time for sending of control value

Parameter	Settings
Block time for sending of control value (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the control value has to have passed in order for it to be sent again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Send control value on change”
  - Setting: “Steady (8-bit)”

Note:

The block time does not apply to cyclic sending. If the block time is greater than the cycle time, the value is nonetheless sent at the end of the cycle time.

More information:

- Parameter “Send control value on change” [→ 200]

More information:

- Parameter “Type of control value output” [→ 194]

Send control value cyclically

Parameter	Settings
Send control value cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter determines if and at which intervals the determined control value is sent via the bus.

If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

More information:

- Parameter “Type of control value output” [→ 194]

8.9.5.1 Parameters on the “Temperature limit for heating” parameter card

The “Temperature limit for heating” parameter card is only displayed if, on the “Temperature control” parameter card, the parameter “System type” is set to “2 pipe system” and parameter “Controller mode” is set to “Heating and cooling” or “Heating” or if the parameter “System type” is set to “4-pipe system.”

The following parameters can be used to limit the temperature for underfloor heating to protect the heating system and the surrounding floor screed from excessive temperatures.

Temperature limitation in heating mode(System type: underfloor heating)

Parameter	Settings
Temperature limitation in heating mode(System type: underfloor heating)	disable enable

Function:

This parameter can be used to enable temperature limitation in heating mode. If the parameter is set to “enable,” the floor temperature is monitored continuously.

If the actual value of the floor temperature is greater than or equal to a configured limit, the control value for heating is set to 0 %.

If the actual value of the floor temperature is less than or equal to the difference between the limit and the hysteresis, the control value for heating is no longer limited.

Other parameters:

If the parameter is set to “enable,” the following parameters and sections are displayed:

- “Limit (°C)”
- “Hysteresis (K)”
- Section “Actual temperature value monitoring:” parameter “Current temperature monitoring floor temperature”
- Section “Status: Parameter “Temperature limitation status in heating mode”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, temperature limitation heating mode, actual temperature value”

More information:

- Communication object “Temperature control 1, temperature limitation, heating mode, actual temperature value” [→ 224]
- Parameter “Threshold (°C)“ [→ 202]
- Parameter “Hysteresis (K)” [→ 202]
- Parameter “Actual temperature value monitoring of floor temperature” [→ 203]
- Parameter “Temperature limitation status in heating mode” [→ 204]

Limit (°C)

Parameter	Settings
Limit (°C)	20...70

Function:

This parameter can be used to set the temperature limit in heating mode (system type: underfloor heating).

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Temperature limitation in heating mode(System type: underfloor heating)”
  - Setting: “enable”

More information:

- Parameter “Temperature limitation in heating mode (system type: underfloor heating)” [→ 201]

Hysteresis (K)

Parameter	Settings
Hysteresis (K)	1...10

Function:

This parameter can be used to set the allowed variation of the temperature limit for the heating mode (= hysteresis) in the range of 1 to 10.”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Temperature limitation in heating mode(System type: underfloor heating)”
  - Setting: “enable”

More information:

- Parameter “Temperature limitation in heating mode (system type: underfloor heating)” [→ 201]

Parameters in the “Actual temperature value monitoring” section

Current temperature monitoring floor temperature

Parameter	Settings
Current temperature monitoring floor temperature	disable enable

Function:

This parameter is used to enable or disable monitoring of the cyclically received actual temperature value. If the parameter is set to "enable" and the actual temperature value fails, the control value "OFF" is output when using 2-point control and the control value for temperature controller emergency mode is output when using PI control.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Temperature limitation in heating mode(System type: underfloor heating)”
  - Setting: “enable”

Other parameters:

If the parameter is set to “enable,” the following parameters are displayed:

- “Monitoring time”
- “Actual temperature value error status”

More information:

- Parameter “Temperature limitation in heating mode (system type: underfloor heating)” [➙ 201]
- Parameter “Monitoring time” [➙ 203]
- Parameter “Actual temperature value error status” [➙ 203]
- Parameter “Control value in emergency mode, heating (%)” [➙ 154]
- Parameter “Control value in emergency mode, cooling (%)” [➙ 155]

Monitoring time

Parameter	Settings
Monitoring time	00:00 ... 23:59

Function:

This parameter is used to specify the monitoring time for the actual temperature value of underfloor heating. If no actual temperature is received within this configured time, the object “Temperature control 1, temperature limitation heating mode, status error actual temperature value” can be used to output an error message.
With a parameter value of 00:00, no monitoring takes place.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Current temperature monitoring floor temperature”
  - Setting: “enable”

More information:

- Communication object “Temperature control 1, temperature limitation, heating mode, actual temperature value error status” [➙ 224]
- Parameter “Actual temperature value monitoring of floor temperature” [➙ 203]

Actual temperature value error status

Parameter	Settings
Actual temperature value error status	disable enable

Function:

This parameter can be used to enable or disable the “Temperature control 1, status error actual temperature value” communication object.

If no actual temperature value is received during the configured monitoring time, there is an error. To this end, an error message can be sent in the form of a logical “1.”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Monitoring actual temperature value”
  - Setting: “enable”

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change of status”
- “Block time for sending of status”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, status error actual temperature value”

More information:

- Communication object “Temperature control 1, actual temperature value error status” [➞ 224]
- Parameter “Temperature limitation in heating mode (system type: underfloor heating)” [➞ 201]
- Parameters that are visible if the “Status...” parameter is set to “enable” [➞ 311]

Parameters in the “Status” section

Temperature limitation status in heating mode

Parameter	Settings
Temperature limitation status in heating mode	disable enable

Function:

This parameter is used to enable or disable position communication object “Temperature control 1, temperature limitation heating mode, status error actual temperature value.”

The corresponding communication object is used to report whether the enabled temperature limitation is active in heating mode and therefore whether the maximum temperature in the floor has been exceeded. If the configured limit is exceeded, the controller reduces the control values for the actuator channel.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Temperature limitation in heating mode(System type: underfloor heating)”
  - Setting: “enable”

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change of status”
- “Block time for sending of status”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication objects are displayed:

- “Temperature control 1, temperature limitation heating mode, status error actual temperature value”

More information:

- Communication object “Temperature control 1, temperature limitation, heating mode, status” [➙ 224]
- Parameter “Temperature limitation in heating mode (system type: underfloor heating)” [➙ 201]
- Parameters that are visible if the “Status...” parameter is set to “enable” [➙ 311]

8.9.5.2 Parameters on the “Dew point monitoring for cooling” parameter card

If a dew point monitor engages in cooling mode, the controller internally switches to “dew point mode.” In doing so, the control value for cooling is set to 0 % as long as the dew point alarm is present. The “dew point alarm” signal is received by a dew point monitor via a corresponding communication object.

The “Dew point monitoring for cooling” parameter card is only displayed if, on the “Temperature control” parameter card, the parameter “System type” to “2-pipe system” as well parameter “Controller mode” to “Heating and cooling” or “Cooling” “System type” to “4-pipe system.”

Object dew point alert

Parameter	Settings
Object dew point alert	locking enable

Function:

This parameter is used to set whether communication object “Temperature control 1, dew point alert” is supposed to be available.

In cooling mode, this object can be used to receive a dew point alarm sent by a dew point monitor.

If a dew point monitor engages in cooling mode, the controller internally switches to “Dew point mode.” Here, the output is completely closed or deactivated as long as the dew point alarm is active. Heating mode is still possible.

If the dew point alarm is active, operating modes can still be switched nonetheless. The newly specified operating mode is temporarily stored and is effective after deactivation of the dew point alarm.

Note:

After bus voltage recovery, a request telegram is sent to the sensor to query the current status of the dew point monitor.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Controller mode” (Temperature control parameter card)
  - Setting: “Cooling” or “Heating and cooling”

Other parameters:

If the parameter is set to “enable,” the following additional parameter is displayed:

- “Dew point alarm status”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, dew point alert”

More information:

- Communication object “Temperature control, 1, dew point alarm” [→ 216]
- Parameter “Controller operating mode” (“Temperature control” parameter card) [→ 153]
- Parameter “Dew point alarm status” [→ 206]

Dew point alarm status

Parameter	Settings
Dew point alarm status	disable enable

Function:

This parameter is used to set whether communication object “Temperature control 1, dew point alarm status” is supposed to be available.

This object can be used to output or query the dew point alarm (0 = no alarm, 1 = alarm).

The dew point alarm is used to prevent cooling by the controller until the dew point alarm (triggered by an external sensor) is cleared.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Object dew point alert”
  - Setting: “enable”

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change of status”
- “Block time for sending of status”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication objects are displayed:

- “Temperature control 1, dew point alarm status”

More information:

- Communication object “Temperature control 1, dew point alarm status” [→ 217]
- Parameter “ Dew point alarm object” [→ 205]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

8.9.6 Parameters on the “Fan control” parameter card

The “Fan control” parameter card is displayed if the parameter “Temperature control” on the “Device settings” parameter card is set to “enable.”

Ventilator mode

Parameter	Settings
Ventilator mode	Heating Cooling Heating and cooling

Function:

This parameter is used to set, whether there is a fan in heating and/or cooling mode.

Note:

This parameter depends on the “Controller operating mode” parameter on the “Temperature control” parameter card.

Number of speed levels

Parameter	Settings
Number of speed levels	1...3

Function:

This parameter is used to set how many fan levels can be configured. A maximum of 3 fan speed levels can be configured.

Other parameters:

If the parameter is set to “1...3,” the following parameter is also displayed for each speed level:

- “Fan speed in level [1...3] (%)“

More information:

- Parameter “Fan speed in level [1...3] (%)“ [➙ 207]

Fan speed in level [1...3] (%)

Parameter	Settings
Fan speed in level [1...3] (%)	1...100

Function:

This parameter sets the desired relative speed in level 1 [2, 3] as a value between 1 and 100 %, where the value 100 % corresponds to the maximum possible speed. This is also the conversion of the fan level to a continuous value.

NOTICE! **Configure the values of the fan levels in ascending order: Speed level 1 < Speed level 2 < Speed level 3.**

Difference between temperature setpoint and actual value for level [1...3]

Parameter	Settings
Difference between temperature setpoint and actual value for level [1...3]	0...670760

Function:

This parameter sets the temperature difference between setpoint and actual value for each stage in heating/cooling mode. When using automatic control of the fan levels with a 2-point controller, the fan levels are therefore set depending on the temperature difference from the current setpoint.

Availability:

The parameter is displayed if the following additional configuration has been made:

- Parameter “Control behavior“ (“Heating,” “Cooling” or “Heating and cooling” parameter card)
  - Setting: “2-point control”

More information:

- Parameter “Control behavior” [➙ 187]

Status of ventilation mode (automatic/manual operation)

Parameter	Settings
Status of ventilation mode (automatic/ manual operation)	disable enable

Function:

This parameter is used to set whether communication object “Temperature control 1, ventilator mode status” is supposed to be available.

The controller uses this communication object to communicate the current operating mode of the fan. If a logical “0” is sent, automatic operation is activated, if a logical “1” is sent, manual operation is activated.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send status on request”
- “Send status on change”
- “Send status cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, ventilator mode status”

More information:

- Communication object “Temperature control 1, fan operating mode status” [→ 229]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Control value for manual operation

Parameter	Settings
Control value for manual operation	disable enable

Function:

This parameter is used to set whether the communication object “Temperature control 1, ventilation, control value for manual operation” is to be supplemented.

This object is used to output the control value of the fan in manual operation.

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send value on request”
- “Send value on change of value”
- “Value change since last sent (%)”
- “Block time for sending of value”
- “Send value cyclically”

Communication object:

If the parameter is set to “enable,” the following communication objects are displayed:

- “Temperature control 1, ventilation, control value for manual operation”

More information:

- Communication object “Temperature control 1, fan, control value for manual operation” [→ 230]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Current control value

Parameter	Settings
Current control value	disable enable

Function:

This parameter is used to set whether the communication object “Temperature control 1, ventilation, current control value” is to be supplemented.

This object is used to output the current control value of the fan.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Ventilation control” (“Temperature control” parameter card of the respective channel)
  - Setting: “enable”

Other parameters:

If the parameter is enabled, additional parameters for configuring the status are displayed (for an explanation of the parameters, see the reference under “Additional information”):

- “Send value on request”
- “Send value on change of value”
- “Value change since last sent (%)”
- “Block time for sending of value”
- “Send value cyclically”

Communication object:

If the parameter is set to “enable,” the following communication object is displayed:

- “Temperature control 1, ventilation, current control value”

More information:

- Communication object “Temperature control 1, fan, current control value” [→ 230]
- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

8.9.7 “Temperature control” communication objects

Temperature control, controller

No.	Object name	Function	Datapoint type	Flags
325	Temperature control, controller	On/Off	1.001 switch	CW

Function:

This object can be used to activate or deactivate temperature control. If the temperature control is set to "Heating and cooling", both controls are switched on and off together.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Temperature control 1” (Temperature control parameter card)
  - Setting: “enable”

Temperature control 1, controller status

No.	Object name	Function	Datapoint type	Flags
326	Temperature control, controller status	On/Off	1.011 state	CRT

Function:

The controller uses this object to share its internal status externally. This can either have the value "On," i.e. the controller is switched on and temperature control is active, or the value “Off.”

After bus voltage recovery, the controller is always switched on. This object must therefore be sent with “On.” This process can be represented by a visualization.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller status” (Temperature control parameter card)
  - Setting: “Controller status”

Temperature control, room mode (automatic operation)

No.	Object name	Function	Datapoint type	Flags
327	Temperature control, room mode (automatic operation)	1 … 4	20.102 HVAC mode	CW

Function:

This object is used to switch the room operating mode in automatic operation depending on the value that is received. If the controller is in manual operation, this object is used to buffer the prescribed operating modes of automatic operation.

The following assignments apply:

- 1 = Comfort mode
- 2 = Pre-comfort mode
- 3 = Power saving mode
- 4 = Protection mode

If a telegram with a value other than 1...4 is received by the controller via this 8-bit object, the telegram is rejected as faulty.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Temperature control 1” (Temperature control parameter card)
  - Setting: “enable”

Temperature control, room mode (manual operation)

No.	Object name	Function	Datapoint type	Flags
328	Temperature control, room mode (manual operation)	0 … 4	20.102 HVAC mode	CW

Function:

This object is used to switch the room operating mode in manual operation depending on the value received, and to activate or deactivate automatic operation.

The following assignments apply:

- 0 = Automatic operation
- 1 = Comfort mode
- 2 = Pre-comfort mode
- 3 = Power saving mode
- 4 = Protection mode

If a “0” is received, this activates automatic operation. The operating mode that is preset or temporarily stored for automatic mode is set. For all other values, automatic operation is terminated, manual operation is activated and the operating mode specified is set.

If a telegram with a value other than 0...4 is received by the controller via this 8-bit object, then the telegram is rejected as faulty.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Room operating mode (manual operation) switchover via” (“Room operating mode” parameter card)
  – Setting: “8-bit object (DPT_HVACMode)”

Temperature control, room operating mode, automatic mode

No.	Object name	Function	Datapoint type	Flags
329	Temperature control, room operating mode, automatic mode	On	1.001 switch	CW

Function:

This object is used to activate automatic operation via an “ON” telegram. If the controller is in manual operation, this object is used to buffer the prescribed operating modes of automatic operation.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Temperature control 1” (Temperature control parameter card)
  – Setting: “enable”

Objects - Temperature control, room operating mode (manual operation), [operating mode]

No.	Object name	Function	Datapoint type	Flags
330	Temperature control, room operating mode (manual operation), comfort mode	On	1.001 switch	CW
331	Temperature control, room operating mode (manual operation), pre-comfort mode			
332	Temperature control, room operating mode (manual operation), power saving mode			
333	Temperature control, room operating mode (manual operation), protection mode			

Function:

This object is used to activate or deactivate the room operating mode in manual operation.

If the parameter “Room operating mode (manual operation) switchover via” is set to “1-bit objects (DPT_Switch), a communication object named “Temperature control 1, room operating mode (manual operation), [operating mode]” is displayed for each room operating mode in manual operation that was selected under “Preselection of room operating modes.”
Example: “Temperature control 1, room operating mode (manual operation), comfort mode”

Availability:

The communication objects are displayed if the following configuration has been made:

- Parameter “Room operating mode (manual operation) switchover via” (“Room operating mode” parameter card)

– Setting: “1-bit objects (DPT_Switch)”

Depending on the setting in parameter “Preselection of room operating modes,” a communication object named “Temperature control 1, room operating mode (manual operation), [operating mode] is displayed for each room operating mode.
Example: “345”

Temperature control, status of room mode (manual operation)

No.	Object name	Function	Datapoint type	Flags
334	Temperature control, status of room mode (manual operation)	0 … 4	20.102 HVAC mode	CRT

Function:

This object is used to report the room operating mode that was set via the object “Temperature control 1, room mode (manual operation).”

The following assignments apply:

- 0 = Automatic operation
- 1 = Comfort mode
- 2 = Pre-comfort mode
- 3 = Power saving mode
- 4 = Protection mode

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Status of room mode (manual operation)” (“Room operating mode” parameter card)
  – Setting: “enable”

Note:

If the parameter “Message via“ is set to “1-bit objects (DPT_Switch),” , a communication object named “Temperature control 1, room operating mode status (manual operation), [operating mode]” is displayed for each room operating mode that was selected under “Preselection of room operating modes.”
Example: “Temperature control 1, status of room operating mode (manual operation), comfort mode”

Temperature control, status of room operating mode, automatic mode

No.	Object name	Function	Datapoint type	Flags
335	Temperature control, status of room operating mode, automatic mode	On/Off	1.011 state	CRT

Function:

The thermal drive actuator uses this communication object to report that automatic operation is active.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Status of room mode (manual operation)”
  – Setting: “enable”

Temperature control, status of room operating mode (manual operation), [operating mode]

No.	Object name	Function	Datapoint type	Flags
336	Temperature control, status of room operating mode (manual operation), comfort mode	On/Off	1.011 state	CRT
337	Temperature control, status of room operating mode (manual operation), pre-comfort mode			
338	Temperature control, status of room operating mode (manual operation), power saving mode			
339	Temperature control 1, status of room operating mode (manual operation), protection mode			

Function:

These objects are used to report whether the corresponding room operating mode in manual operation is enabled or disabled.

Availability:

The communication objects are displayed if the following configuration has been made:

- Parameter ““Message via“ (“Actual temperature value” parameter card)
  - Setting: “1-bit objects (DPT_Switch)”

Depending on the setting in parameter “Preselection of room operating modes,” a communication object named “Temperature control, room operating mode status (manual operation), [operating mode] is displayed for each room operating mode.
Example: “345”

Note:

If the parameter “Message via“ is set to “1-bit objects (DPT_Switch),” a communication object named “Temperature control 1, room operating mode status (manual operation), [operating mode]” is displayed for each room operating mode that was selected under “Preselection of room operating modes.”
Example: “Temperature control 1, status of room operating mode (manual operation), comfort mode”

Temperature control, room mode status

No.	Object name	Function	Datapoint type	Flags
340	Temperature control, room mode status	1 … 4	20.102 HVAC mode	CRT

Function:

This object is used to report the current room operating mode, regardless of whether the controller is in automatic or manual operation.

The following assignments apply:

- 1 = Comfort mode
- 2 = Pre-comfort mode
- 3 = Power saving mode
- 4 = Protection mode

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Status of current room mode”
  - Setting: “enable”

Temperature control, comfort extension

No.	Object name	Function	Datapoint type	Flags
341	Temperature control, comfort extension	0 = Stop/1 = Start	1.010 start/stop	CW

Function:

This object can be used to start (value "1") or stop (value "0") the comfort extension in automatic operation. That is, this object can be used to activate/deactivate the time-limited activation of comfort mode.

Switching the operating mode via manual operation terminates the comfort extension. An operating mode switch via automatic operation is saved and executed after the comfort extension has ended.

After bus voltage failure/recovery, the comfort extension is deactivated, but this object is queried via "ValueRead" after bus voltage recovery.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Comfort extension object“ (“Room operating mode” parameter card underneath the “Temperature control” parameter card)
  - Setting: “enable”

Temperature control, comfort extension status

No.	Object name	Function	Datapoint type	Flags
342	Temperature control, comfort extension status	On/Off	1.011 state	CRT

Function:

This object is used to report whether the comfort extension is enabled or disabled.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Comfort extension object“ (“Room operating mode” parameter card underneath the “Temperature control” parameter card)
  - Setting: “enable”
- Parameter “Status of comfort extension“ (“Room operating mode” parameter card underneath the “Temperature control” parameter card)
  - Setting: “enable”

Temperature control 1, permanent protective mode

No.	Object name	Function	Datapoint type	Flags
343	Temperature control, comfort extension status	On/Off	1.001 switch	CWTU

Function:

This object can be used to switch the controller permanently to the “Protection mode" room operating mode.

The current operating mode remains temporarily stored, so that it can be re-activated after permanent protection mode is no longer active (value "0" via this object). Incoming telegrams for other operating mode switches are stored temporarily and, if applicable, activated after deactivating permanent protection mode.

After bus voltage failure/recovery, permanent protection mode is deactivated, but this object is queried via "ValueRead" after bus voltage recovery.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object permanent protective mode” (“Room operating mode” parameter card)
  - Setting: “enable”

Temperature control 1, actual temperature value

No.	Object name	Function	Datapoint type	Flags
344	Temperature control, actual temperature value	°C value	9.001 temperature (°C)	CWTU

Function:

This communication object is used to make available the actual value of the room temperature in °C from an external object.

Note:

On bus voltage recovery this object is used to sent a query to the temperature sensor (ValueRead).

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Source of actual temperature value“ (“Actual temperature value” parameter card)
  - Setting: “External object”

Temperature control, heat alarm

No.	Object name	Function	Datapoint type	Flags
345	Temperature control, heat alarm	0 = No alarm/ 1 = Alarm	1.005 alarm	CRT

Function:

This object is used to report whether a heat alarm is active.

If a logical “0” is sent, the heat alarm is deactivated, if a logical “1” is sent, the heat alarm is activated.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object "Temperature control 1, heat alarm"“ (“Actual temperature value” parameter card)
  - Setting: “enable”

Temperature control, frost alarm

No.	Object name	Function	Datapoint type	Flags
346	Temperature control, frost alarm	0 = No alarm/ 1 = Alarm	1.005 alarm	CRT

Function:

This object is used to report whether a frost alarm is active.

If a logical “0” is sent, the frost alarm is deactivated, if a logical “1” is sent, the frost alarm is activated.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object "Temperature control 1, frost alarm"“ (“Actual temperature value” parameter card)
  - Setting: “enable”

Temperature control, status error actual temperature value

No.	Object name	Function	Datapoint type	Flags
347	Temperature control, status error actual temperature value	1 = Failure	1.002 boolean	CRT

Function:

A telegram is sent to the bus via this communication object if no telegram was received from the temperature sensor within the specified monitoring time when monitoring the actual temperature value.

The “1 = Failure” status is reset to “0” the next time a temperature value is received.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Monitoring actual temperature value“ (“Actual temperature value” parameter card)
  - Setting: “enable”
- Parameter “Actual temperature value error status“ (“Actual temperature value” parameter card)
  - Setting: “enable”

Temperature control, window contact status

No.	Object name	Function	Datapoint type	Flags
348	Temperature control, window contact status	0 = closed/1 = open	1.019 window/door	CRT

Function:

This object is used to report the joint status of all windows (OR function). As soon as a window is opened, this object reports a “1” (= open).

