STEINEL®

SYSTEMS

KNX®

True Presence® Multisensor KNX
Multisensor Air KNX

Contents

Application Description for True Presence® Multisensor KNX and Multisensor Air KNX

1   Detector functions

The True Presence Multisensor consists of a high-frequency (HF) presence detector with true presence measurement, an integrated light level sensor, an ambient temperature and humidity sensor, VOC and true CO_2 measurement