This object is used to report the status of all windows. This status can either have the value “0,” meaning all windows are closed, or, as soon as a window is opened, the value “1,” meaning at least one window is open.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Window contact status” (“Room operating mode” parameter card)
  - Setting: “enable”

Note:

A maximum of 4 window contacts can be taken into account.

Temperature control 1, dew point alert

No.	Object name	Function	Datapoint type	Flags
349	Temperature control, dew point alert	0 = No alarm/ 1 = Alarm	1.005 alarm	CWTU

Function:

In cooling mode, this object can be used to receive a dew point alarm sent by a dew point monitor.

A dew point alarm leads to the deactivation of cooling mode. Here, the output is completely closed or deactivated as long as the dew point alarm is active. Heating mode is still possible.

After bus voltage failure/recovery, the dew point alarm is deactivated (hence there is no alarm), but this object is queried via "ValueRead" after bus voltage recovery.

Note:

On bus voltage recovery, this object sends a query to the dew point sensor (ValueRead).

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object dew point alert“ (“Dew point monitoring for cooling” parameter card)
  - Setting: “enable”

Temperature control, dew point alarm status

No.	Object name	Function	Datapoint type	Flags
350	Temperature control, dew point alarm status	0 = No alarm/ 1 = Alarm	1.005 alarm	CRT

Function:

This object is used to report the dew point alarm. The value “0” means “no alarm” and the value “1” means “alarm.”

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object dew point alert“ (“Dew point monitoring for cooling” parameter card)
  - Setting: “enable”
- Parameter “Dew point alarm status“ (“Dew point monitoring for cooling” parameter card)
  - Setting: “enable”

Temperature control, presence

No.	Object name	Function	Datapoint type	Flags
351	Temperature control, presence	On/Off	1.018 occupancy	CWTU

Function:

This object is used to receive the status of a presence detector.

In an "On" is received via this object, the room operating mode is switched to “comfort mode” in automatic operation. If an “Off” is received, the operating mode that is activated via the bus telegram is restored. In manual operation, this object is ignored but saved temporarily.

After bus voltage failure/recovery, the presence is deactivated, but this object is queried via "ValueRead" after bus voltage recovery.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object presence” (“Room operating mode” parameter card)
  - Setting: “enable”

Temperature control 1, window 1

No.	Object name	Function	Datapoint type	Flags
352	Temperature control, window 1	0 = closed/1 = open	1.019 window/door	CWTU
353	Temperature control, window 2			
354	Temperature control, window 3			
355	Temperature control, window 4			

Function:

This communication object is used to report a window is open or closed. If a logical “0” is received, the window is closed, if a logical “1” is received, the window is open.

A parameter can be used in invert the object value of the window, i.e. the value "1" means the window is closed and the value "0" means the window is open.

Note:

On bus voltage recovery, the current states of the door/window contacts are queried via these communication objects.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Number of window contacts” (“Room operating mode” parameter card)
  - Setting: > 0

Temperature control, outside temperature

No.	Object name	Function	Datapoint type	Flags
356	Temperature control, outside temperature	°C value	9.001 temperature (°C)	CW

Function:

This object can be used to receive the current ambient temperature so that setpoint temperature tracking can take place in cooling mode The target temperature is then adjusted according to the ambient temperature, if this exceeds 26 °C and is 6 K above the preselected comfort target temperature. In this case, the new target temperature is always 6 K lower than the ambient temperature.

Note:

On bus voltage recovery, this communication object is used to query the current temperature from the ambient temperature sensor (ValueRead).

Availability:

The communication object is displayed if the following configuration was made:

- Parameter: “Update cooling setpoint dependent on outside temperature“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, status error ambient temperature

No.	Object name	Function	Datapoint type	Flags
357	Temperature control, status error ambient temperature	1 = Failure	1.002 boolean	CRT

Function:

A telegram is sent to the bus via this communication object if no telegram was received from the temperature sensor within the specified monitoring time when monitoring the ambient temperature.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Update cooling setpoint dependent on outside temperature“ (“Temperature setpoints” parameter card)
  - Setting: “enable”
- Parameter “Ambient temperature monitoring“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, controller mode

No.	Object name	Function	Datapoint type	Flags
358	Temperature control, controller mode	0 = cooling/1 = heating	1.100 cooling/heating	CWTU

Function:

This object is used to specify the controller operating mode "Heating" or "Cooling" via the bus from a separate heating controller or another room temperature controller.

For a 2-pipe system and the "Heating and cooling" controller operating mode, this object is used to switch between heating and cooling mode.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Temperature control 1” (“Temperature control” parameter card)
  - Setting: “enable”

Temperature control, basic setpoint

No.	Object name	Function	Datapoint type	Flags
359	Temperature control, basic setpoint	°C value	9.001 temperature (°C)	CW

Function:

This object can be used to change the preset basic setpoint via the bus at any time. The basic setpoint refers to comfort mode, see also the figure “Methods for setting a setpoint [→ 144].”

The value is stored permanently.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Basic setpoint object“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, setpoint offset

No.	Object name	Function	Datapoint type	Flags
360	Temperature control, setpoint offset	K value	9.002 temperature difference (K)	CW

Function:

This object can be used to set a setpoint offset via the bus at any time. This offset is then applied to all setpoints of the four room operating modes, refer also to the figure “Methods for setting a setpoint [→ 144].”

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “setpoint offset object“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, heating setpoint, [operating mode]

No.	Object name	Function	Datapoint type	Flags
361	Temperature control, heating setpoint, comfort mode	°C value	9.001 temperature (°C)	CW
362	Temperature control, heating setpoint, pre-comfort mode			
363	Temperature control, heating setpoint, power saving mode			
364	Temperature control, heating setpoint, protection mode			

Function:

This 2-byte object can be used to change the respective setpoints for the four room operating modes in heating mode at any time via the bus by means of a telegram. The value received via the communication object immediately overwrites the factory-set parameter values and is stored permanently.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Preselection of room operating modes”
  - Setting: “Comfort/protection mode,” “Comfort/power saving/protection mode,” “Comfort/pre-comfort/power saving/protection mode” (“Room operating mode” parameter card)
- Parameter: “Setpoint setting via”
  - Setting: “Absolute setpoints”

Temperature control, heating setpoints (°C)

No.	Object name	Function	Datapoint type	Flags
365	Temperature control, heating setpoints (°C)	°C value	275.100 Temperature setpoint setting for 4 HVAC Modes	CRW

Function:

This 8-byte communication object can be used to change the respective setpoints for the four room operating modes in heating mode at any time via the bus by means of a telegram. The values received via the communication objects immediately overwrite the factory-set parameter values and are stored permanently.

- Datapoint type: DPT_TempRoomSetpSetF16[4](275.100)
- Datapoint format: $F_{16}F_{16}F_{16}F_{16}$
- Setpoint comfort mode/setpoint pre-comfort mode/setpoint power saving mode/setpoint protection mode

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object cooling setpoints“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, object heating setpoint shifts (K)

No.	Object name	Function	Datapoint type	Flags
366	Temperature control, object heating setpoint shifts (K)	°C value	275.100 Temperature setpoint setting for 4 HVAC Modes	CW

Function:

This 8-byte communication object can be used to change the respective setpoints for the four room operating modes in heating mode at any time via the bus by means of a telegram. The values received via the communication objects immediately overwrite the factory-set parameter values and are stored permanently.

- Datapoint type: DPT_TempRoomSetpSetF16[4](275.100)
- Datapoint format: $F_{16}F_{16}F_{16}F_{16}$
- Setpoint comfort mode/setpoint pre-comfort mode/setpoint power saving mode/setpoint protection mode

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object cooling setpoints“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, cooling setpoint, [operating mode]

No.	Object name	Function	Datapoint type	Flags
367	Temperature control 1, cooling setpoint, comfort mode	°C value	9.001 temperature (°C)	CW
368	Temperature control 1, cooling setpoint, pre-comfort mode			
369	Temperature control 1, cooling setpoint, power saving mode			
370	Temperature control 1, cooling setpoint, protection mode			

Function:

This object can be used to change the preset setpoint for cooling for the corresponding operating mode.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Setpoint setting via“ (“Temperature setpoints” parameter card)
  - Setting: “Absolute setpoints”

Temperature control 1, cooling setpoint (°C)

No.	Object name	Function	Datapoint type	Flags
371	Temperature control, cooling setpoint (°C)	°C value	275.100 Temperature setpoint setting for 4 HVAC Modes	CRW

Function:

This 8-byte communication object can be used to change the respective setpoints for the four room operating modes in cooling mode at any time via the bus by means of a telegram. The value received via the communication object immediately overwrites the factory-set parameter values and is stored permanently.

- Datapoint type: DPT_TempRoomSetpSetF16[4](275.100)
- Datapoint format: $F_{16}F_{16}F_{16}F_{16}$
- Setpoint comfort mode/setpoint pre-comfort mode/setpoint power saving mode/setpoint protection mode

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Object cooling setpoints“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, status of current basic setpoint

No.	Object name	Function	Datapoint type	Flags
373	Temperature control, status of current basic setpoint	°C value	9.001 temperature (°C)	CRT

Function:

This object is used to report the current setpoint as a temperature value, which results either from the basic setpoint, the setpoint offset and the setpoint shift due to the operating mode (method B) or an absolute setpoint with setpoint offset (method A).

Refer to the figure “Methods for setting a setpoint [→ 144]“ for methods A and B.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Status of current basic setpoint“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, setpoint offset status

No.	Object name	Function	Datapoint type	Flags
374	Temperature control, setpoint offset status	K value	9.002 temperature difference (K)	CRT

Function:

This object is used to report the current setpoint offset in Kelvin, which can be specified using the object “Temperature control 1, setpoint offset.”

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Status of setpoint offset“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, status of current setpoint

No.	Object name	Function	Datapoint type	Flags
375	Temperature control, status of current setpoint	°C value	9.001 temperature (°C)	CRT

Function:

This object is used to report the current setpoint as a temperature value, which results either from the basic setpoint, the setpoint offset and the setpoint shift due to the operating mode (method B) or an absolute setpoint with setpoint offset (method A).

Refer to the figure “Methods for setting a setpoint [→ 144]“ for methods A and B.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Status of current setpoint“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, status of effective cooling setpoint

No.	Object name	Function	Datapoint type	Flags
376	Temperature control, status of effective cooling setpoint	°C value	9.001 temperature (°C)	CRT

Function:

This object is used to report the status of the effective setpoint in the "Cooling" operating mode as a temperature value.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Status of effective cooling setpoint (DPT 9.001)“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, status of effective heating setpoint

No.	Object name	Function	Datapoint type	Flags
377	Temperature control, status of effective heating setpoint	°C value	9.001 temperature (°C)	CRT

Function:

This object is used to report the status of the effective setpoint in the “Heating" operating mode as a temperature value.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Status of effective heating setpoint (DPT 9.001)“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, status of effective cooling setpoints

No.	Object name	Function	Datapoint type	Flags
378	Temperature control, status of effective cooling setpoints	°C value	275.100 Temperature setpoint setting for 4 HVAC Modes	CRT

Function:

The effective setpoints in "Cooling" operating mode are sent via this object, which contains all setpoint temperatures for the four different operating modes.

- Datapoint type: DPT_TempRoomSetpSetF16[4](275.100)
- Datapoint format: $F_{16}F_{16}F_{16}F_{16}$
- Setpoint comfort mode/setpoint pre-comfort mode/setpoint power saving mode/setpoint protection mode

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Status of effective cooling setpoints (DPT 275.100)“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, status of effective heating setpoints

No.	Object name	Function	Datapoint type	Flags
379	Temperature control, status of effective heating setpoints	°C value	275.100 Temperature setpoint setting for 4 HVAC Modes	CRT

Function:

The effective setpoints in “Heating" operating mode are sent via this object, which contains all setpoint temperatures for the four different operating modes.

- Datapoint type: DPT_TempRoomSetpSetF16[4](275.100)
- Datapoint format: $F_{16}F_{16}F_{16}F_{16}$
- Setpoint comfort mode/setpoint pre-comfort mode/setpoint power saving mode/setpoint protection mode

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Status of effective heating setpoints (DPT 275.100)“ (“Temperature setpoints” parameter card)
  - Setting: “enable”

Temperature control, temperature limitation heating mode, actual temperature value

No.	Object name	Function	Datapoint type	Flags
380	Temperature control, temperature limitation heating mode, actual temperature value	°C value	9.001 temperature (°C)	CWTU

Function:

This communication object is used to receive the actual temperature value for temperature limitation in heating mode.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter: “Temperature limitation in heating mode(System type: underfloor heating)“ (“Temperature limit for heating” parameter card)
  - Setting: “enable”

Temperature control, temperature limitation heating mode, status error actual temperature value

No.	Object name	Function	Datapoint type	Flags
381	Temperature control, temperature limitation heating mode, status error actual temperature value	1 = Failure	1.002 boolean	CRT

Function:

This communication object is used to send a telegram regarding the failure of an actual temperature value of the additional heating limit to the bus. This temperature sensor monitors the actual temperature in the floor screed for the “underfloor heating” system type. If no telegram is received from this floor sensor during the configured monitoring time, the object is triggered with “1 = Failure.” The error is cleared the next time a telegram with a valid temperature value is received.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Temperature limitation in heating mode(System type: underfloor heating)“ (“Temperature limit for heating” parameter card)
  - Setting: “enable”
- Parameter “Temperature limitation status in heating mode“ (“Temperature limit for heating” parameter card)
  - Setting: “enable”
- Parameter “Actual temperature value error status“ (“Temperature limit for heating” parameter card)
  - Setting: “enable”

Temperature control, temperature limitation in heating mode, status

No.	Object name	Function	Datapoint type	Flags
382	Temperature control, temperature limitation in heating mode, status	On/Off	1.011 state	CRT

Function:

This communication object is used to report whether the temperature limitation in heating mode is active.

When the measured temperature in the floor is exceeded, an “On” is sent. When the temperature in the floor drops again, an “Off” is sent.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Temperature limitation in heating mode(System type: underfloor heating)“ (“Temperature limit for heating” parameter card)
  - Setting: “enable”
- Parameter “Temperature limitation status in heating mode“ (“Temperature limit for heating” parameter card)
  - Setting: “enable”

Temperature control, cooling, control value switching

No.	Object name	Function	Datapoint type	Flags
383	Temperature control, cooling, control value switching	On/Off	1.001 switch	CRT

Function:

In cooling mode, the control value is sent as an On/Off switching command via this communication object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller mode” (“Temperature control” parameter card)
  - Setting: “Cooling” or “Heating and cooling”
- Parameter “Control behavior” (“Cooling” or “Heating/cooling” parameter card)
  - Setting: “2-point control”
- Parameter “Type of control value output” (“Cooling” or “Heating/cooling” parameter card)
  - Setting: “Switching (1-bit)”

Temperature control, cooling, control value switching (sequence 2)

No.	Object name	Function	Datapoint type	Flags
384	Temperature control, cooling, control value switching (sequence 2)	On/Off	1.001 switch	CRT

Function:

In cooling mode, the control value for sequence 2 of the sequence control is sent as an On/Off switching command via this communication object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller mode” (“Temperature control” parameter card)
  - Setting: “Cooling” or “Heating and cooling”
- Parameter “Control behavior“ (“Cooling” or “Heating/cooling” parameter card)
  - Setting: “PI control”
- Parameter “Sequence control” (“Cooling” or “Heating/cooling” parameter card)
  - Setting: “enable”
- For sequence 2: Parameter “Type of control value output” (“Cooling” or “Heating/ cooling” parameter card)
  - Setting: “Switching (1-bit)”

Temperature control, heating/cooling, control value switching Temperature control, heating, control value switching

No.	Object name	Function	Datapoint type	Flags
385	Temperature control, heating/cooling, control value switching Temperature control, heating, control value switching	On/Off	1.001 switch	CRT

Function:

In heating and cooling mode, the control value is sent as an On/Off switching command via this communication object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller mode” (“Temperature control” parameter card)
  – Setting: “Heating and cooling”
- Parameter “Control behavior” (“Heating/cooling” parameter card)
  – Setting: “2-point control
- Parameter “Type of control value output” (“Heating/cooling” parameter card)
  – Setting: “Switching (1-bit)”

Temperature control, heating/cooling, control value switching (sequence 2) Temperature control, heating, control value switching (sequence 2)

No.	Object name	Function	Datapoint type	Flags
386	Temperature control, heating/cooling, control value switching (sequence 2) Temperature control, heating, control value switching (sequence 2)	On/Off	1.001 switch	CRT

Function:

In heating and cooling mode, the control value for sequence 2 of the sequence control is sent as an On/Off switching command via this communication object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller mode” (“Temperature control” parameter card)
  – Setting: “Heating and cooling”
- Parameter “Control behavior” (“Heating/cooling” parameter card)
  – Setting: “PI control”
- Parameter “Sequence control“ (“Heating/cooling” parameter card)
  – Setting: “enable”
- For sequence 2: Parameter “Type of control value output“ (“Heating/cooling” parameter card)
  – Setting: “Switching (1-bit)”

Temperature control, cooling, control value steady

No.	Object name	Function	Datapoint type	Flags
387	Temperature control, cooling, control value steady	0...100 %	5.001 percentage (0..100%)	CRT

Function:

In cooling mode, the control value is sent as a percentage value via this communication object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller mode” (“Temperature control” parameter card)
  - Setting: “Cooling” or “Heating and cooling”
- Parameter “Control behavior“ (“Heating” or “Heating/cooling” parameter card)
  - Setting: “PI control”
- Parameter “Type of control value output” (“Cooling” or “Heating/cooling” parameter card)
  - Setting: “Steady (8-bit)”

Temperature control, cooling, control value steady (sequence 2)

No.	Object name	Function	Datapoint type	Flags
388	Temperature control, cooling, control value steady (sequence 2)	0...100 %	5.001 percentage (0..100%)	CRT

Function:

In cooling mode, the control value for sequence 2 of the sequence control is sent percentage value via this communication object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller mode” (“Temperature control” parameter card)
  - Setting: “Cooling” or “Heating and cooling”
- Parameter “Control behavior“ (“Heating” or “Heating/cooling” parameter card)
  - Setting: “PI control”
- Parameter “Sequence control” (“Cooling” or “Heating/cooling” parameter card)
  - Setting: “enable”
- For sequence 2: Parameter “Type of control value output” (“Cooling” or “Heating/cooling” parameter card)
  - Setting: “Steady (8-bit)”

Temperature control, heating/cooling, control value steady

No.	Object name	Function	Datapoint type	Flags
389	Temperature control, heating/cooling, control value steady	0...100 %	5.001 percentage (0..100%)	CRT

Function:

In heating mode, the control value is sent as a percentage value via this communication object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller mode” (“Temperature control” parameter card)
  - Setting: “Heating” or “Heating and cooling”
- Parameter “Control behavior“ (“Heating” or “Heating/cooling” parameter card)
  - Setting: “PI control”
- Parameter “Type of control value output“ (“Heating” or “Heating/cooling” parameter card)
  - Setting: “Steady (8-bit)”

Temperature control, heating, control value steady

No.	Object name	Function	Datapoint type	Flags
389	Temperature control, heating, control value steady	0...100 %	5.001 percentage (0..100%)	CRT

Function:

In heating and cooling mode, the control value is sent as a percentage value via this communication object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller mode” (“Temperature control” parameter card)
  - Setting: “Heating and cooling”
- Parameter “Control behavior“ (“Heating/cooling” parameter card)
  - Setting: “PI control”
- Parameter “Type of control value output“ (“Heating/cooling” parameter card)
  - Setting: “Steady (8-bit)”

Temperature control, heating/cooling, control value steady (sequence 2)

No.	Object name	Function	Datapoint type	Flags
390	Temperature control, heating/cooling, control value steady (sequence 2)	0...100 %	5.001 percentage (0..100%)	CRT

Function:

In heating and cooling mode, the control value for sequence 2 of the sequence control is sent percentage value via this communication object.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller mode” (“Temperature control” parameter card)
  - Setting: “Heating and cooling”
- Parameter “Control behavior“ (“Heating/cooling” parameter card)
  - Setting: “PI control”
- Parameter “Sequence control“ (“Heating/cooling” parameter card)
  - Setting: “enable”
- For sequence 2: Parameter “Type of control value output“ (“Heating/cooling” parameter card)
  - Setting: “Steady (8-bit)”

Temperature control, ventilator mode

No.	Object name	Function	Datapoint type	Flags
391	Temperature control, ventilator mode	0 = automatic operation/1 = manual operation	1.003 enable	CW

Function:

This object can be used to set the fan operating mode.

The value “0” means that the fan is in automatic operation.
The value “1” means that the fan is in manual operation.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter "Ventilation control" ("Temperature control" parameter card of the respective channel)
  - Setting: "enable"

Temperature control, ventilator speed (manual operation)

No.	Object name	Function	Datapoint type	Flags
392	Temperature control, ventilator speed (manual operation)	0...100 %	5.001 percentage (0..100%)	CW

Function:

This object is used to receive the current fan speed in manual operation from an actuator as a status and forward it directly to the output and then output it as a control value. This object can therefore be used to manually control the fan.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter "Ventilation control" ("Temperature control" parameter card)
  - Setting: "enable"

Temperature control, ventilator level (manual operation)

No.	Object name	Function	Datapoint type	Flags
393	Temperature control, ventilator level (manual operation)	0 … 3	5.100 fan stage (0..255)	CW

Function:

This object can be used to control the fan manually (manual operation) via the current fan speed. When a fan level is received via this object, the control value is output accordingly with the value of the configured speed per fan level.

The following assignments apply:

- 0 = Fan off
- 1 = Activate fan level 1
- 2 = Activate fan level 2
- 3 = Activate fan level 3

Availability:

The communication object is displayed if the following configuration was made:

- Parameter "Ventilation control" ("Temperature control" parameter card)
  - Setting: "enable"

Temperature control, ventilator mode status

No.	Object name	Function	Datapoint type	Flags
394	Temperature control, ventilator mode status	0 = automatic operation/1 = manual operation	1.003 enable	CRT

Function:

The controller uses this communication object to communicate the current operating mode of the fan. If a logical "0" is sent, automatic operation is activated, if a logical "1" is sent, manual operation is activated.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter "Status of ventilation mode (automatic/manual operation)“ ("Fan control" parameter card)

– Setting: “enable”

Temperature control, ventilation, control value for manual operation

No.	Object name	Function	Datapoint type	Flags
395	Temperature control, ventilation, control value for manual operation	0...100 %	5.001 percentage (0..100%)	CRT

Function:

This communication object is used to send the fan control value for manual control (manual operation) as a percentage value.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Control value for manual operation“ (“Fan control” parameter card)
  - Setting: “enable”

Temperature control, ventilation, current control value

No.	Object name	Function	Datapoint type	Flags
396	Temperature control, ventilation, current control value	0...100 %	5.001 percentage (0..100%)	CRT

Function:

The current fan control value is sent as a percentage value via this communication object, regardless of automatic/manual operation.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Current control value“ (“Fan control” parameter card)
  - Setting: “enable”

Temperature control, controller mode status

No.	Object name	Function	Datapoint type	Flags
397	Temperature control, controller mode status	0 = cooling/1 = heating	1.100 cooling/heating	CRT

Function:

This object is used to report the current operating mode via the controller. The value “0” means that “Cooling” operating mode is activated. The value “1” means that “Heating” operating mode is activated.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Status of current controller mode” (“Temperature control” parameter card)
  - Setting: “enable”

Temperature control, collective status (RTSM)

No.	Object name	Function	Datapoint type	Flags
398	Temperature control, collective status (RTSM)	8-bit status	21.107 combined status RTSM	CRT

Function:

This object is used to report various status information of the controller.

The following bits are supported and have the meanings below:

- Bit 0: Window status, 0 = window closed, 1 = window open
- Bit 1: Presence status; 0 = no presence, 1 = presence

- Bit 3: Comfort extension status; 0 = not active, 1 = active
- Bit 4: Room operating mode status 0 = automatic operation, 1 = manual operation
- Bit 5: reserved
- Bit 6: reserved
- Bit 7: reserved
- Bit 8: reserved

Note:

Behavior as per description in the KNX manual, DPT 21.107

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Collective status (RTSM)” (“Temperature control” parameter card)
  – Setting: “enable”

Temperature control, collective status (RTC)

No.	Object name	Function	Datapoint type	Flags
399	Temperature control, collective status (RTC)	16-bit status	22.103 combined status RTC	CRT

Function:

This object is used to report various status information of the controller.

The following bits are supported and have the meanings below:

- Bit 0: General error information; 0 =no error, 1 =error
- Bit 1: Controller operating mode status; 0 = cooling, 1 = heating
- Bit 2 Dew point alarm status, 0 = no alarm, 1 = alarm
- Bit 3: Frost alarm status; 0 = no alarm, 1 = alarm
- Bit 4: Heat alarm status; 0 = no alarm / 1 = alarm
- Bit 5: Control inactive; 0 = false, 1 = true
- Bit 6: Sequence 2; 0 = inactive, 1 = active
- Bit 7: Heating mode enabled; 0 = false, 1 = true
- Bit 8: Cooling mode enabled; 0 = false, 1 = true
- Bit 9 − 15: reserved

Note:

Behavior as per description in the KNX manual, DPT 22.103

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Collective status (RTC)” (“Temperature control” parameter card)
  – Setting: “enable”

Temperature control, controller status (Eberle)

No.	Object name	Function	Datapoint type	Flags
400	Temperature control, controller status (Eberle)	8-bit status	-	CRT

Function:

This object is used to report various status information of the controller.

The following bits are supported and have the meanings below:

- Bit 0: Comfort mode active; 0 = false, 1 = true
- Bit 1: Pre-comfort mode active; 0 = false, 1 = true
- Bit 2 Power saving mode active; 0 = false, 1 = true

- Bit 3: Protection mode active; 0 = false, 1 = true
- Bit 4: Dew point alarm active; 0 = false, 1 = true
- Bit 5: Controller operating mode; 0 = cooling, 1 = heating
- Bit 6: Controller status; 0 = active, 1 = inactive
- Bit 7: Frost alarm status; 0 = no alarm, 1 = alarm

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller status (Eberle)” (“Temperature control” parameter card)
  - Setting: “enable”

Temperature control, controller status (RHCC)

No.	Object name	Function	Datapoint type	Flags
401	Temperature control, controller status (RHCC)	16-bit status	22.101 RHCC status	CRT

Function:

This object is used to report various status information of the controller.

The following bits are supported and have the meanings below:

- Bit 0: General error information; 0 =no error, 1 =error
- Bit 8: Controller operating mode; 0 = cooling, 1 = heating
- Bit 12: Dew point alarm status, 0 = no alarm, 1 = alarm
- Bit 13: Frost alarm status
- Bit 14: Excess temperature/heat alarm status
- Bit 15: reserved

Note:

Behavior as per description in the KNX manual, DPT 22.101

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller status (RHCC)” (“Temperature control” parameter card)
  - Setting: “enable”

Temperature control, controller status (DPT_HVACContrMode)

No.	Object name	Function	Datapoint type	Flags
402	Temperature control, controller status (DPT_HVACContrMode)	8-bit status	20.105 HVAC control mode	CRT

Function:

This object can be used to report different controller statuses.

The following bits are supported and have the meanings below:

- Bit 1: Heating
- Bit 3: Cooling
- Bit 6: Controller off

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Controller status (RHCC)” (“Temperature control” parameter card)
  - Setting: “enable”

8.10 Dew point calculation

This block calculates the dew point temperature and sends it via an object. The dew point temperature is the temperature under which air with a specific humidity and a constant pressure can condense water vapor as dew. At the dew point the relative humidity is 100%, and the air is (just barely) saturated with water vapor. The more water vapor the air contains, the higher the dew point temperature will be.

The dew point is calculated according to the following formula:

$$\tau(\varphi,\vartheta) = K_3 \left(\frac{\left(\frac{K_2\,\vartheta}{K_3+\vartheta}\right) + \ln\varphi}{\left(\frac{K_2 K_3}{K_3+\vartheta}\right) - \ln\varphi} \right)$$

with

- K_2 = 17.62
- K_3 = 243.12 °C
- ϑ = room temperature in °C
- φ = humidity in %

If you want to give the controller a value in the format of an external temperature - humidity sensor, you have to use the “calculation” function.

8.10.1 Parameters on the “Dew point calculation” parameter card

The “Dew point calculation” parameter card and additional parameter cards are displayed if the parameter “Dew point calculation” on the “Device settings” parameter card is set to “enable.”

Source of temperature value

Parameter	Settings
Source of temperature value	Internal value Calculated value

Function:

This parameter is used to select the source for the temperature value.

Source of relative humidity value

Parameter	Settings
Source of relative humidity value	Internal value Calculated value

Function:

This parameter is used to select the source for the measured value.

Index of calculator

Parameter	Settings
Index of calculator	1...12

Function:

This parameter is used to set the source for the calculated value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source of temperature value“ or “Source of relative humidity value“
  - Setting “Calculated value”

Note:

The calculator used must be configured with the correct data type.

Send dew point on request

Parameter	Settings
Send dew point on request	disable enable

Function:

This parameter can be used to set whether the dew point is sent on request or whether requests for the dew point will be rejected.

The request is triggered via the communication object “Send status values.”

Send dew point on change of value

Parameter	Settings
Send dew point on change of value	disable enable

Function:

This parameter determines if the dew point is to be sent automatically for every change of value. When “enable” is selected, additional parameters are displayed that can be used to define which change of value (in K) since the last sending has to be exceeded and how much time must have passed since the last sending for the value to be sent again.

Value change since last sent (K)

Parameter	Settings
Value change since last sent (K)	0...670760

Function:

This parameter is used to define at which change of value in K since the last value sent the value of the communication object “Temperature control, dew point alert” is sent again. Sending takes place if the minimum block time for sending of the dew point has been exceeded.

Block time for sending of dew point

Parameter	Settings
Block time for sending of dew point hh:mm:ss	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the dew point has to have passed in order for it to be sent again.

Note:

The block time does not apply to cyclic sending. If the block time is greater than the cycle time, the value is nonetheless sent at the end of the cycle time.

Send dew point cyclically

Parameter	Settings
Send dew point cyclically hh:mm:ss	00:00:00 ... 18:12:15

Function:

This parameter determines if and at which intervals the dew point is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

See also

- Parameters on the “Dew point calculation” parameter card [→ 233]

8.10.2 Communication objects “dew point calculation”

Dew point

No.	Object name	Function	Datapoint type	Flags
403	Dew point	°C value	9.001 temperature (°C)	CRT

Function:

This object is used to send the dew point. The current value can be queried using a read request via the bus at any time.

Note:

For technical reasons, the measured values of the CO_2 sensor that are output can be too high shortly after bus voltage recovery.

8.11 Humidity controller

For the humidity controller, a staged controller and a steady PI controller are available. Up to 5 control signal stages can be selected for staged control.

PI control

The PI control uses the input values actual value and setpoint to calculate a control value. This control value can be transferred as a continuous control value in the range of 0...100 % via the KNX bus.

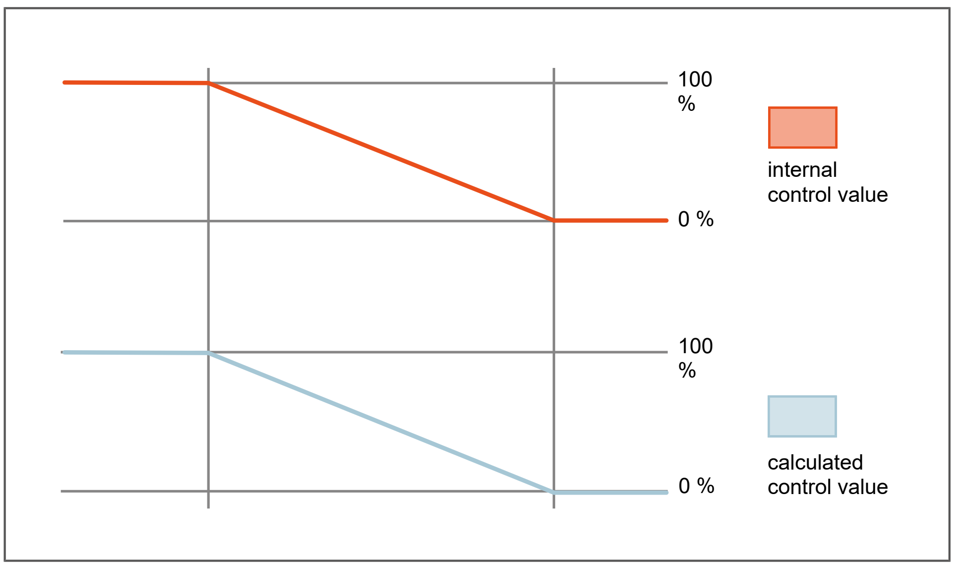


Fig. 49: PI control with continuous control value

The proportional range (% r.h.) and the delay time can be configured. The setpoint can also be written via the bus.

Staged control

Up to 5 stages can be selected for staged control. The control values can be output as a switching 1-bit value or a steady 8-bit value.

For control value output via switching (1-bit), a distinction is made between the "sequential control of stages" and the "additive control of stages” type of 1-bit control).

Switching (1-bit): Setting “Control levels sequentially”

If the room humidity exceeds a switching point (% r.h.) the control signal (% r.h.) that belongs to the stage is activated. At the same time, the other stages are deactivated. The control signal (% r.h.) is always switched off if the room humidity < switching point (% r.h.) - hysteresis. Only one stage can be switched at a time.

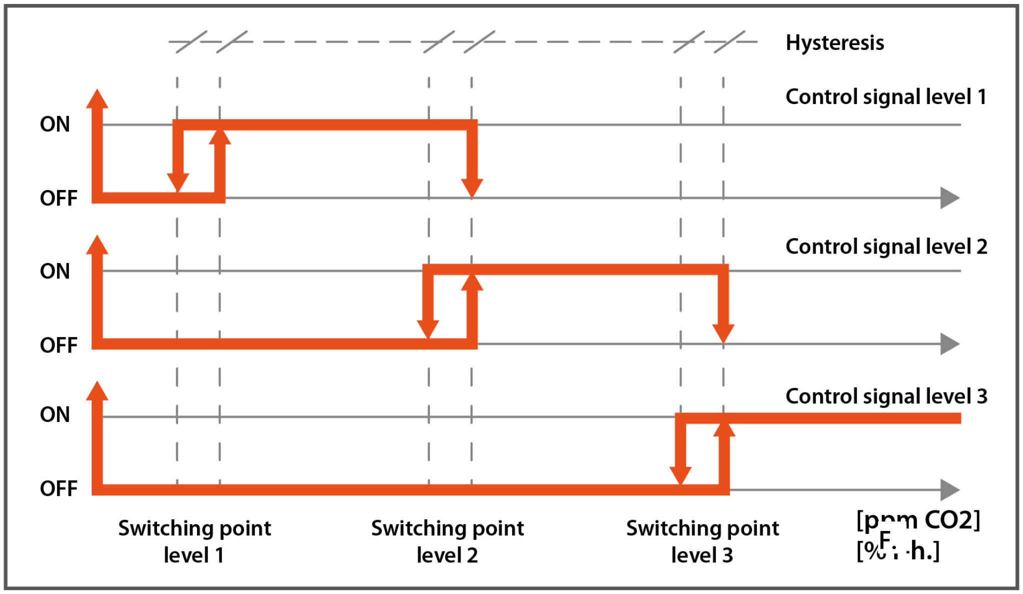


Fig. 50: Control value output switching, setting “control levels sequentially”

Switching (1-bit): Setting “Control levels additively”

If the room humidity exceeds a switching point (% r.h.) the control signal (% r.h.) that belongs to the stage is activated. The control signal (% r.h.) is always switched off if the room humidity < switching point (% r.h.) - hysteresis.

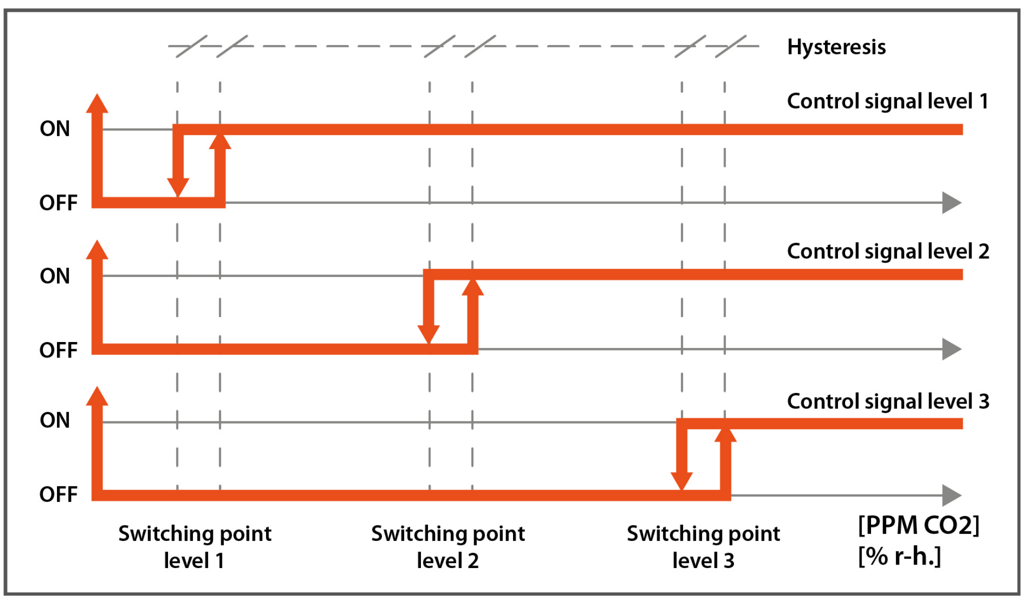


Fig. 51: Control value output switching, setting “control levels additively”

Steady (8-bit)

If the room humidity exceeds a switching point (% r.h.) the control signal (% r.h.) that has been configured for the stage is output. The control signal outputs the value of the next lower level again when the room humidity < switching point (% r. h.) - hysteresis. If you want to give the controller a value in the format of an external humidity sensor, you have to use the “calculator” function.

See also

Calculator [→ 96]

8.11.1 Parameters on the “Humidity controller” parameter card

The "Humidity controller" parameter card is displayed if the "Humidity controller" parameter in the "Device settings" parameter card is set to “enable.”

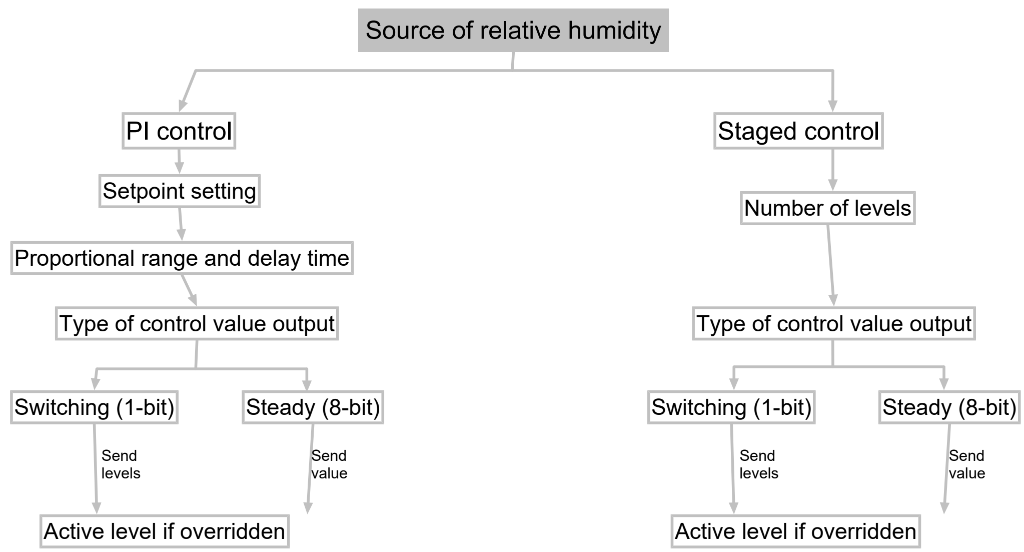


Fig. 52: Overview of humidity controller settings

Source of relative humidity value

Parameter	Settings
Source of relative humidity value	Internal value Calculated value

Function:

This parameter is used to select the source for the relative humidity value.

The following settings are possible:

- Internal value:
  A value coming from the humidity sensor of the device is used as the source.
- Calculated value:
  The result that comes directly from a calculator from the device is used as the source.

Index of calculator

Parameter	Settings
Index of calculator	1...12

Function:

This parameter is used to set the source for the calculated value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source of relative humidity value”
  - Setting: “Calculated value”

Note:

The calculator used must be configured with the correct data type.

Control behavior

Parameter	Settings
Control behavior	PI control Staged control

Function:

This parameter is used to set the control behavior of the humidity controller.

The following settings are possible:

- PI control:
  This setting enables energy-efficient and precise regulation of the room humidity.
- Staged control:
  With this setting, a simple procedure is used for humidity control. The control value is assigned via the configuration of the various standard switching points with a hysteresis. The control value can be output as 1-bit switching or 8-bit steady.

8.11.1.1 Parameters for use with PI control

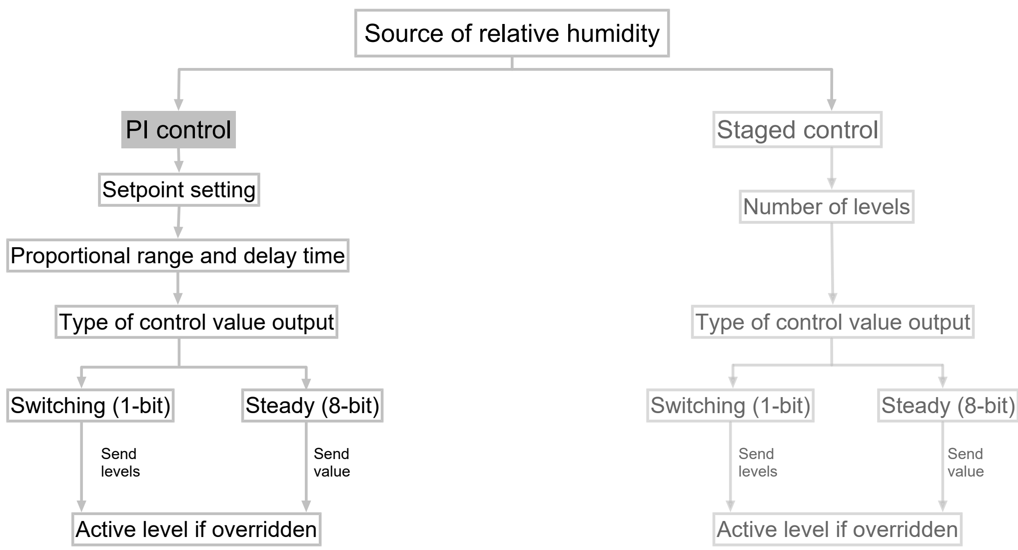


Fig. 53: Settings for use with PI control

Setpoint (% r.h.)

Parameter	Settings
Setpoint (% r.h.)	0.00 ... 100.00

Function:

This parameter can be used to set a setpoint for the relative humidity in the room.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  – Setting: “PI control”

Change setpoint via object

Parameter	Settings
Change setpoint via object	disable enable

Function:

This parameter can be used to change the setpoint via an object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Control behavior"
  - Setting: "PI control"

Reset setpoint at controller OFF

Parameter	Settings
Reset setpoint at controller OFF	disable enable

Function:

This parameter can be used to reset the setpoint to the value configured in the ETS when the controller is switched off.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Control behavior"
  - Setting: "PI control"
- Parameter "Change setpoint via object"
  - Setting: "enable"

Proportional range (% r.h.)

Parameter	Settings
Proportional range (% r.h.)	1.00 ... 100.00

Function:

This parameter sets the proportional range of the PI controller.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: "Control behavior"
  - Setting: "PI control"

Reset time

Parameter	Settings
Reset time (hh:mm)	00:05 ... 02:00

Function:

This parameter is used to set the delay time (I component) of the PI controller.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Control behavior"
  - Setting: "PI control"

Invert control value

Parameter	Settings
Invert control value	No Yes

Function:

This parameter is used to define whether the control value is to be output in inverted form.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Control behavior"

– Setting: “PI control”

Minimum control value (%)

Parameter	Settings
Minimum control value (%)	0...100

Function:

This parameter can be used to set a lower threshold for the calculated control value. Below this value, the minimum control value is retained. When the controller is switched off, the control value 0 % is output.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  - Setting: “PI control”

Maximum control value (%)

Parameter	Settings
Maximum control value (%)	0...100

Function:

This parameter can be used to set an upper threshold for the calculated control value. Above this value, the maximum control value is retained.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  - Setting: “PI control”

Example:

Example of using a maximum control value of 80 % and a minimum control value of 20 %:

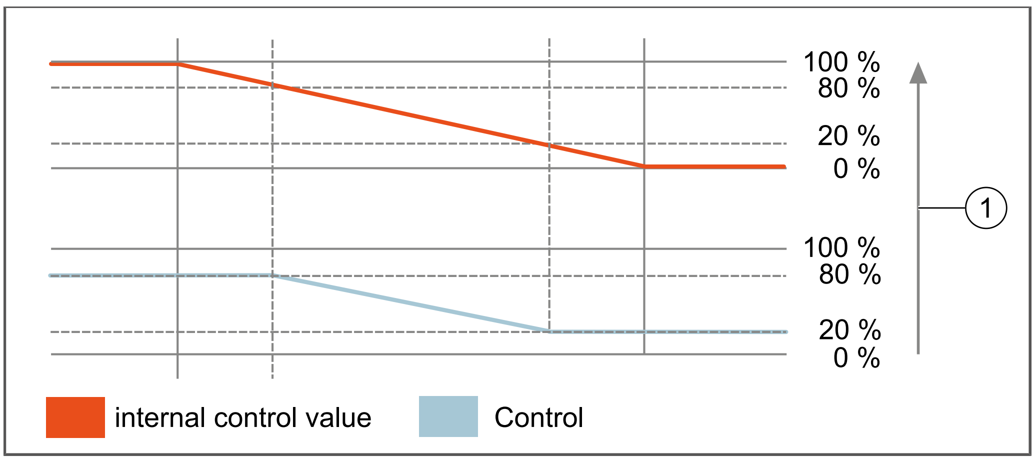


Fig. 54: Setting the maximum and minimum control value

1 Control of control value specification

Type of control value output

Parameter	Settings
Type of control value output	Switching (1-bit) Steady (8-bit)

Function:

This parameter is used to set whether the control value is output via a 1-bit object or an 8-bit object.

Parameters for use with the “Switching (1-bit)” control value output

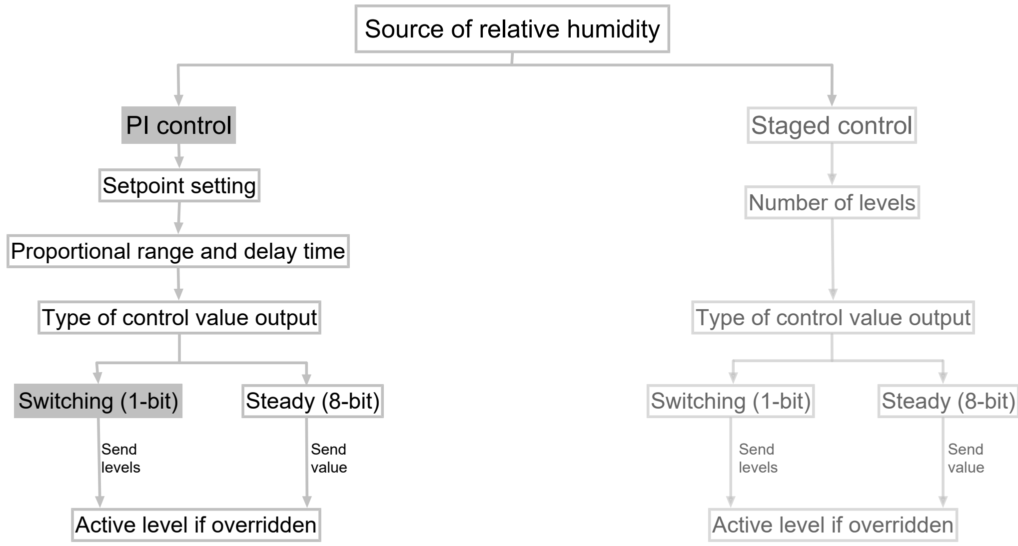


Fig. 55: Settings for use with the control value output “Switching (1-bit)”

Number of levels

Parameter	Settings
Number of levels	1...5

Function:

This parameter is used to set how many levels can be configured.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Switching (1-bit)”

Note:

With the control value output “Switching (1-bit),” up to 5 levels are possible.

Type of 1-bit control

Parameter	Settings
Type of 1-bit control	Control levels sequentially Control levels additively

Function:

This parameter is used to set how the control value output is to take place via a 1-bit object.

The following settings are possible:

- Control levels sequentially:
  With this setting, only one stage is switched at a time. That is, when a switching point is exceeded, the switching signal that belongs to the level is activated. At the same time, the other levels are deactivated (see fig. “Control value output switching, setting “control levels sequentially” [→ 236]“).
- Control levels additively:
  With this setting, the levels are switched one after the other. That is, when a switching point is exceeded, the switching signal that belongs to the level is activ-

ated. When a switching point is exceeded, the switching signal that belongs to the level is activated and the previous level remains active (see fig. “Control value output switching, setting “control levels additively” [→ 236]”).

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Default switching point for level [1...5] (%)

Parameter	Settings
Default switching point for level [1...5] (%)	0...100

Function:

These parameters are used to configure the default switching points of the individual levels, which apply until a new value is received from the bus, if configured.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Send levels on request

Parameter	Settings
Send levels on request	disable enable

Function:

This parameter can be used to send levels on request.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Send levels on change of level

Parameter	Settings
Send levels on change of level	disable enable

Function:

This parameter can be used to send levels when there is a change.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Block time for sending of levels

Parameter	Settings
Block time for sending of levels (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set a block time for the sending of the levels.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”

– Setting “Switching (1-bit)”

Send levels cyclically

Parameter	Settings
Send levels cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set the time interval at which the values of the levels are sent cyclically.

If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Active level if overridden

Parameter	Settings
Active level if overridden	0...5

Function:

This parameter is used to set the level at which the override of the controller is activated.

Note:

The controller can be overridden even if it is off.

The setting options depend on the number of levels.

Parameters for use with the “Steady (8-bit)” control value output

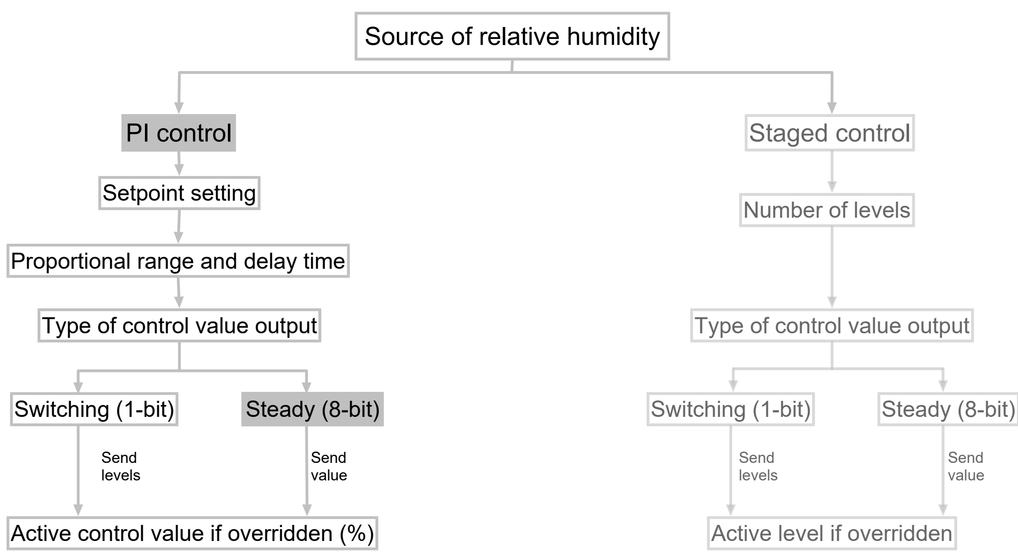


Fig. 56: Settings for use with the control value output “Steady (8-bit)”

Send value on request

Parameter	Settings
Send value on request	disable enable

Function:

This parameter can be used to set whether the value is sent on request or whether requests for the value will be rejected. The request is triggered via the communication object "send status values."

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Type of control value output"
  - Setting: "Steady (8-bit)"

Send value on change of value

Parameter	Settings
Send value on change of value	disable enable

Function:

This parameter is used to define if the value is to be sent automatically for every change of value. When "enable" is selected, additional parameters are displayed that can be used to define which change of value since the last sending has to be exceeded and how much time must have passed since the last sending for the value to be sent again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Type of control value output"
  - Setting: "Steady (8-bit)"

Value change since last sent (% r.h.)

Parameter	Settings
Value change since last sent (% r.h.)	0...100

Function:

This parameter is used to define at which value change in % r.h., since the last value sent, the value of the communication object "humidity sensor, relative humidity" is sent again. Sending takes place if the minimum block time for sending of the relative humidity value has been exceeded.

Block time for sending of value

Parameter	Settings
Block time for sending of value (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter determines when the next change of the value (in seconds) is sent at the earliest. If the value changes than sending is possible, the current value at the time of sending is sent.

This setting prevents the bus load from becoming too high because of frequent value changes (in seconds). If the bus load gets too high, telegrams might be lost.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Type of control value output"
  - Setting: "Steady (8-bit)"

Send value cyclically

Parameter	Settings
Send value cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set whether and at what intervals the content of the communication object of a value is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change switching points via object”
  - Setting: “Steady (8-bit)”

Active control value if overridden (%)

Parameter	Settings
Active control value if overridden (%)	1...100%

Function:

This parameter is used to set the control value at which the override of the controller is activated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

8.11.1.2 Parameters for use with multi-level control

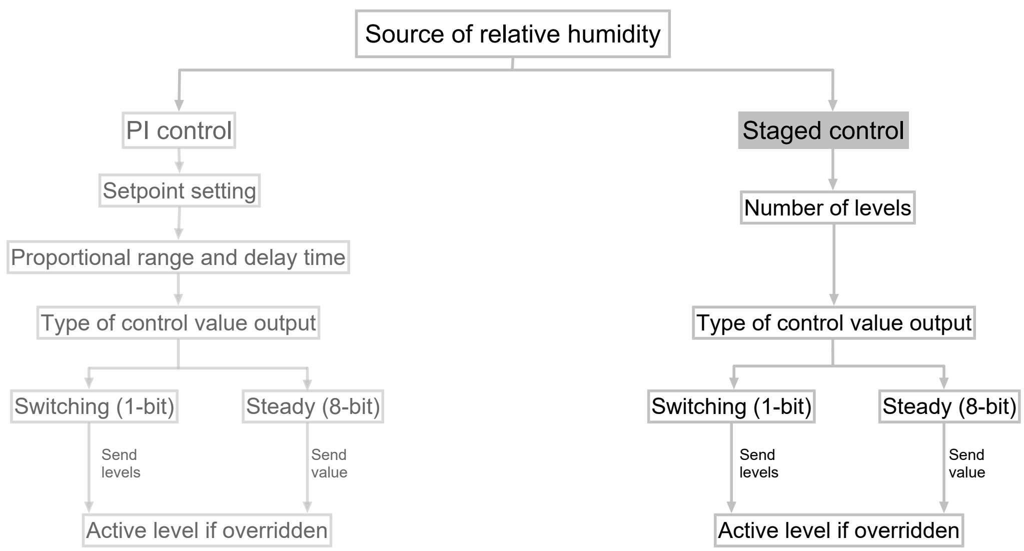


Fig. 57: Settings for use with multi-level control

Number of levels

Parameter	Settings
Number of levels	1...5

Function:

This parameter is used to set how many levels can be configured.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Switching (1-bit)”

Note:

With the control value output “Steady (8-bit),” up to 5 levels are possible.

Type of control value output

Parameter	Settings
Type of control value output	Switching (1-bit) Steady (8-bit)

Function:

This parameter is used to set whether the control value is output via a 1-bit object or an 8-bit object.

Parameters for use with the “Switching (1-bit)” control value output

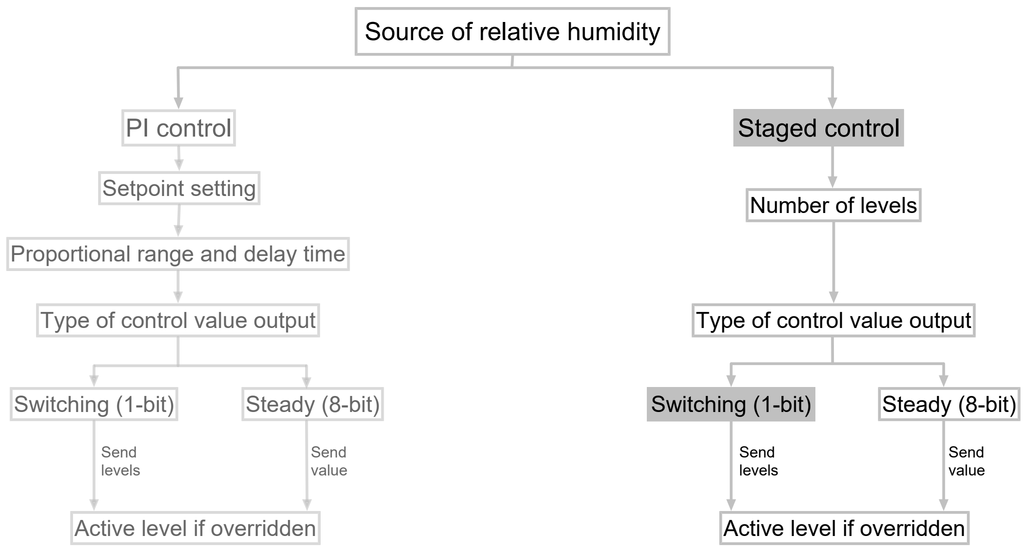


Fig. 58: Settings for use with the control value output “Switching (1-bit)”

Type of 1-bit control

Parameter	Settings
Type of 1-bit control	Control levels sequentially Control levels additively

Function:

This parameter is used to set how the control value output is to take place via a 1-bit object.

The following settings are possible:

- Control levels sequentially:
  With this setting, only one stage is switched at a time. That is, when a switching point is exceeded, the switching signal that belongs to the level is activated. At the same time, the other levels are deactivated (see fig. “Control value output switching, setting “control levels sequentially” [→ 236]“).
- Control levels additively:
  With this setting, the levels are switched one after the other. That is, when a switching point is exceeded, the switching signal that belongs to the level is activated. When a switching point is exceeded, the switching signal that belongs to the level is activated and the previous level remains active (see fig. “Control value output switching, setting “control levels additively” [→ 236]”).

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Change switching points via object

Parameter	Settings
Change switching points via object	disable enable

Function:

This parameter is used to specify whether the switching points are set as parameters to fixed values during control, each of which can only be changed with the ETS, or whether the corresponding factory-set parameter values can be changed at any time via the bus using the communication objects “Humidity controller, setpoint.”

The value received via the communication object immediately overwrites the factory-set parameter value.

Default switching point for level [1...5] (% r.h.)

Parameter	Settings
Default switching point for level [1...5] (% r.h.)	0.00 ... 100.00

Function:

These parameters are used to configure the default switching points of the individual levels, which apply until a new value is received from the bus, if configured.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Hysteresis (% r.h.)

Parameter	Settings
Hysteresis (% r.h.)	0.00 ... 100.00

Function:

The value defines the lower switching point and prevents frequent switching of the stage in case of small value changes. The control signal once again outputs the value of the next lower level again when the room humidity < switching point (% r. h.) - hysteresis.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Switching (1-bit)”

Reset switching points at controller OFF

Parameter	Settings
Reset switching points at controller OFF	disable enable

Function:

This parameter can be used to reset the switching points to the values configured in the ETS when the controller is switched off.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change switching points via object”
  - Setting: “enable”

Send levels on request

Parameter	Settings
Send levels on request	disable enable

Function:
This parameter can be used to send levels on request.
Availability:
The parameter is displayed if the following configuration has been made:
- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Send levels on change of level

Parameter	Settings
Send levels on change of level	disable enable

Function:
This parameter can be used to send levels when there is a change.
Availability:
The parameter is displayed if the following configuration has been made:
- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Block time for sending of levels

Parameter	Settings
Block time for sending of levels (hh:mm:ss)	00:00:00 ... 18:12:15

Function:
This parameter can be used to set a block time for the sending of the levels.
Availability:
The parameter is displayed if the following configuration has been made:
- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Send levels cyclically

Parameter	Settings
Send levels cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:
This parameter can be used to set the time interval at which the values of the levels are sent cyclically.
If this is set to “00:00:00,” then cyclic sending is deactivated.
Availability:
The parameter is displayed if the following configuration has been made:
- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Active level if overridden

Parameter	Settings
Active level if overridden	0...5

Function:

This parameter is used to set the level at which the override of the controller is activated.

Note:

The controller can be overridden even if it is off.

The setting options depend on the number of levels.

Parameters for use with the “Steady (8-bit)” control value output

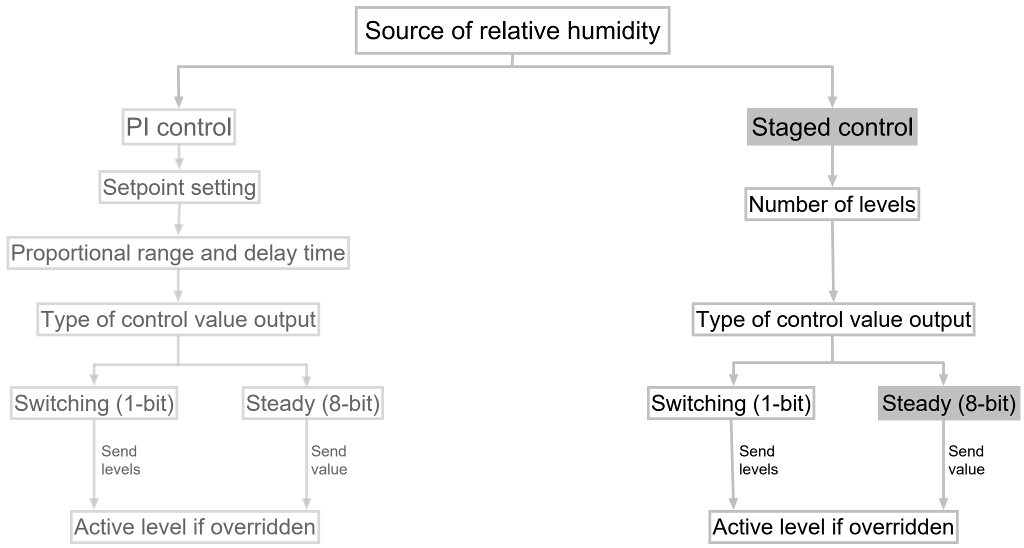


Fig. 59: Settings for use with the control value output “Steady (8-bit)”

Change switching points via object

Parameter	Settings
Change switching points via object	disable enable

Function:

This parameter is used to specify whether the switching points are set as parameters to fixed values during control, each of which can only be changed with the ETS, or whether the corresponding factory-set parameter values can be changed at any time via the bus using the communication objects “Humidity controller, setpoint.”

The value received via the communication object immediately overwrites the factory-set parameter value.

Default switching point for level [1...5] (% r.h.)

Parameter	Settings
Default switching point for level [1...5] (% r.h.)	0.00 ... 100.00

Function:

These parameters are used to configure the default switching points of the individual levels, which apply until a new value is received from the bus, if configured.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Hysteresis (% r.h.)

Parameter	Settings
Hysteresis (% r.h.)	0.00 ... 100.00

Function:

The value defines the lower switching point and prevents frequent switching of the stage in case of small value changes. The control signal once again outputs the value of the next lower level again when the room humidity < switching point (% r. h.) - hysteresis.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Switching (1-bit)”

Reset switching points at controller OFF

Parameter	Settings
Reset switching points at controller OFF	disable enable

Function:

This parameter can be used to reset the switching points to the values configured in the ETS when the controller is switched off.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change switching points via object”
  - Setting: “enable”

Control signal level [0...5] (%)

Parameter	Settings
Control signal level [0...5] (%)	0...100

Function:

These parameters are used to specify the values of the control signal for the individual levels (switching points) that are sent via the communication object “humidity controller, steady control signal” when the respective level is reached.

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

Send value on request

Parameter	Settings
Send value on request	disable enable

Function:

This parameter can be used to set whether the value is sent on request or whether requests for the value will be rejected. The request is triggered via the communication object “send status values.”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

Send value on change of value

Parameter	Settings
Send value on change of value	disable enable

Function:

This parameter is used to define if the value is to be sent automatically for every change of value. When “enable” is selected, additional parameters are displayed that can be used to define which change of value since the last sending has to be exceeded and how much time must have passed since the last sending for the value to be sent again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  – Setting: “Steady (8-bit)”

Value change since last sent (% r.h.)

Parameter	Settings
Value change since last sent (% r.h.)	0...100

Function:

This parameter is used to define at which value change in % r.h., since the last value sent, the value of the communication object “humidity sensor, relative humidity” is sent again. Sending takes place if the minimum block time for sending of the relative humidity value has been exceeded.

Block time for sending of value

Parameter	Settings
Block time for sending of value (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter determines when the next change of the value (in seconds) is sent at the earliest. If the value changes than sending is possible, the current value at the time of sending is sent.

This setting prevents the bus load from becoming too high because of frequent value changes (in seconds). If the bus load gets too high, telegrams might be lost.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  – Setting: “Steady (8-bit)”

Send value cyclically

Parameter	Settings
Send value cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set whether and at what intervals the content of the communication object of a value is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change switching points via object”
  – Setting: “Steady (8-bit)”

Active level if overridden

Parameter	Settings
Active level if overridden	0...5

Function:

This parameter is used to set the level at which the override of the controller is activated.

Note:

The controller can be overridden even if it is off.

The setting options depend on the number of levels.

8.11.2 Communication objects “Humidity controller”

Humidity controller, controller

No.	Object name	Function	Datapoint type	Flags
404	Humidity controller, controller	On/Off	1.001 switch	CRWT

Function:

This object can be used to switch the controller on or off. This information can come, for example, from a bus push button or from the output object of a presence detector.

Humidity controller, steady control signal – manual setpoint

No.	Object name	Function	Datapoint type	Flags
405	Humidity controller, steady control signal – manual setpoint	0...100 %	5.001 percentage (0..100%)	CRWT

Function:

In manual mode, this object is used to receive a setpoint and output this directly as a steady control signal (communication object “Humidity controller, steady control signal“).

Humidity controller, steady control signal – manual mode

No.	Object name	Function	Datapoint type	Flags
406	Humidity controller, steady control signal – manual mode	0 = auto/1 = manual	1.003 enable	CRWT

Function:

Switching to manual mode allows a manual setpoint to be received for the steady control signal. Otherwise, the configured control signals of the respective level are output. The default state is “Automatic”

The value 0 means that automatic mode is active. The value 1 means that manual mode is active.

Humidity controller, override

No.	Object name	Function	Datapoint type	Flags
407	Humidity controller, override	0 = normal/1 = overridden	1.003 enable	CRWT

Function:

When the humidity controller is overridden, the stage defined in parameter "Active level if overridden" is activated. Override has the highest priority, which means that if the controller is off, it can still be overridden.

Humidity controller, setpoint

No.	Object name	Function	Datapoint type	Flags
408	Humidity controller, setpoint	% r.h. value	9.007 humidity (%)	CRWT

Function:

This object can be used to change the humidity setpoint via the bus.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  - Setting: “PI control”
- Parameter “Change setpoint via object”
  - Setting: “enable”

Humidity controller, switching point level 1 − 5

No.	Object name	Function	Datapoint type	Flags
408	Humidity controller, switching point level 1	% r.h. value	9.007 humidity (%)	CRWT
409	Humidity controller, switching point level 2	% r.h. value	9.007 humidity (%)	CRWT
410	Humidity controller, switching point level 3	% r.h. value	9.007 humidity (%)	CRWT
411	Humidity controller, switching point level 4	% r.h. value	9.007 humidity (%)	CRWT
412	Humidity controller, switching point level 5	% r.h. value	9.007 humidity (%)	CRWT

Function:

These objects can be used to change the switching points of the individual levels via the bus.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  - Setting: “Staged control”
- Parameter “Change switching points via object”
  - Setting: “enable”

Humidity controller, minimum control value

No.	Object name	Function	Datapoint type	Flags
413	Humidity controller, minimum control value	0...100 %	5.001 percentage (0..100%)	CRWT

Function:

This communication object is used to send the minimum control value as a percentage value when using PI control.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  - Setting: “PI control”

Humidity controller, maximum control value

No.	Object name	Function	Datapoint type	Flags
414	Humidity controller, maximum control value	0...100 %	5.001 percentage (0..100%)	CRWT

Function:

This communication object is used to send the maximum control value as a percentage value when using PI control.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  - Setting: “PI control”

Humidity controller, steady control signal

No.	Object name	Function	Datapoint type	Flags
415	Humidity controller, steady control signal	% value	5.001 percentage (0..100%)	CRT

Function:

If the room humidity exceeds a switching point in r.h. the control signal that has been configured for the stage is output via this object. The control signal once again outputs the value of the next lower level again when the room humidity < switching point r. h. - hysteresis.

Humidity controller, control signal level [1...5]

No.	Object name	Function	Datapoint type	Flags
416	Humidity controller, control signal level 1	On/Off	1.001 switch	CRT
417	Humidity controller, control signal level 2	On/Off	1.001 switch	CRT
418	Humidity controller, control signal level 3	On/Off	1.001 switch	CRT
419	Humidity controller, control signal level 4	On/Off	1.001 switch	CRT
420	Humidity controller, control signal level 5	On/Off	1.001 switch	CRT

Function:

If the room humidity exceeds a switching point in r.h., the control signal associated with the stage is switched on. The control signal is always switched off if the room humidity < switching point r.h. - hysteresis.

8.12 Air quality controller

For the air quality controller, a staged controller and a steady PI controller are available. Up to 5 control signal stages can be selected for staged control.

PI control

The PI control uses the input values actual value and setpoint to calculate a control value. This control value can be transferred as a continuous control value in the range of 0...100 % via the KNX bus.

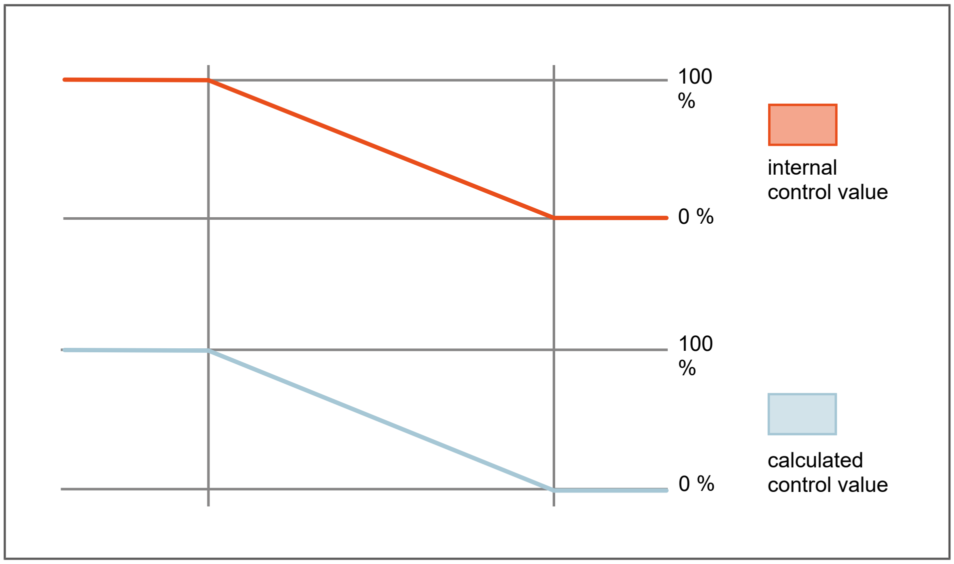


Fig. 60: PI control with continuous control value

The proportional range (ppm) and the delay time can be configured. The setpoint can also be written via the bus.

Staged control

Up to 5 stages can be selected for staged control. The control values can each be output as a switching 1-bit value or a steady 8-bit value.

For control value output via switching (1-bit), a distinction is made between the "sequential control of stages" and the "additive control of stages" type of 1-bit control).

Switching (1-bit): “Control levels sequentially”

If the CO2 concentration exceeds a CO2 switching point, the CO2 control signal that belongs to the stage is activated. At the same time, the other stages are deactivated. The CO2 control signal is always switched off if the air quality < switching point CO2 - hysteresis. Only one stage can be switched at a time.

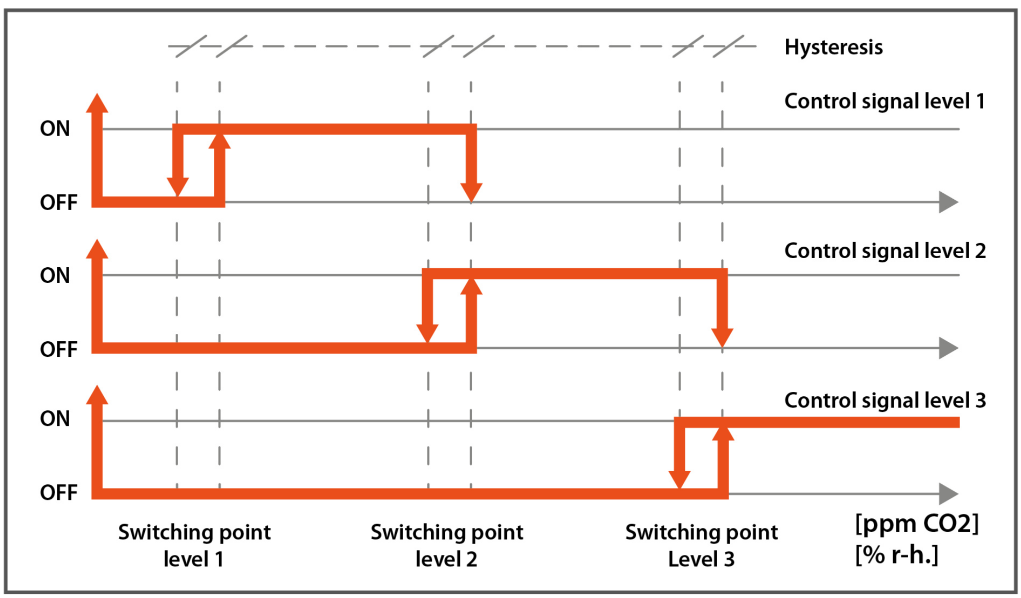


Fig. 61: Control value output switching, setting “control levels sequentially”

Switching (1-bit): “Control levels additively”

If the CO2 concentration exceeds a CO2 switching point, the CO2 control signal that belongs to the stage is activated. The CO2 control signal is always switched off if the air quality < switching point CO2 - hysteresis.

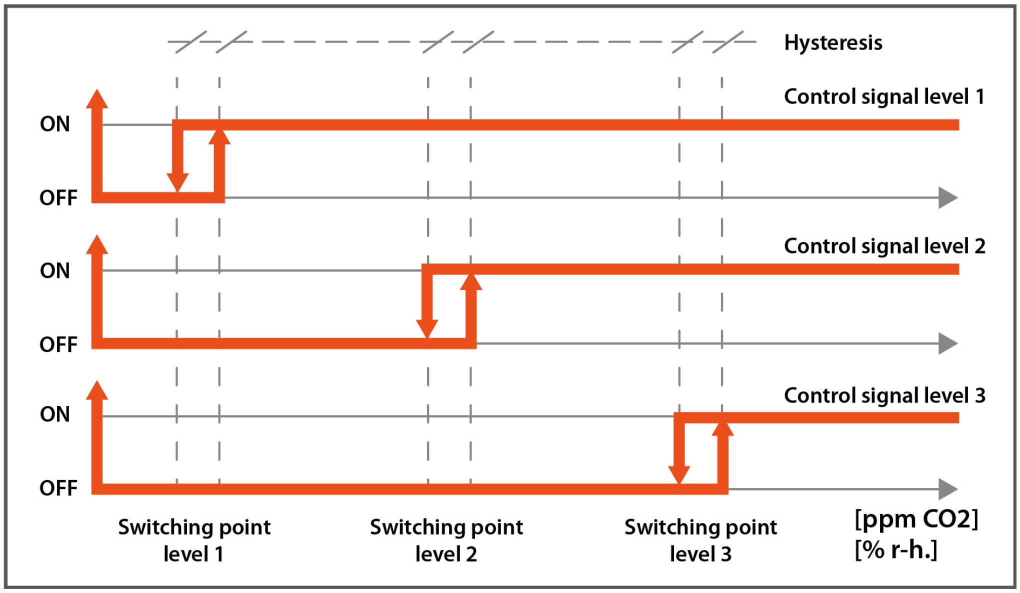


Fig. 62: Control value output switching, setting “control levels additively”

Steady (8-bit)

If the CO2 concentration exceeds a CO2 switching point, the CO2 control signal that has been configured for the stage is output. The control signal again outputs the value of the next lower stage when the air quality becomes < switching point CO2 - hysteresis.

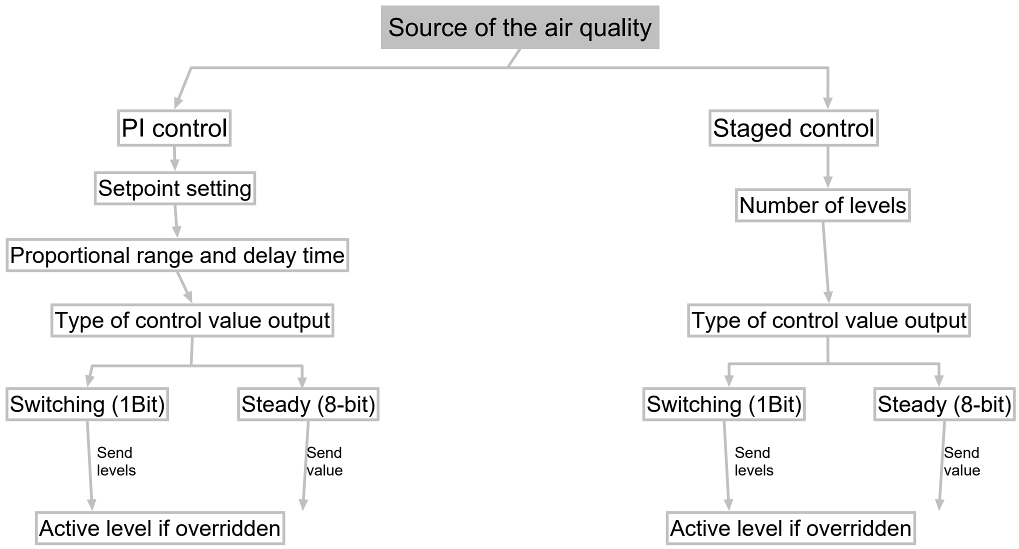
If you want to give the controller a value in the format of an external CO2 concentration meter, you must use the "Calculation" function.

See also

Calculator [→ 96]

8.12.1 Parameters in the "Air quality controller" parameter card

The "Air quality controller" parameter card is displayed if the "Air quality controller" parameter in the "Device settings" parameter card is set to “enable."



Source of air quality value

Parameter	Settings
Source of air quality value	Internal value Calculated value

Function:

This parameter is used to select the source for the air quality value.

Index of calculator

Parameter	Settings
Index of calculator	1…12

Function:

This parameter is used to set the source for the calculated value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter - Source of air quality value
  - Setting: “Calculated value”

Note:

The calculator used must be configured with the correct data type.

Control behavior

Parameter	Settings
Control behavior	PI control Staged control

Function:

This parameter is used to set the control behavior of the air quality controller.

The following settings are possible:

- PI control:

  This setting enables energy-efficient and precise regulation of the air quality.
- Staged control:

  This setting uses a simple method for air quality control. The control value is assigned via the configuration of the various standard switching points with a hysteresis. The control value can be output as 1-bit switching or 8-bit steady.

8.12.1.1 Parameters for use with PI control

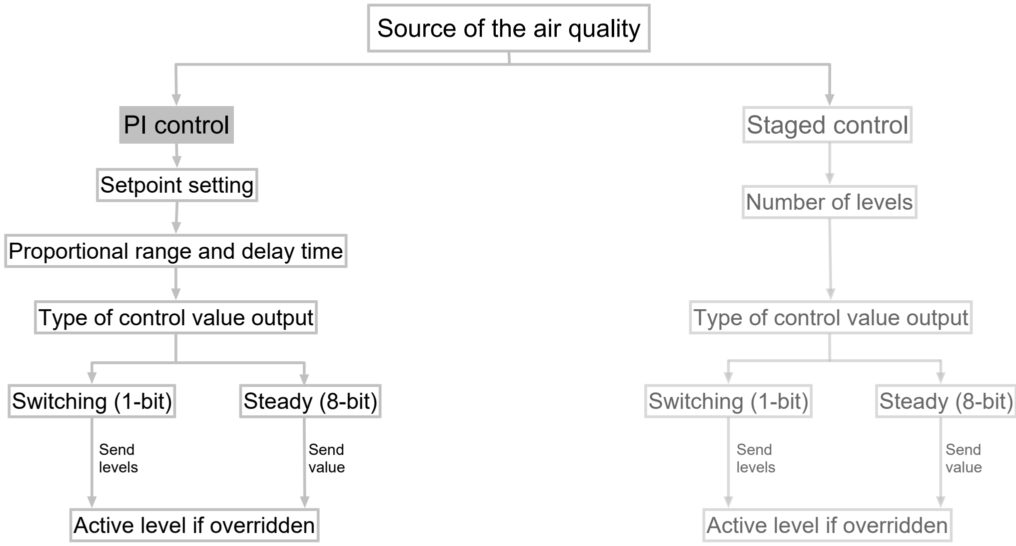


Fig. 63: Settings for use with PI control

Setpoint (ppm)

Parameter	Settings
Setpoint (ppm)	0.00 ... 670760.00

Function:
This parameter can be used to set a setpoint for the air quality in the room.
Availability:
The parameter is displayed if the following configuration has been made:
- Parameter “Control behavior”
  - Setting: “PI control”

Change setpoint via object

Parameter	Settings
Change setpoint via object	disable enable

Function:
This parameter can be used to change the setpoint via an object.
Availability:
The parameter is displayed if the following configuration has been made:
- Parameter “Control behavior”
  - Setting: “PI control”

Reset setpoint at controller OFF

Parameter	Settings
Reset setpoint at controller OFF	disable enable

Function:
This parameter can be used to reset the setpoint to the value configured in the ETS when the controller is switched off.
Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  - Setting: “PI control”
- Parameter “Change setpoint via object”
  - Setting: “enable”

Proportional range (ppm)

Parameter	Settings
Proportional range (ppm)	50.00 ... 1,000.00

Function:

This parameter sets the proportional range of the PI controller.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter: “Control behavior”
  - Setting: “PI control”

Reset time

Parameter	Settings
Reset time (hh:mm)	00:05 ... 02:00 ...

Function:

This parameter is used to set the delay time (I component) of the PI controller.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  - Setting: “PI control”

Invert control value

Parameter	Settings
Invert control value	No Yes

Function:

This parameter is used to define whether the control value is to be output in inverted form.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  - Setting: “PI control”

Minimum control value (%)

Parameter	Settings
Minimum control value (%)	0...100

Function:

This parameter can be used to set a lower threshold for the calculated control value. Below this value, the minimum control value is retained. When the controller is switched off, the control value 0 % is output.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  - Setting: “PI control”

Maximum control value (%)

Parameter	Settings
Maximum control value (%)	0...100

Function:

This parameter can be used to set an upper threshold for the calculated control value. Above this value, the maximum control value is retained.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  - Setting: “PI control”

Example:

Example of using a maximum control value of 80 % and a minimum control value of 20 %:

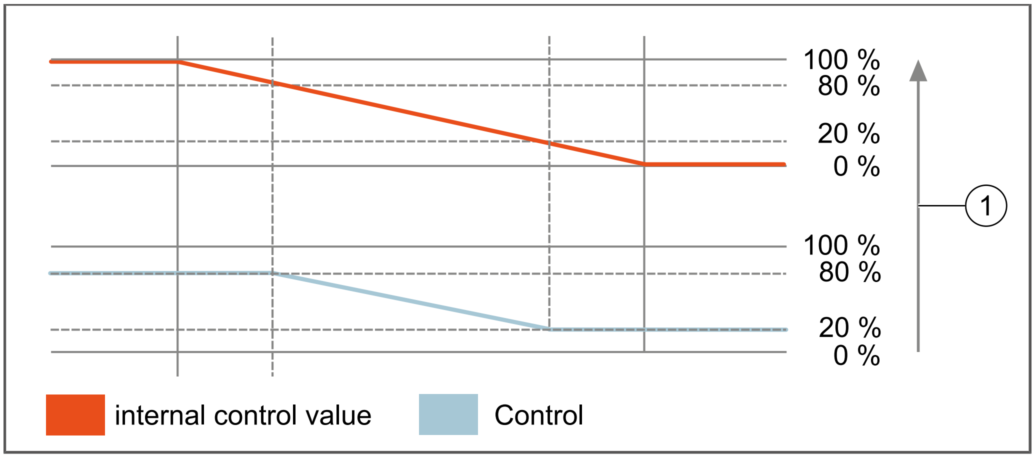


Fig. 64: Setting the maximum and minimum control value

1 Control of control value specification

Type of control value output

Parameter	Settings
Type of control value output	Switching (1-bit) Steady (8-bit)

Function:

This parameter is used to set whether the control value is output via a 1-bit object or an 8-bit object.

Parameters for use with the “Switching (1-bit)” control value output

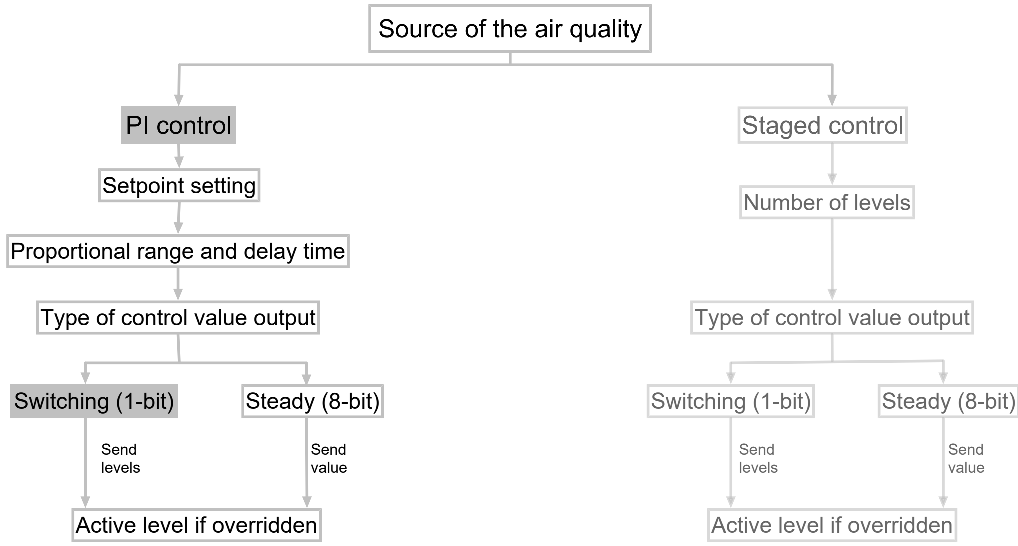


Fig. 65: Settings for use with the control value output “Switching (1-bit)”

Number of levels

Parameter	Settings
Number of levels	1…5

Function:

This parameter is used to set how many levels can be configured.

Note:

With “steady control value output,” up to 5 levels are possible and with switching control value output up to 3 levels are possible.

Type of 1-bit control

Parameter	Settings
Type of 1-bit control	Control levels sequentially Control levels additively

Function:

This parameter is used to set how the control value output is to take place via a 1-bit object.

The following settings are possible:

- Control levels sequentially:
  With this setting, only one stage is switched at a time. That is, when a switching point is exceeded, the switching signal that belongs to the level is activated. At the same time, the other levels are deactivated (see “Control value output switching, setting “control levels sequentially” [→ 255]“).
- Control levels additively
  With this setting, the levels are switched one after the other. That is, when a switching point is exceeded, the switching signal that belongs to the level is activated. When a switching point is exceeded, the switching signal that belongs to the level is activated and the previous level remains active (see Control value output switching, setting “control levels additively” [→ 256]).

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting: “Switching (1-bit)”

Default switching point for level [1...5] (ppm)

Parameter	Settings
Default switching point for level [1...5] (ppm)	0.00 ... 670760.00

Function:
These parameters are used to configure the default switching points of the individual levels, which apply until a new value is received from the bus, if configured.

Send levels on request

Parameter	Settings
Send levels on request	disable enable

Function:
This parameter can be used to send levels on request.
Availability:
The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Send levels on change of level

Parameter	Settings
Send levels on change of level	disable enable

Function:
This parameter can be used to send levels when there is a change.
Availability:
The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Block time for sending of levels

Parameter	Settings
Block time for sending of levels (hh:mm:ss)	00:00:00 ... 18:12:15

Function:
This parameter can be used to set a block time for the sending of the levels.
Availability:
The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Send levels cyclically

Parameter	Settings
Send levels cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set the time interval at which the values of the levels are sent cyclically.

If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Active level if overridden

Parameter	Settings
Active level if overridden	0…5

Function:

This parameter is used to set the level at which the override of the controller is activated.

Note:

The controller can be overridden even if it is off.

The setting options depend on the number of levels.

Parameters for “Steady (8-bit)” control value output

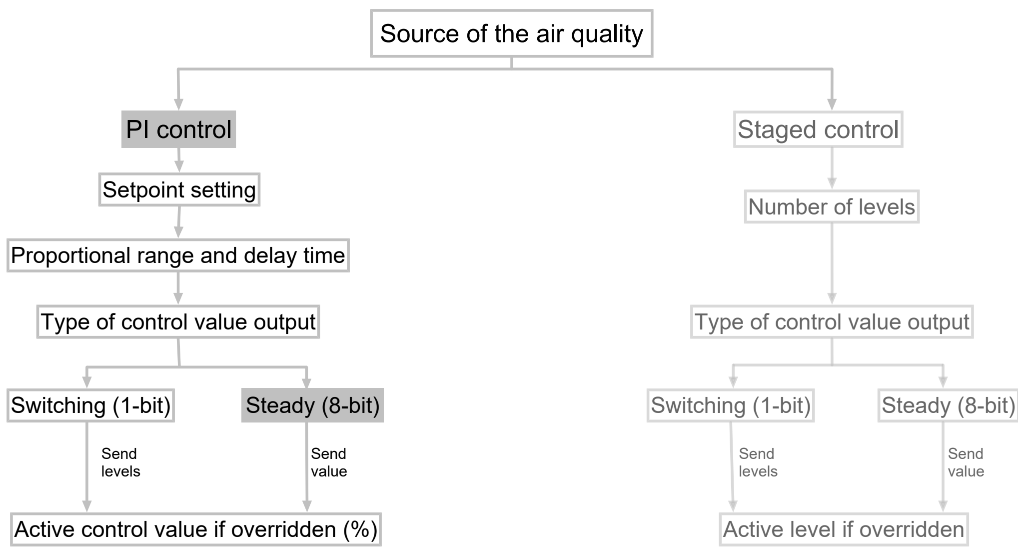


Fig. 66: Settings for use with the control value output “Steady (8-bit)”

Send value on request

Parameter	Settings
Send value on request	disable enable

Function:

This parameter can be used to set whether the value is sent on request or whether requests for the value will be rejected. The request is triggered via the communication object “send status values.”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

Send value on change of value

Parameter	Settings
Send value on change of value	disable enable

Function:

This parameter is used to define if the value is to be sent automatically for every change of value. When “enable” is selected, additional parameters are displayed that can be used to define which change of value since the last sending has to be exceeded and how much time must have passed since the last sending for the value to be sent again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

Value change since last sent (%)

Parameter	Settings
Value change since last sent (%)	0...100

Function:

This parameter can be used to set the change in value since the last sending in %.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Send value on change of value”
  - Setting: “enable”

Block time for sending of value

Parameter	Settings
Block time for sending of value (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter determines when the next change of the value (in seconds) is sent at the earliest. If the value changes than sending is possible, the current value at the time of sending is sent.

This setting prevents the bus load from becoming too high because of frequent value changes (in seconds). If the bus load gets too high, telegrams might be lost.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

Send value cyclically

Parameter	Settings
Send value cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set whether and at what intervals the content of the communication object of a value is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change switching points via object”

– Setting: “Steady (8-bit)”

Active control value if overridden (%)

Parameter	Settings
Active control value if overridden (%)	1...100%

Function:

This parameter is used to set the control value at which the override of the controller is activated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

8.12.1.2 Parameters for use with multi-level control

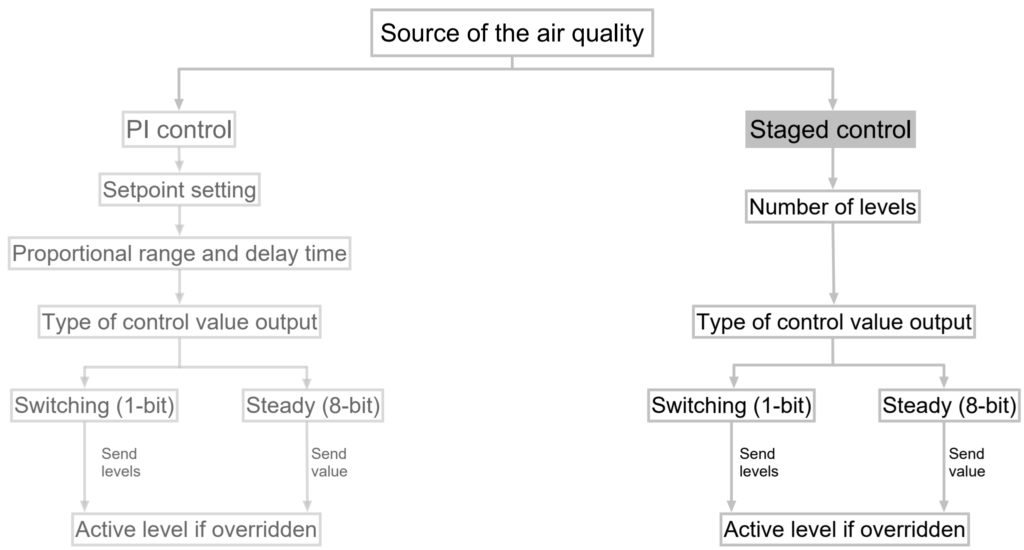


Fig. 67: Settings for use with multi-level control

Number of levels

Parameter	Settings
Number of levels	1…5

Function:

This parameter is used to set how many levels can be configured.

Note:

With “steady control value output,” up to 5 levels are possible and with switching control value output up to 3 levels are possible.

Type of control value output

Parameter	Settings
Type of control value output	Switching (1-bit) Steady (8-bit)

Function:

This parameter is used to set whether the control value is output via a 1-bit object or an 8-bit object.

Parameters for use with the “Switching (1-bit)” control value output

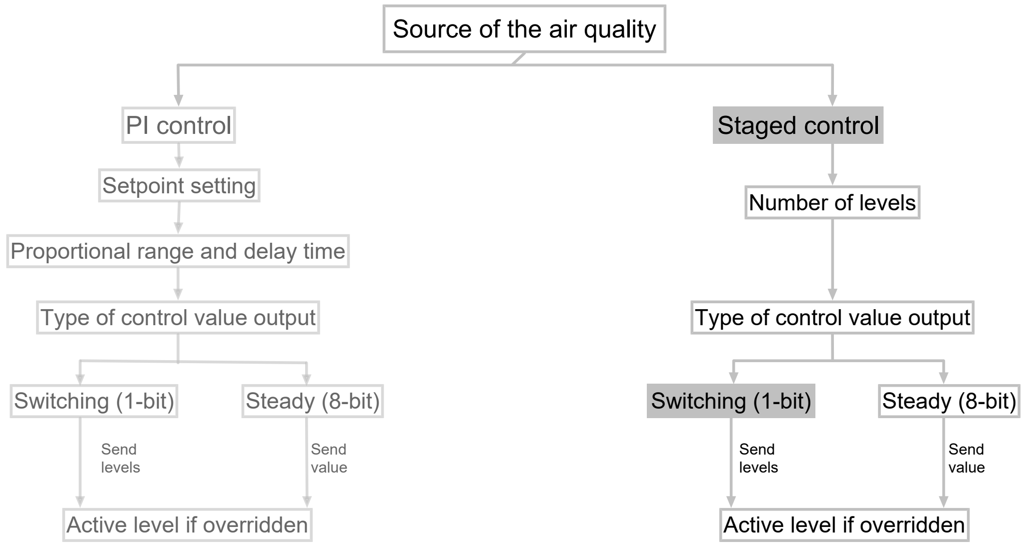


Fig. 68: Settings for use with the control value output “Switching (1-bit)”

Type of 1-bit control

Parameter	Settings
Type of 1-bit control	Control levels sequentially Control levels additively

Function:

This parameter is used to set how the control value output is to take place via a 1-bit object.

The following settings are possible:

- Control levels sequentially:
  With this setting, only one stage is switched at a time. That is, when a switching point is exceeded, the switching signal that belongs to the level is activated. At the same time, the other levels are deactivated (see “Control value output switching, setting “control levels sequentially” [→ 255]“).
- Control levels additively
  With this setting, the levels are switched one after the other. That is, when a switching point is exceeded, the switching signal that belongs to the level is activated. When a switching point is exceeded, the switching signal that belongs to the level is activated and the previous level remains active (see Control value output switching, setting “control levels additively” [→ 256]).

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting: “Switching (1-bit)”

Change switching points via object

Parameter	Settings
Change switching points via object	disable enable

Function:

This parameter is used to specify whether the switching points are set as parameters to fixed values during control, each of which can only be changed with the ETS, or whether the corresponding factory-set parameter values can be changed at any time via the bus using the communication objects “Humidity controller, setpoint.”

The value received via the communication object immediately overwrites the factory-set parameter value.

Default switching point for level [1...5] (ppm)

Parameter	Settings
Default switching point for level [1...5] (ppm)	0.00 ... 670760.00

Function:

These parameters are used to configure the default switching points of the individual levels, which apply until a new value is received from the bus, if configured.

Hysteresis (ppm)

Parameter	Settings
Hysteresis (ppm)	0.00 ... 670760.00

Function:

The value defines the lower switching point and prevents frequent switching of the stage in case of small value changes.

The control signal once again outputs the value of the next lower level again when the CO2 concentration < switching point ppm. - hysteresis.

Send levels on request

Parameter	Settings
Send levels on request	disable enable

Function:

This parameter can be used to send levels on request.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Send levels on change of level

Parameter	Settings
Send levels on change of level	disable enable

Function:

This parameter can be used to send levels when there is a change.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Block time for sending of levels

Parameter	Settings
Block time for sending of levels (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set a block time for the sending of the levels.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Send levels cyclically

Parameter	Settings
Send levels cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set the time interval at which the values of the levels are sent cyclically.

If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of 1-bit control”
  - Setting “Switching (1-bit)”

Active level if overridden

Parameter	Settings
Active level if overridden	0…5

Function:

This parameter is used to set the level at which the override of the controller is activated.

Note:

The controller can be overridden even if it is off.

The setting options depend on the number of levels.

Parameters for “Steady (8-bit)” control value output

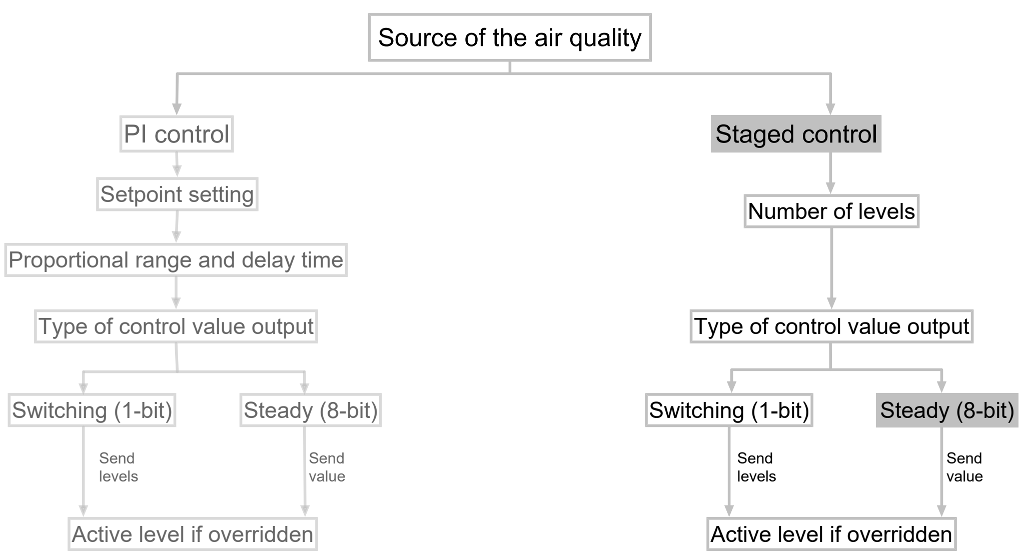


Fig. 69: Settings for use with the control value output “Steady (8-bit)”

Change switching points via object

Parameter	Settings
Change switching points via object	disable enable

Function:

This parameter is used to specify whether the switching points are set as parameters to fixed values during control, each of which can only be changed with the ETS, or whether the corresponding factory-set parameter values can be changed at any time via the bus using the communication objects “Humidity controller, setpoint.”

The value received via the communication object immediately overwrites the factory-set parameter value.

Default switching point for level [1...5] (ppm)

Parameter	Settings
Default switching point for level [1...5] (ppm)	0.00 ... 670760.00

Function:

These parameters are used to configure the default switching points of the individual levels, which apply until a new value is received from the bus, if configured.

Hysteresis (ppm)

Parameter	Settings
Hysteresis (ppm)	0.00 ... 670760.00

Function:

The value defines the lower switching point and prevents frequent switching of the stage in case of small value changes.

The control signal once again outputs the value of the next lower level again when the CO2 concentration < switching point ppm. - hysteresis.

Reset switching points at controller OFF

Parameter	Settings
Reset switching points at controller OFF	disable enable

Function:

This parameter is used to set whether the switching points stored via object are to be reset or not when the controller is switched off. If the parameter is set to “Enable,” the switching points are reset to the switching points configured via ETS when the controller is switched off.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Change switching points via object”
  - Setting: “Enable”

Control signal level [0...5] (%)

Parameter	Settings
Control signal level [0...5] (%)	0...100

Function:

These parameters are used to specify the values of the control signal for the individual levels (switching points) that are sent via the communication object “air quality controller, steady control signal” when the respective level is reached.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”

– Setting: “Steady (8-bit)”

Send value on request

Parameter	Settings
Send value on request	disable enable

Function:

This parameter can be used to set whether the value is sent on request or whether requests for the value will be rejected. The request is triggered via the communication object “send status values.”

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  – Setting: “Steady (8-bit)”

Send value on change of value

Parameter	Settings
Send value on change of value	disable enable

Function:

This parameter is used to define if the value is to be sent automatically for every change of value. When “enable” is selected, additional parameters are displayed that can be used to define which change of value since the last sending has to be exceeded and how much time must have passed since the last sending for the value to be sent again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Type of control value output”
  – Setting: “Steady (8-bit)”

Value change since last sent (%)

Parameter	Settings
Value change since last sent (%)	0...100

Function:

This parameter can be used to set the change in value since the last sending in %.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Send value on change of value”
  – Setting: “enable”

Block time for sending of value

Parameter	Settings
Block time for sending of value (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter determines when the next change of the value (in seconds) is sent at the earliest. If the value changes than sending is possible, the current value at the time of sending is sent.

This setting prevents the bus load from becoming too high because of frequent value changes (in seconds). If the bus load gets too high, telegrams might be lost.

Availability:

The parameter is displayed if the following configuration has been made:
- Parameter “Type of control value output”
  - Setting: “Steady (8-bit)”

Send value cyclically

Parameter	Settings
Send value cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set whether and at what intervals the content of the communication object of a value is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter is displayed if the following configuration has been made:
- Parameter “Change switching points via object”
  - Setting: “Steady (8-bit)”

Active level if overridden

Parameter	Settings
Active level if overridden	0…5

Function:

This parameter is used to set the level at which the override of the controller is activated.

Note:

The controller can be overridden even if it is off.

The setting options depend on the number of levels.

8.12.2 Communication objects “Air quality controller”

Air quality controller, controller

No.	Object name	Function	Datapoint type	Flags
421	Air quality controller, controller	On/Off	1.001 switch	CRWT

Function:

This object can be used to switch the CO2 controller on or off. This information can come, for example, from a bus push button or from the output object of a presence detector.

Air quality controller, steady control signal – manual setpoint

No.	Object name	Function	Datapoint type	Flags
422	Air quality controller, steady control signal – manual setpoint	0...100 %	5.001 percentage (0..100%)	CRWT

Function:

In manual mode, this object is used to receive a setpoint and output this directly as a steady control signal (communication object “ controller, steady control signal”).

Availability:

The communication object is displayed if the following configuration was made:
- Parameter “Type of control value output” (“Air quality controller” parameter card)
  - Setting: “Steady (8-bit)”

Air quality controller, steady control signal – manual mode

No.	Object name	Function	Datapoint type	Flags
423	Air quality controller, steady control signal – manual mode	0 = auto/1 = manual	1.003 enable	CRWT

Function:

Switching to manual mode allows a manual setpoint to be received for the steady control signal. Otherwise, the configured control signals of the respective level are output. The default state is “Automatic”

The value 0 means that automatic mode is active. The value 1 means that manual mode is active.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Type of control value output” (“Air quality controller” parameter card)
  - Setting: “Steady (8-bit)”

Air quality controller, override

No.	Object name	Function	Datapoint type	Flags
424	Air quality controller, override	0 = normal/1 = overridden	1.003 enable	CRWT

Function:

When the air quality controller is overridden, the stage defined in the "Active stage when overridden" parameter is activated. Override has the highest priority, which means that if the controller is off, it can still be overridden.

Air quality controller, setpoint

No.	Object name	Function	Datapoint type	Flags
425	Air quality controller, setpoint	ppm value	9.008 parts/million (ppm)	CRWT

Function:

This object can be used to change the air quality setpoint via the bus.

Air quality controller, switching point level 1 − 5

No.	Object name	Function	Datapoint type	Flags
425	Air quality controller, switching point level 1	ppm value	9.008 parts/million (ppm)	CRWT
426	Air quality controller, switching point level 2			
427	Air quality controller, switching point level 3			
428	Air quality controller, switching point level 4			
429	Air quality controller, switching point level 5			

Function:

These objects can be used to change the switching points of the individual levels via the bus.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter “Change switching points via object“ (“Air quality controller” parameter card)

– Setting: “enable”

Air quality controller, minimum control value

No.	Object name	Function	Datapoint type	Flags
430	Air quality controller, minimum control value	ppm value	5.001 percentage (0..100%)	CRWT

Function:

This communication object is used to send the minimum control value as a percentage value when using PI control.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  – Setting: “PI control”

Air quality controller, maximum control value

No.	Object name	Function	Datapoint type	Flags
431	Air quality controller, maximum control value	ppm value	5.001 percentage (0..100%)	CRWT

Function:

This communication object is used to send the maximum control value as a percentage value when using PI control.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Control behavior”
  – Setting: “PI control”

Air quality controller, steady control signal

No.	Object name	Function	Datapoint type	Flags
432	Air quality controller, steady control signal	% value	5.001 percentage (0..100%)	CRT

Function:

If the CO2 concentration exceeds a ppm switching point, the CO2 control signal that has been configured for the stage is output via this object. The control signal once again outputs the value of the next lower level again when the concentration < switching point ppm. - hysteresis.

Air quality controller, control signal level 1 − 5

No.	Object name	Function	Datapoint type	Flags
433	Air quality controller, control signal level 1	On/Off	1.001 switch	CRT
434	Air quality controller, control signal level 2	On/Off	1.001 switch	CRT
435	Air quality controller, control signal level 3	On/Off	1.001 switch	CRT
436	Air quality controller, control signal level 4	On/Off	1.001 switch	CRT
437	Air quality controller, control signal level 5	On/Off	1.001 switch	CRT

Function:

If the CO2 concentration exceeds a ppm switching point, the control signal that belongs to the stage is activated. The control signal is always switched off if the CO2 concentration < switching point ppm - hysteresis.

8.13 Threshold monitoring

For the measured values brightness, temperature, humidity and CO2, only 2 threshold values can be defined in up to 8 evaluation logics via parameter. Parameters for going below or over the threshold values with an evaluation time are available for this purpose.

In addition, the corresponding threshold values can also be received via communication objects.

Both internal and calculated values can be monitored for falling below or exceeding the limit. If you want to give the controller a value in the format of an external measuring device, you have to use the calculation function.

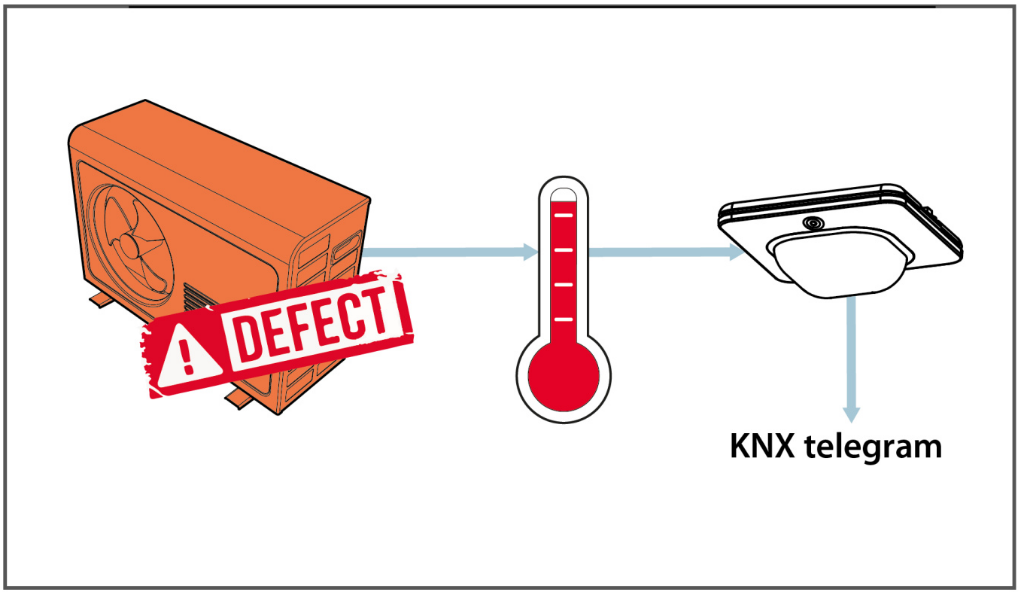


Fig. 70: Exceedance of the limit

8.13.1 Parameters in the “Threshold monitoring" parameter card

The “Threshold monitoring” parameter card is displayed if the “Threshold monitoring” parameter on the “Device settings” parameter card is set to “enable.”

Note:
The communication objects and parameters are configured in the same way for all threshold monitoring and are therefore only described once for threshold monitoring A.

Threshold monitoring 1

Parameter	Settings
Threshold monitoring 1	Deactivated Temperature (°C) DPT 9.001 Illuminance (lx) DPT 9.004 Humidity (% r.H.) DPT 9.007 CO2 concentration (ppm) DPT 9.008

Function:

These parameters can be used to enable up to 8 limit monitors, with which internal and calculated values can be monitored for exceeding and falling below.

Source of measured value

Parameter	Settings
Source of measured value	Internal value Calculated value

Function:

This parameter is used to select the source for the measured value.

Index of calculator

Parameter	Settings
Index of calculator	1...12

Function:

This parameter is used to set the source for the calculated value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source of measured value”
  - Setting: “Calculated value”

Above limit

Parameter	Settings
Above limit	disable enable

Function:

This parameter can be used to enable a fall to below limit. This allows the exceeding of an upper limit of the measured value to be monitored.

Other parameters/parameter cards:

If the “Above limit“ parameter is set to “enable,” additional parameters are displayed which can be used to set when a status is sent.

Threshold above limit (°C)

Parameter	Settings
Threshold above limit (°C)	-273.00…670760.00

Function:

This parameter is used to set the limit for exceeding the limit value. The limit can be changed later via a communication object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  - Setting: “Temperature (°C) DPT 9.001”
- Parameter “Above limit”
  - Setting: “enable”

Hysteresis above limit (K)

Parameter	Settings
Hysteresis above limit (K)	0.00…670760.00

Function:

This parameter is used to define by how many “K” the measured value has to fall below the upper limit of the allowed range so that the communication object “Threshold monitoring 1 , Above limit” is set to “Off” once again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”

– Setting: “Temperature (°C) DPT 9.001”
- Parameter “Above limit”
  – Setting: “enable”

Threshold above limit (lx)

Parameter	Settings
Threshold above limit (lx)	0.00...670760.00

Function:

This parameter is used to set the limit for exceeding the limit value. The limit can be changed later via a communication object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  – Setting: “Illuminance (lx) DPT 9.004”
- Parameter “Above limit”
  – Setting: “enable”

Hysteresis above limit (lx)

Parameter	Settings
Hysteresis above limit (lx)	0.00…670760.00

Function:

This parameter is used to define by how many “lx” the measured value has to fall below the upper limit of the allowed range so that the communication object “Threshold monitoring 1 , Above limit” is set to “Off” once again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  – Setting: “Illuminance (lx) DPT 9.004”
- Parameter “Above limit”
  – Setting: “enable”

Threshold above limit (% r.h.)

Parameter	Settings
Threshold above limit (% r.h.)	0.00…100.00

Function:

This parameter is used to set the limit for exceeding the limit value. The limit can be changed later via a communication object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  – Setting: “Humidity (% r.H.) DPT 9.007”
- Parameter “Above limit”
  – Setting: “enable”

Hysteresis above limit (% r.h.)

Parameter	Settings
Hysteresis above limit (% r.h.)	0.00…100.00

Function:

This parameter is used to define by how many “% r.h.” the measured value has to fall below the upper limit of the allowed range so that the communication object “Threshold monitoring 1 , Above limit” is set to “Off” once again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  - Setting: “Humidity (% r.H.) DPT 9.007”
- Parameter “Above limit”
  - Setting: “enable”

Threshold above limit (ppm)

Parameter	Settings
Threshold above limit (ppm)	0.00…670760.00

Function:

This parameter is used to set the limit for exceeding the limit value. The limit can be changed later via a communication object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  - Setting: “CO2 concentration (ppm) DPT 9.008”
- Parameter “Above limit”
  - Setting: “enable”

Hysteresis above limit (ppm)

Parameter	Settings
Hysteresis above limit (ppm)	0.00…670760.00

Function:

This parameter is used to define by how many “ppm” the measured value has to fall below the upper limit of the allowed range so that the communication object “Threshold monitoring 1 , Above limit” is set to “Off” once again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  - Setting: CO2 concentration (ppm) DPT 9.008
- Parameter “Above limit”
  - Setting: “enable”

Monitoring time below limit

Parameter	Settings
Monitoring time below limit hh:mm:ss.f	00:00:00.0 ... 01:49:13.5

Function:

This parameter is used to set a monitoring time for which the above limit condition must be met in order for it to be deemed an exceedance. This time also applies to re-setting the exceedance.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Above limit”
  - Setting: “enable”

Block time for sending of status

Parameter	Settings
Block time for sending of status (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the status has to have passed in order for it to be sent again.

Below limit

Parameter	Settings
Below limit	disable enable

Function:

This parameter can be used to enable a fall to below limit. This can be used to monitor the shortfall of a lower limit of the measured value.

Communication object:

As soon as the parameter “Below limit” is set to “enable,” additional parameters are displayed. The displayed parameters can be used to set when a status is to be sent.

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

Threshold below limit (°C)

Parameter	Settings
Threshold below limit (°C)	-273.00…670760.00

Function:

This parameter is used to set the threshold for falling below the limit. The limit can be changed later via a communication object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  - Setting: “Temperature (°C) DPT 9.001”
- Parameter “Below limit”
  - Setting: “enable”

Hysteresis below limit (K)

Parameter	Settings
Hysteresis below limit (K)	0.00…670760.00

Function:

This parameter is used to set the threshold for falling below the limit. The limit can be changed later via a communication object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  - Setting: Illuminance (lx) DPT 9.004
- Parameter “Below limit”
  - Setting: “enable”

Threshold below limit (lx)

Parameter	Settings
Threshold below limit (lx)	0.00…670760.00

Function:

This parameter is used to define by how many “lx” the measured value has to fall below the upper limit of the allowed range so that the communication object “Threshold monitoring 1 , Below limit” is set to “Off” once again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  – Setting: “Illuminance (lx) DPT 9.004”
- Parameter “Below limit”
  – Setting: “enable”

Hysteresis below limit (lx)

Parameter	Settings
Hysteresis below limit (lx)	0.00…670760.00

Function:

This parameter is used to define by how many “lx” the measured value has to fall below the upper limit of the allowed range so that the communication object “Threshold monitoring 1 , Below limit” is set to “Off” once again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  – Setting: “Illuminance (lx) DPT 9.004”
- Parameter “Below limit”
  – Setting: “enable”

Threshold below limit (% r.h.)

Parameter	Settings
Threshold below limit (% r.h.)	0.00…100.00

Function:

This parameter is used to set the threshold for falling below the limit. The limit can be changed later via a communication object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1 ”
  – Setting: “Humidity (% r.H.) DPT 9.007”
- Parameter “Below limit”
  – Setting: “enable”

Hysteresis below limit (% r.h.)

Parameter	Settings
Hysteresis below limit (% r.h.)	0.00…100.00

Function:

This parameter is used to define by how many “% r.h.” the measured value has to fall below the upper limit of the allowed range so that the communication object “Threshold monitoring 1 , Below limit” is set to “Off” once again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Threshold monitoring 1
  – Setting: “Humidity (% r.H.) DPT 9.007”
- Parameter “Below limit”
  – Setting: “enable”

Threshold below limit (ppm)

Parameter	Settings
Threshold below limit (ppm)	0.00…670760.00

Function:

This parameter is used to set the threshold for falling below the limit. The limit can be changed later via a communication object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Threshold monitoring 1 "
  - Setting: "CO2 concentration (ppm) DPT 9.008"
- Parameter "Below limit"
  - Setting: "enable"

Hysteresis below limit (ppm)

Parameter	Settings
Hysteresis below limit (ppm)	0.00…670760.00

Function:

This parameter is used to define by how many "ppm" the measured value has to fall below the upper limit of the allowed range so that the communication object "Threshold monitoring 1 , Below limit" is set to "Off" once again.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Threshold monitoring 1 "
  - Setting: "CO2 concentration (ppm) DPT 9.008" "CO2 concentration (ppm) DPT 9.008"
- Parameter "Below limit"
  - Setting: "enable"

Monitoring time below limit

Parameter	Settings
Monitoring time below limit (hh:mm:ss.f)	00:00:00.0 ... 01:49:13.5

Function:

This parameter is used to set a monitoring time for which the below limit condition must be met in order for it to be deemed a shortfall. This time also applies to resetting the shortfall.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter "Below limit"
  - Setting: "enable"

Block time for sending of status

Parameter	Settings
Block time for sending of status hh:mm:ss	00:00:00 ... 18:12:15

Function:

This parameter is used to set which time since the last sending of the status has to be exceeded in order for it to be sent again.

Lock output

Parameter	Settings
Lock output	disable enable

Function:

This parameter can be used to enable a lock object that can be used to block the output of threshold monitoring; that is, the sending of the message for going above or below the limit. When the block is removed, the current exceedance and shortfall states are sent, if configured.

Start value/behavior of lock input on bus voltage recovery

Parameter	Settings
Start value/behavior of lock input on bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. If this is set to “Query via bus,” the lock object is queried via “ValueRead” after bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock output”
  - Setting: “enable”

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if threshold monitoring is to be locked if a “logical 0” is received on the lock object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock output”
  - Setting: “enable”

Monitoring time

Parameter	Settings
Monitoring time (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter defines whether the cyclical receipt of telegrams on the communication object for locking the output should be monitored and how long the monitoring time should be.

With a parameter value of 00:00:00, no monitoring takes place.

For all other parameter values, the cyclical input of deactivation telegrams is monitored. If the monitoring time is exceeded, the output is locked automatically.

Lock Duration

Parameter	Settings
Lock Duration (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter defines the desired on period when the output is locked.

The lock duration is then re-started with each incoming activation telegram.

If the parameter is set to 00:00:00, the lock duration is unlimited.

Note:

If the monitoring time is simultaneously set not equal to 00:00:00, then the following behavior must be observed:

- **Monitoring time < lock duration:**
  The lock duration is triggered using a cyclically incoming activation telegram. The configured lock duration is not effective.
- **Monitoring time > lock duration:**
  The lock of the output is deactivated at the end of the lock duration. With the next incoming activation telegram for monitoring, the lock of the output is re-activated and the lock duration starts over.

Status lock

Parameter	Settings
Status lock	disable enable

Function:

This parameter is used to define whether the communication object “threshold monitoring A, lock output active” is to be available. This object is used to report the status of the lock.

Other parameters/parameter cards:

As soon as the parameter “Controller status” is set to “enable,” additional parameters are displayed. The displayed parameters can be used to set when a status is to be sent.

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

See also

🗎 Parameters that are visible if the “Status...” parameter is set to “enable” [→ 311]

8.13.2 Communication objects “threshold monitoring”

Threshold monitoring 1, threshold above limit, temperature/brightness/ humidity/CO2

No.	Object name	Function	Datapoint type	Flags
277	Threshold monitoring 1, threshold above limit, temperature	°C value	9.004 lux (Lux)	CRW
	Threshold monitoring 1, threshold above limit, brightness	Value in LUX	9.001 temperature (°C)	
	Threshold monitoring 1, threshold above limit, humidity	% r.h. value	9.007 humidity (%)	
	Threshold monitoring 1, threshold above limit, CO2	ppm value	9.008 parts/million (ppm)	

Function:

This object can be used to set the threshold for exceeding the limit. The value is stored permanently.

Threshold monitoring 1, threshold below limit, temperature/Brightness/ humidity/CO2

No.	Object name	Function	Datapoint type	Flags
278	Threshold monitoring 1, threshold below limit, temperature	ppm value	9.001 temperature (°C)	CRW
	Threshold monitoring 1, threshold below limit, brightness	% r.h. value	9.004 lux (Lux)	
	Threshold monitoring 1, threshold below limit, humidity	Value in LUX	9.007 humidity (%)	
	Threshold monitoring 1, threshold below limit, CO2	°C value	9.008 parts/million (ppm)	

Function:

This object can be used to set the threshold for falling below the limit. The value is stored permanently.

Threshold monitoring 1, threshold below limit, temperature/Brightness/ humidity/CO2

No.	Object name	Function	Datapoint type	Flags
278	Threshold monitoring 1, threshold below limit, temperature	ppm value	9.001 temperature (°C)	CRW
	Threshold monitoring 1, threshold below limit, brightness	% r.h. value	9.004 lux (Lux)	
	Threshold monitoring 1, threshold below limit, humidity	Value in LUX	9.007 humidity (%)	
	Threshold monitoring 1, threshold below limit, CO2	°C value	9.008 parts/million (ppm)	

Function:

This object can be used to set the threshold for falling below the limit. The value is stored permanently.

Threshold monitoring 1, threshold shortfall

No.	Object name	Function	Datapoint type	Flags
280	Threshold monitoring 1, threshold shortfall	On/Off	1.002 boolean	CRT

Function:

This object is used to report the hitting or falling below the respective threshold value for querying via the bus whether the threshold value has fallen below the limit.

Threshold monitoring 1, lock output

No.	Object name	Function	Datapoint type	Flags
281	Threshold monitoring 1, lock output	On/Off	1.003 enable	CW

Function:

This object can be used to lock threshold monitoring and enable it again.

The parameter “Invert lock control” can be used to set whether the threshold monitoring is disabled when a “0” or a “1” is received.

The status value after bus voltage recovery can be configured.

Threshold monitoring 1, lock output active

No.	Object name	Function	Datapoint type	Flags
282	Threshold monitoring 1, lock output active	On/Off	1.002 boolean	CRT

Function:

This object is used to report whether the lock of threshold monitoring is active or not, and can also be used to query this via the bus at any time.

8.14 Comparator

With the value comparator, two equivalent analog values (e.g. temperature) can be compared with each other The input values can be internal and calculated values, external values (received via communication objects) and constant values

The result is output in binary form.

There are 4 comparators and the following operations can be used.

The “Comparator” parameter card is displayed if the “Comparator” parameter on the “Device settings” parameter card is set to “enable.”

8.14.1 Parameters on the "Device settings” parameter card

The communication objects and parameters are configured in the same way for all comparators and are therefore only described once for comparator A.

Comparator [A…D]

Parameter	Settings
Comparator 1	disable enable

Function:

These parameters can be used to enable up to 4 comparators, which can be used to compare internal, external and calculated values by means of various operations.

Other parameters/parameter cards:

If the parameter is set to “Comparator 1,” the following parameters are displayed:

- “enable”

More information:

- Parameters that are visible if the “Status...” parameter is set to “enable” [➙ 311]
- Parameters that are visible if the “Status...(value)” parameter is set to “enable:” [➙ 312]

8.14.2 Parameters on the “Comparator 1” parameter card

The “Comparator 1” parameter card is displayed if the parameter “Comparator 1” on the “Device settings” parameter card is set to “enable.”

Operation

Parameter	Settings
Operation	W1 == W2 W1 > W2 W1 >= W2 W1 < W2 W1 <= W2 W1 != W2

Function:

This parameter determines the operation with which the two measured values W1 and W2 can be compared. The object result is true (logical 1), if the operation is true.

The following settings are possible:

- W1 == W2:
  Check for measured value W1 "equal to" W2. With this operation, a tolerance range can be set within which the operation is still true.
- W1 > W2:
  Check if measured value W1 is “greater than” W2.
- W1 >= W2:
  Check if measured value W1 is “greater than or equal to” W2.
- W1 < W2:
  Check if measured value W1 is “smaller than” W2.
- W1 <= W2:
  Check if measured value W1 is “smaller than or equal to” W2.
- W1 != W2:
  Check for measured value W1 “not equal to" W2. With this operation, a tolerance range can be set within which the operation is still true.

Data type

Parameter	Settings
Data type	Switching DPT 1.001 Percentage (%) DPT 5.001 Value (8-bit) DPT 5.010 Value (16-bit) DPT 7.001 Temperature (°C) DPT 9.001 Illuminance (lx) DPT 9.004 Humidity (% r.H.) DPT 9.007 CO2 concentration (ppm) DPT 9.008 Value (32-bit) DPT 12.001

Function:

This parameter defines the datapoint types of the measured values.

The following settings are possible:

- Switching:
  Corresponds to the datapoint type “1.001 switching”
- Percentage (%):
  Corresponds to the datapoint type “5.001 percent (0…100 %)”
- Value (8-bit):
  Corresponds to the datapoint type “5.010 counting impulses (0 … 255)”
- Value (16-bit):
  Corresponds to the datapoint type “7.001 pulses”

- Temperature (°C):
  Corresponds to the datapoint type “9.001 temperature °C”
- Illuminance (lx):
  Corresponds to the datapoint type “9.004 Lux (Lux)”
- Humidity (% r.h.):
  Corresponds to the datapoint type “9.007 humidity (%)”
- CO2 concentration (ppm):
  Corresponds to the datapoint type “9.008 parts/million (ppm)”
- Value (32-bit):
  Corresponds to the datapoint type “12.001 counting impulses (no +/- sign).”

Source of value W1

Parameter	Settings
Source of value W1	Internal value External value Calculated value Constant value

Function:

This parameter is used to specify the source for the measured value W1.

Note:

The settings “Internal value“ and “Calculated value” are only visible, if “Data type,” “Temperature (°C) DPT 9.001,” “Illuminance (lx) DPT 9.004,” “Humidity (% r.H.) DPT 9.007“ or “CO2 concentration (ppm) DPT 9.008“ has been set for the parameter. These are the values that the presence detector can measure itself.

Index of calculator

Parameter	Settings
Index of calculator	1…12

Function:

This parameter is used to set the source for the calculated value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source of value W1”
  – Setting: “Calculated value”

Start value of W1

Parameter	Settings
Start value of W1	0...255

Function:

This parameter is used to set the start value of measured value W1. The start value is valid until a new value is received or measured. For the source “Constant value“ this parameter is used to set the fixed value.

The permitted values for the start value depend on the selected data type.

Source of value W2

Parameter	Settings
Source of value W2	Internal value External value Calculated value Constant value

Function:

This parameter is used to specify the source for the measured value W2.

Note:

The settings “Internal value“ and “Calculated value” are only visible, if “Data type,” “Temperature (°C) DPT 9.001,” “Illuminance (lx) DPT 9.004,” “Humidity (% r.H.) DPT 9.007“ or “CO2 concentration (ppm) DPT 9.008“ has been set for the parameter. These are the values that the presence detector can measure.

Index of calculator

Parameter	Settings
Index of calculator	1...12

Function:

This parameter is used to select the source for the calculated value.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source of value W2”
  - Setting: “Calculated value”

Start value of W2

Parameter	Settings
Start value of W2	0...255

Function:

This parameter is used to set the start value of measured value W2. This is valid until a new value is received or measured. For the source “Constant value“ this parameter is used to set the fixed value.

The permitted values for the start value depend on the selected data type.

Tolerance for comparison

Parameter	Settings
Tolerance for comparison	0...255

Function:

This parameter can be used to set a tolerance range for the operations “Operation“ and “W1 == W2,” in which the operations are “True” or “False.” The permitted values for the tolerance range depend on the selected data type.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Operation”
  - Setting: “W1 == W2” or “W1 != W2”

Start value external measured value on bus voltage recovery

Parameter	Settings
Start value external measured value on bus voltage recovery	Value according to parameter As before bus voltage failure

Function:

This parameter can be used to set the start value of the external measured value when bus voltage is recovered.

The following settings are possible:

- Value according to parameter:
  On bus voltage recovery, the external measured values W1 and W2 are pre-filled with the values from parameters “Starting value of W1 (%)“ and “Starting value of W2 (%).”
- As before bus voltage failure:
  On bus voltage recovery, the external measured values W1 and W2 are pre-filled with the same values as before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Source of value W1“ or “Source of value W2“
  - Setting: “External measured value”

Send status on request

Parameter	Settings
Send status on request	disable enable

Function:

This parameter can be used to set whether the status of the communication object is sent upon request or whether requests for the status value will be rejected.

The request is triggered via the communication object “Send status values.”

Send status on change of status

Parameter	Settings
Send status on change of status	disable enable

Function:

This parameter can be used to set whether the value of the status object is automatically sent after each status change.

Block time for sending of status

Parameter	Settings
Block time for sending of status (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the status has to have passed in order for it to be sent again.

Send status cyclically

Parameter	Settings
Send status cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter determines at what intervals the object “A (B, C, D), subordinate, start (A)” is sent via the bus. If this is set to “00:00:00,” then cyclic sending is deactivated.

8.14.3 Communication objects "Comparator"

Comparator 1, external value W1

No.	Object name	Function	Datapoint type	Flags
438	Comparator 1, external value W1	% value On/Off 8-bit value Value in LUX % r.h. value ppm value 32-bit value 16-bit value	1.001 switch 5.001 percentage (0..100%) 5.010 counter pulses (0..255) 7.001 pulses 9.001 temperature (°C) 9.004 lux (Lux) 9.007 humidity (%) 9.008 parts/million (ppm) 12.001 counter pulses (unsigned)	CW

Function:

This object is used to receive the external measured value W1, with which the comparison is carried out.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter "Source of value W1" ("Comparator A" parameter card)
  - Setting: "External value"

Comparator 1, external value W2

No.	Object name	Function	Datapoint type	Flags
439	Comparator 1, external value W2	% value On/Off 8-bit value Value in LUX % r.h. value ppm value 32-bit value 16-bit value	1.001 switch 5.001 percentage (0..100%) 5.010 counter pulses (0..255) 7.001 pulses 9.001 temperature (°C) 9.004 lux (Lux) 9.007 humidity (%) 9.008 parts/million (ppm) 12.001 counter pulses (unsigned)	CW

Function:

This object is used to receive the external measured value W2, with which the comparison is carried out.

Availability:

The communication object is displayed if the following configuration was made:

- Parameter "Source of value W2" ("Comparator" parameter card)
  - Setting: "External value"

Comparator 1, result

No.	Object name	Function	Datapoint type	Flags
440	Comparator 1, result	True/false	1.002 boolean	CRT

Function:

This object is used to report the result of the comparison or can be queried via the bus at any time.

8.15 IR remote control optional

The IR decoder that is built into the presence detector allows you to remotely control the lighting and shades, store and recall scenes and change the values for temperatures and brightness values, etc., via a, IR remote control.

The implemented IR commands can be combined with the other function blocks via communication objects or used to control other devices. The integrated IR decoder con be controlled using the Siemens IR remote control (MLFB: 5WG1 255-7AB11).

The functions of button pairs A to F are configured using the ETS. Each button pair can optionally be used for activating/deactivating programming mode. Each IR function to be configured can be locked or unlocked as required via an object. When a button is pressed on the IR transmitter, setting the lock acts like releasing this key.

8.15.1 Parameters on the “IR decoder” parameter card

The “IR decoder” parameter card is displayed if the parameter “IR decoder” on the “Device settings” parameter card is set to “enable.”

As the parameters are identical for the 6 IR channels (A-F), the parameters of IR channel A are described below.

Function IR channel A

Parameter	Settings
Function IR channel A	disable Button pair Single buttons

Function:

This parameter is used to select whether the functions are assigned to the button pair A together or individually. Alternatively, the button pair can be locked completely.

Note:

The following parameters are visible if the “Function of IR channel” has been set to “Button pair.”

Function

Parameter	Settings
Function	disable Dimming Scene Solar protection Programming mode Send value, variable

Function:

This parameter is used to select the function for the keys on the remote control

Swap left and right button

Parameter	Settings
Swap left and right button	disable enable

Function:

This parameter can be used to swap the preassigned functions of the right and left button.

Note:

On the ETS display, the two text blocks of the parameters for left button and right button are swapped.

Toggle function

Parameter	Settings
Toggle function	disable enable

Function:

This parameter can be used to set whether the inverse object value of the switching object is to be sent every time a button is pressed briefly (toggle).

Note:

On the ETS display, the two text blocks of the parameters for left button and right button are swapped.

Detect long key press after

Parameter	Settings
Detect long key press after (hh:mm:ss.f)	00:00:00.3 ... 01:49:13.5

Function:

This parameter sets the time from which the key is considered to be pressed for a long time.

Lock IR-buttons via comm-object

Parameter	Settings
Lock IR-buttons via comm-object	disable enable

Function:

This parameter is used to set whether or not an additional lock object is to be lockable. If the button pair is locked (lock object = "logical 1"), state changes are no longer evaluated.

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if the button pair is to be locked if a “logical 0” is received on the lock object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-buttons via comm-object”
  - Setting: “enable”

Value of locking object after bus voltage recovery

Parameter	Settings
Value of locking object after bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. If this is set to “Query via bus,” the lock object is queried via “ValueRead” after bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-buttons via comm-object”
  - Setting: “enable”

Note:

The following parameters are visible if the “Function” parameter has been set to “Scene.” The parameter card “IR-channel Scene“ is displayed.

Swap left and right button

Parameter	Settings
Swap left and right button	disable enable

Function:

This parameter can be used to swap the preassigned functions of the right and left button.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-buttons via comm-object”
  - Setting: “enable”

Note:

On the ETS display, the two text blocks of the parameters for left button and right button are swapped.

Scene number

Parameter	Settings
Scene number	1...64

Function:

This parameter is used to set the scene number sent when the left or right key is pressed. When the key is pressed briefly, the corresponding scene is called up.

Learning

Parameter	Settings
Learning	disable enable

Function:

This parameter is used to set the scene number sent when the left or right key is pressed. When the key is pressed briefly, the corresponding scene is called up.

Detect long key press after

Parameter	Settings
Detect long key press after (hh:mm:ss.f)	00:00:00.3 ... 01:49:13.5

Function:

This parameter is used to set the actuation duration from which the key is considered to be pressed for a long time.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Learning”
  - Setting: “enable”

Lock IR-buttons via comm-object

Parameter	Settings
Lock IR-buttons via comm-object	disable enable

Function:

This parameter is used to set whether or not an additional lock object is to be lockable. If the button pair is locked (lock object = "logical 1"), state changes are no longer evaluated.

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if the button pair is to be locked if a “logical 0” is received on the lock object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-buttons via comm-object”
  - Setting: “enable”

Value of locking object after bus voltage recovery

Parameter	Settings
Value of locking object after bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. If this is set to “Query via bus,” the lock object is queried via “ValueRead” after bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-buttons via comm-object”
  - Setting: “enable”

Note:

The following parameters are visible if the “Function” parameter has been set to “Solar protection.” The parameter card “IR-channel, solar protection” is displayed.

Swap left and right button

Parameter	Settings
Swap left and right button	disable enable

Function:

This parameter can be used to swap the preassigned functions of the right and left button.

Note:

On the ETS display, the two text blocks of the parameters for left button and right button are swapped.

Detect long key press after

Parameter	Settings
Detect long key press after (hh:mm:ss.f)	00:00:00.3 ... 01:49:13.5

Function:

This parameter is used to set the actuation duration from which the key is considered to be pressed for a long time.

Lock IR-buttons via comm-object

Parameter	Settings
Lock IR-buttons via comm-object	disable enable

Function:

This parameter is used to set whether or not an additional lock object is to be lockable. If the button pair is locked (lock object = "logical 1"), state changes are no longer evaluated.

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if the button pair is to be locked if a “logical 0” is received on the lock object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-buttons via comm-object”
  – Setting: “enable”

Value of locking object after bus voltage recovery

Parameter	Settings
Value of locking object after bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. If this is set to “Query via bus,” the lock object is queried via “ValueRead” after bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-buttons via comm-object”
  – Setting: “enable”

Note:

The following parameters are visible if the “Function” parameter has been set to “Send value, variable.” The parameter card “IR-channel, send value” is displayed.

Swap left and right button

Parameter	Settings
Swap left and right button	disable enable

Function:

This parameter can be used to swap the preassigned functions of the right and left button.

Data type

Parameter	Settings
Data type	Percentage (%) DPT 5.001 Value (8-bit) DPT 5.010 Signed value (8-bit) DPT 6.010 2-byte floating point number DPT 9.x Temperature (°C) DPT 9.001 Illuminance (lx) DPT 9.004

Function:

This parameter is for setting the data type of “Send value, variable” function.

Lower limit

Parameter	Settings
Lower limit	0...100

Function:

This parameter is used to set the lower limit that cannot be undershot for "Send value, variable.”

The permitted values for the lower limit depend on the selected data type.

Availability:

Note:

If the "Lower limit" parameter is selected so that it is greater than the "Upper limit" parameter, then the two limits are automatically swapped.

Upper limit

Parameter	Settings
Upper limit	0...100

Function:

This parameter is used to set the upper limit that cannot be undershot for "Send value, variable.” When the upper limit is reached, the upper limit is sent with each short keystroke.

The permitted values for the upper limit depend on the selected data type.

Note:

If the "Lower limit" parameter is selected so that it is greater than the "Upper limit" parameter, then the two limits are automatically swapped.

Step value (decrease)

Parameter	Settings
Step value (decrease)	0...100

Function:

This parameter is used to set the increment that decreases the current status value by the set value when the right button is pressed. When the lower limit is reached, the lower limit is sent with each short keystroke.

The permitted values for the increment depend on the selected data type.

Step value (increase)

Parameter	Settings
Step value (increase)	0...100

Function:

This parameter is used to set the increment that increases the current status value by the set value when the left button is pressed. When the upper limit is reached, the upper limit is sent again with each short keystroke.

The permitted values for the increment depend on the selected data type.

Detect long key press after

Parameter	Settings
Detect long key press after (hh:mm:ss.f)	00:00:00.3 ... 01:49:13.5

Function:

This parameter is used to set the actuation duration from which the key is considered to be pressed for a long time.

Cyclic sending

Parameter	Settings
Cyclic sending (hh:mm:ss.f)	00:00:00.3 ... 01:49:13.5

Function:

This parameter defines the cycle time after which a value increased or decreased by the increment is sent when the key is pressed for a long time.

Lock IR-buttons via comm-object

Parameter	Settings
Lock IR-buttons via comm-object	disable enable

Function:

This parameter is used to set whether or not an additional lock object is to be lockable. If the button pair is locked (lock object = "logical 1"), state changes are no longer evaluated.

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if the button pair is to be locked if a “logical 0” is received on the lock object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-buttons via comm-object”
  - Setting: “enable”

Value of locking object after bus voltage recovery

Parameter	Settings
Value of locking object after bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. For the setting “query via bus,” the lock object is queried via “ValueRead” on bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-buttons via comm-object”
  - Setting: enable

Note:

The following parameters are visible if the “Function of IR channel” has been set to “Single buttons.”

Function button left

Parameter	Settings
Function button left	disable Switching edge Dimming Scene Solar protection Switching short/long Send value

Function:

This parameter is used to select the function for the keys on the remote control

Function button right

Parameter	Settings
Function button right	disable Switching edge Dimming Scene Solar protection Switching short/long Send value

Function:

This parameter is used to select the function for the keys on the remote control

As the parameters are identical for the left button and the right button in relation to the “Single buttons” function, the parameters of IR channel A - left button are described below.

Note:

IR channel A, left button, switching edge

The following parameters are visible if the “Function button left” parameter has been set to “Switching edge.” Die parameter card „Function IR channel A, Swap left and right button, Switching edge” is displayed.

Reaction on rising edge

Parameter	Settings
Reaction on rising edge	No action Off On Toggle

Function:

This parameter is used to set which switching value is to be sent to the input signal after a rising edge. The rising edge corresponds to pushing a button.

The following settings are possible:

- No reaction:
  A change of edge on the input does not lead to the sending of a telegram.
- Off:
  In the event of a rising edge, the switching value “OFF” is sent.
- On:
  In the event of a rising edge, the switching value “ON” is sent.
- Toggle:
  In the event of a rising edge, the last sent switching value is inverted and the new value is sent.

Reaction on falling edge

Parameter	Settings
Reaction on falling edge	No action Off On Toggle

Function:

This parameter is used to set which switching value is to be sent to the input signal after a falling edge. The falling edge corresponds to releasing a button.

The following settings are possible:

- No reaction:
  A change of edge on the input does not lead to the sending of a telegram.
- Off:
  In the event of a falling edge, the switching value “OFF” is sent.
- On:
  In the event of a falling edge, the switching value “ON” is sent.
- Toggle:
  In the event of a falling edge, the last sent switching value is inverted and the new value is sent.

Lock IR-button via comm-object

Parameter	Settings
Lock IR-button via comm-object	disable enable

Function:

This parameter is used to set whether or not the button is to be lockable via an additional lock object. If the button is locked (lock object = "logical 1"), state changes are no longer evaluated.

Note:

The deleted lock function still affects the falling edge.

Example:

1. Push button: Value “1” is sent.
2. Release button: Value “0” is sent.
3. Activate lock.
4. Push button: No telegram is sent because the lock is activated.
5. Disable lock.
6. Release button: No telegram is sent.

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if button is to be locked if a “logical 0” is received on the lock object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Value of locking object after bus voltage recovery

Parameter	Settings
Value of locking object after bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. For the setting “query via bus,” the lock object is queried via “ValueRead” on bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Note:

The following parameters are visible if the “Function button left” parameter has been set to “Dimming.” The parameter card “IR-channel A, left button, dimming” is displayed.

Function

Parameter	Settings
Function	1 button dimming 1/2 button dimming On/brighter 1/2 button dimming Off/darker

Function:

- 1 button dimming:
  This function makes it possible to switch a light/lighting group on and off and dim it brighter/darker with just one button. A distinction is made between a short and a long push of a button here.
  - When the button is pressed briefly, the value that is in the switch object (Switch Toggle) is inverted and the ON or OFF telegram is then sent when the button is released.
  - Pressing and holding the button dims brighter or darker, depending on the object value and the dimming direction last activated. If the dimming actuator was switched off, a long push of a button switches it on and dims it brighter. If the dimming actuator was previously switched on by a short push of a button, it is dimmed darker by the first long push of a button. When the button is pushed again for a long time, the last dimming direction activated is inverted, following by dimming in the new direction. When the button is pushed for a long time, the "100 % dimming" command is sent via the dimming object and when the button is released, the "Stop" command is sent.
- 1/2 button dimming On/brighter:
  This function enables you to execute 2-button dimming with any two buttons. With this function, a short push of a button sends an ON telegram, a long push of a button sends the "Dim 100 % brighter" command, and releasing the key sends the "Stop" command.
- 1/2 button dimming Off/darker:
  This function enables you to execute 2-button dimming with any two buttons. With this function, a short push of a button sends an OFF telegram, a long push of a button sends the "Dim 100 % darker" command, and releasing the key sends the "Stop" command.

Detect long key press after

Parameter	Settings
Detect long key press after (hh:mm:ss.f)	00:00:00.3 ... 01:49:13.5

Function:

This parameter is used to set the actuation duration from which the key is considered to be pressed for a long time.

Lock IR-button via comm-object

Parameter	Settings
Lock IR-button via comm-object	disable enable

Function:

This parameter is used to set whether or not the button is to be lockable via an additional lock object. If the button is locked (lock object = "logical 1"), state changes are no longer evaluated.

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if button is to be locked if a “logical 0” is received on the lock object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Value of locking object after bus voltage recovery

Parameter	Settings
Value of locking object after bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. If this is set to “Query via bus,” the lock object is queried via “ValueRead” after bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

IR channel B, scene

Scene number

Parameter	Settings
Scene number	1...64

Function:

This parameter is used to set the sent scene number, which is to be recalled when the button is pushed for a short time and saved when the button is pushed for a long time.

Learning

Parameter	Settings
Learning	disable enable

Function:

This parameter is used to set whether the corresponding scene should be saved or not when the button is pressed for a long time.

Detect long key press after

Parameter	Settings
Detect long key press after (hh:mm:ss.f)	00:00:00.3 ... 01:49:13.5

Function:

This parameter is used to set the actuation duration from which the key is considered to be pressed for a long time.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Learning”
  - Setting: “enable”

Lock IR-button via comm-object

Parameter	Settings
Lock IR-button via comm-object	disable enable

Function:

This parameter is used to set whether or not the button is to be lockable via an additional lock object. If the button is locked (lock object = "logical 1"), then state changes are no longer evaluated.

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if button is to be locked if a “logical 0” is received on the lock object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Value of locking object after bus voltage recovery

Parameter	Settings
Value of locking object after bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. For the setting “query via bus,” the lock object is queried via “ValueRead” on bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Note:

The following parameters are visible if the “Function button left” parameter has been set to “Solar protection.” The parameter card “IR-channel A, left button, solar protection” is displayed.

Function

Parameter	Settings
Function	1 button shutter 1/2 button shutter Up, slat open 1/2 button shutter Down, slat closed

Function:

- 1 button shutter:
  - This function makes it possible to move the solar protection up and down, stop the movement and open and close the slats with just one button. A distinction is made between a short and a long push of a button here.
  - If the button is pressed for a long time, depending on the last travel direction stored in the “Solar protection Up/Down" object, this direction is inverted and the solar protection is moved down or up until the respective end position is reached and the drive is switched off via the end position switch. If a stop command is received before an end position is reached and the end position switch responds, the travel is stopped immediately, the position reached is retained and the last travel direction is saved.
  - In case of a short push of a button, a telegram is sent which, if the solar protection is moving, results in the drive being stopped and, if the solar protection is stationary, results in a short move in the direction opposite the previous travel direction (which is stored in the travel object). With closed blind slats, for example, this would lead to the slats opening by one step. The stop or slats open or closed telegram is only generated when the button is released. Every other short key press will result in another “slats open/close” telegram being sent without a change of travel direction.
- 1/2 button shutter Up, slat open:
  - The function enables you to execute 2-button solar protection with any two buttons. With this function, a short push of a button stops a movement or opens the slats by one step; a long push of a button raises the solar protection.
- 1/2 button shutter Down, slat closed:
  - The function enables you to execute 2-button solar protection with any two buttons. With this function, a short push of a button stops a movement or closes the slats by one step; a long push of a button lowers the solar protection.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Detect long key press after

Parameter	Settings
Detect long key press after (hh:mm:ss.f)	00:00:00.3 ... 01:49:13.5

Function:

This parameter is used to set the actuation duration from which the key is considered to be pressed for a long time.

Lock IR-button via comm-object

Parameter	Settings
Lock IR-button via comm-object	disable enable

Function:

This parameter is used to set whether or not the button is to be lockable via an additional lock object. If the button is locked (lock object = "logical 1"), state changes are no longer evaluated.

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if button is to be locked if a “logical 0” is received on the lock object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Value of locking object after bus voltage recovery

Parameter	Settings
Value of locking object after bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. For the setting “query via bus,” the lock object is queried via “ValueRead” on bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Note:

The following parameters are visible if the “Function button left” parameter has been set to “Switching short/long.” The parameter card “IR-channel A, left button, switching short/long” is displayed.

Reaction on short key press

Parameter	Settings
Reaction on short key press	No action Off On Toggle

Function:

This parameter is used to set which switching value is to be sent after a short push of a button.

The following settings are possible:

- No action:
  - Pressing the key briefly does not cause a telegram to be sent.
- On:
  - After pressing the button briefly, the switching value “On“ is sent.
- Off:
  - After pressing the button briefly, the switching value “Off“ is sent.
- Toggle:
  - After pressing the key briefly, the last sent switching value is inverted and the new value is sent.

Availability:

The parameter is displayed if the following configuration has been made:
- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Reaction on long key press

Parameter	Settings
Reaction on long key press	No action Off On Toggle

Function:

This parameter is used to set which switching value is to be sent after a short push of a button.

The following settings are possible:
- No action:
  - Pressing the key briefly does not cause a telegram to be sent.
- On:
  - After pressing the key briefly, the switching value “On “ is sent.
- Off:
  - After pressing the key briefly, the switching value “Off “ is sent.
- Toggle:
  - After pressing the key briefly, the last sent switching value is inverted and the new value is sent.

Availability:

The parameter is displayed if the following configuration has been made:
- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Detect long key press after

Parameter	Settings
Detect long key press after (hh:mm:ss.f)	00:00:00.3 ... 01:49:13.5

Function:

This parameter is used to set the actuation duration from which the key is considered to be pressed for a long time.

Lock IR-button via comm-object

Parameter	Settings
Lock IR-button via comm-object	disable enable

Function:

This parameter is used to set whether or not the button is to be lockable via an additional lock object. If the button is locked (lock object = "logical 1"), state changes are no longer evaluated.

Value of locking object after bus voltage recovery

Parameter	Settings
Value of locking object after bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. For the setting “query via bus,” the lock object is queried via “ValueRead” on bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Note:

The following parameters are visible if the “Function button left” parameter has been set to “Send value.” The parameter card “IR-channel A, left button, value” is displayed.

Data type

Parameter	Settings
Data type	Percentage (%) DPT 5.001 Value (8-bit) DPT 5.010 Value (16-bit) DPT 7.001 2-byte floating point number DPT 9.x Temperature (°C) DPT 9.001 Illuminance (lx) DPT 9.004 Humidity (% r.H.) DPT 9.007 CO2 concentration (ppm) DPT 9.008

Function:

This parameter is for setting the data type of “Send value” function.

Value

Parameter	Settings
Value	0...100

Function:

The value to be sent is set via this parameter. The permitted values depend on the selected data type.

Lock IR-button via comm-object

Parameter	Settings
Lock IR-button via comm-object	disable enable

Function:

This parameter is used to set whether or not the button is to be lockable via an additional lock object. If the button is locked (lock object = "logical 1"), state changes are no longer evaluated.

Invert lock control

Parameter	Settings
Invert lock control	No Yes

Function:

This parameter is used to set if button is to be locked if a “logical 0” is received on the lock object.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

Value of locking object after bus voltage recovery

Parameter	Settings
Value of locking object after bus voltage recovery	Off On Deactivated Last value Query via bus

Function:

This parameter is used to behavior of the lock object after bus voltage recovery. For the setting “query via bus,” the lock object is queried via “ValueRead” on bus voltage recovery. If there is no response, the lock object is set to the last value before bus voltage failure.

Availability:

The parameter is displayed if the following configuration has been made:

- Parameter “Lock IR-button via comm-object”
  - Setting: “enable”

8.15.2 Communication objects for “button pair” function

IR channel A, switching

No.	Object name	Function	Datapoint type	Flags
450	IR channel A, switching	On/Off	1.001 switch	CRWT

Function:

These objects are used to send the switching telegrams.

IR channel A, dimming

No.	Object name	Function	Datapoint type	Flags
451	IR channel A, dimming	brighter/ darker	3.007 dimming control	CRWT

Function:

These objects are used to send the dimming telegrams.

IR channel A, solar protection

No.	Object name	Function	Datapoint type	Flags
453	IR channel A, solar protection	Up/Down	1.008 up/down	CRWT

Function:

These objects are used to send the solar protection telegrams.

IR channel A, blind

No.	Object name	Function	Datapoint type	Flags
454	IR channel A, blind	Stop, Up/ Down	1.007 step	CRWT

Function:

These objects are used to send the slat telegrams.

IR channel A, change value

No.	Object name	Function	Datapoint type	Flags
456	IR channel A, change value	Value	5.001 percentage (0..100%) 5.010 counter pulses (0..255) 6.010 counter pulses (-128..127) 9.* 2-byte float value 9.001 temperature (°C) 9.004 lux (Lux)	CRT

Function:

These objects are used to send the value telegrams.

This object is saved in case of a bus voltage failure and restored on bus voltage recovery.

IR channel A, receive value

No.	Object name	Function	Datapoint type	Flags
457	IR channel A, receive value	Value	5.001 percentage (0..100%) 5.010 counter pulses (0..255) 6.010 counter pulses (-128..127) 9.* 2-byte float value 9.001 temperature (°C) 9.004 lux (Lux)	CW

Function:

These objects can be used to specify a status value for the “Send value” function. From this set status value, the value is then increased or decreased accordingly by the increment.

Note:

If a status value is received that is smaller than the lower limit, the lower limit is set.

If a status value is received that is larger than the upper limit, the upper limit is set.

IR channel A, scene

No.	Object name	Function	Datapoint type	Flags
459	IR channel A, scene	recall/store	18.001 scene control	CRT

Function:

This object is used to send the scene telegrams.

IR channel A, lock object

No.	Object name	Function	Datapoint type	Flags
460	IR channel A, lock object	Locking	1.003 enable	Input, output

Function:

This object can be used to lock and release individual button pairs on the IR remote control.

The parameter “invert lock input” can be used to set whether the respective button pair on the IR remote control is disabled when a “0” or a “1” is received.

The status value after bus voltage recovery can be configured.

8.15.3 Communication objects of the “Single buttons” function

IR channel A, button left, switching

No.	Object name	Function	Datapoint type	Flags
450	IR channel A, button left, switching	On/Off	1.001 switch	On/Off

Function:

These objects are used to send the switching telegrams.

IR channel A, button left, dimming

No.	Object name	Function	Datapoint type	Flags
451	IR channel A, button left, dimming	brighter/ darker	3.007 dimming control	CRT

Function:

These objects are used to send the dimming telegrams.

IR channel A, solar protection

No.	Object name	Function	Datapoint type	Flags
453	IR channel A, solar protection	Up/Down	1.008 up/down	CRWT

Function:

These objects are used to send the solar protection telegrams.

IR channel A, button left, blind

No.	Object name	Function	Datapoint type	Flags
454	IR channel A, button left, blind	Stop, Up/ Down	1.007 step	CRT

Function:

These objects are used to send the slat telegrams.

IR channel A, button left, value

No.	Object name	Function	Datapoint type	Flags
458	IR channel A, button left, value	Value	5.001 percentage (0..100%) 5.010 counter pulses (0..255) 7.001 pulses 9.* 2-byte float value 9.001 temperature (°C) 9.004 lux (Lux) 9.007 humidity (%) 9.008 parts/million (ppm)	CRT

Function:

This object is used to send the scene telegrams.

IR channel A, button left, scene

No.	Object name	Function	Datapoint type	Flags
459	IR channel A, button left, scene	recall/store	18.001 scene control	CRT

Function:

This object is used to send the scene telegrams.

IR channel A, left button, lock object

No.	Object name	Function	Datapoint type	Flags
460	IR channel A, left button, lock object	Locking	1.003 enable	CRT

Function:

This object can be used to lock and release individual buttons on the IR remote control.

The parameter “invert lock input” can be used to set whether the respective button pair on the IR remote control is disabled when a “0” or a “1” is received.

The status value after bus voltage recovery can be configured.

IR channel A, right button, switching

No.	Object name	Function	Datapoint type	Flags
461	IR channel A, right button, switching	On / Off	1.001 switch	CRWT

Function:

These objects are used to send the switching telegrams.

IR channel A, right button, dimming

No.	Object name	Function	Datapoint type	Flags
462	IR channel A, right button, dimming	brighter/ darker	3.007 dimmer step	CRT

Function:

These objects are used to send the dimming telegrams.

IR channel A, right button, solar protection

No.	Object name	Function	Datapoint type	Flags
464	IR channel A, right button, solar protection	Up / Down	1.008 up/down	CRWT

Function:

These objects are used to send the solar protection telegrams.

IR channel A, right button, slat

No.	Object name	Function	Datapoint type	Flags
465	IR channel A, right button, slat	Stop, Open / Close	1.007 step	CRT

Function:

These objects are used to send the slat telegrams.

IR channel A, right button, value

No.	Object name	Function	Datapoint type	Flags
467	IR channel A, right button, value	Value	5.001 percent (0…100 %) 5.010 counting impulses (0...255) 7.001 counting impulses (0...65535) 9.* 2-byte floating value 9.001 temperature (℃) 9.004 illuminance (lx) 9.007 humidity (% r.h.) 9.008 parts/million (ppm)	CRT

Function:

These objects are used to send the value telegrams.

IR channel A, right button, scene

No.	Object name	Function	Datapoint type	Flags
468	IR channel A, right button, scene	recall / store	18.001 scene control	CRT

Function:

This object is used to send the scene telegrams.

IR channel A, right button, lock object

No.	Object name	Function	Datapoint type	Flags
469	IR channel A, right button, lock object	Locking	1.003 enable	Input

Function:

This object can be used to lock and release individual buttons on the IR remote control.

The parameter “invert lock input” can be used to set whether the respective button pair on the IR remote control is disabled when a “0” or a “1” is received.

The status value after bus voltage recovery can be configured.

8.16 Status

8.16.1 Parameters that are visible if the “Status...” parameter is set to “enable”

Send status on request

Parameter	Settings
Send status on request	disable enable

Function:

This parameter can be used to set whether the status of the communication object is sent upon request or whether requests for the status value will be rejected.

The request is triggered via the communication object “send status values.”

Availability:

The parameter “Send status on request” is only displayed if the respective parameter “Status...” is set to “enable.”

Availability:

The parameter “Send status on request” is only displayed if the respective parameter “Status...” is set to “enable.”

Send status on change of status

Parameter	Settings
Send status on change of status	00:00:00 ... 18:12:15

Function:

This parameter can be used to set whether the value of the status object is automatically sent after each status change.

Availability:

The parameter “Send status on change of status” is only displayed if the respective parameter “status...” is set to “enable.”

Send status cyclically

Parameter	Settings
Send status cyclically hh:mm:ss	00:00:00 ... 18:12:15

Function:

This parameter can be used to set the time interval at which the value of the status object is sent cyclically.

If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter “Send status cyclically” is only displayed if the respective parameter “Status...” is set to “enable.”

8.16.2 Parameters that are visible if the “Status...(value)” parameter is set to “enable:”

Send value on request

Parameter	Settings
Send value on request	disable enable

Function:

This parameter can be used to set whether the value is sent on request or whether requests for the value will be rejected. The request is triggered via the communication object “Send status values.”

Availability:

The parameter “Send value on request” is only displayed if the respective parameter “Status...” is set to “enable.”

Send value on change of value

Parameter	Settings
Send value on change of value	disable enable

Function:

This parameter is used to define if the value is to be sent automatically for every change of value.

When “enable” is selected, additional parameters are displayed that can be used to define which change of value since the last sending has to be exceeded and how much time must have passed since the last sending for the value to be sent again.

Availability:

The parameter “Send value on change of value” is only displayed if the respective parameter “Status...” is set to “enable.”

Value change since last sent

Parameter	Settings
• Value change since last sent (K) • Value change since last sent (%) • Value change since last sent (lx) • Value change since last sent (% r.h.) • Value change since last sent (ppm)	• 0...670760 • 0...100 • 0...670760 • 0...100 • 0...670760

Function:

This parameter is used to define at which change of value compared to the last value sent the value of the corresponding communication object is sent again. Sending takes place if the minimum block time for sending of the value has been exceeded.

Availability:

The parameter “Value change since last sent” is only displayed if the respective parameter “Status...” is set to “enable.”

Block time for sending of status

Parameter	Settings
Block time for sending of status hh:mm:ss	00:00:00 ... 18:12:15

Function:

This parameter is used to set how much time since the last sending of the status has to have passed in order for it to be sent again. Hence, no additional bus load is generated by status telegrams generated in quick succession during bus mode.

Note:

The block time does not apply to cyclic sending. If the block time is greater than the cycle time, the value is nonetheless sent at the end of the cycle time.

Availability:

The parameter “Value change since last sent” is only displayed if the respective parameter “Status...” is set to “enable.”

Send value cyclically

Parameter	Settings
Send value cyclically (hh:mm:ss)	00:00:00 ... 18:12:15

Function:

This parameter can be used to set whether and at what intervals the content of the communication object of a value (e.g. “result”) is sent via the bus.

If this is set to “00:00:00,” then cyclic sending is deactivated.

Availability:

The parameter “Send value cyclically” is only displayed if the respective parameter “Status...” is set to “enable.”

9 Help in case of errors and problems

9.1 Frequently asked questions

Frequently asked questions

For frequently asked questions about the product and their solutions, see:
https://support.industry.siemens.com/cs/products?dtp=Faq&mfn=ps&lc=en-WW

FAQ

9.2 Error displays

9.3 Possible errors

9.4 Troubleshooting using ETS

The ETS offers the following error analysis options, among others:

'Diagnostics' section

In this area, the physical addresses, the group monitor and the bus monitor can be checked, among others.

'Reports' area:

In this area, details on the various areas of the project can be exported as a file or printed directly.

For more information on ETS, see the online help of the ETS software.

Index

Symbols

Numerics

A

B

C

P

R

S

T

U

V

W

Issued by
Siemens Switzerland Ltd
Smart Infrastructure
Global Headquarters
Theilerstrasse 1a
CH-6300 Zug
+41 58 724 2424
www.siemens.com/buildingtechnologies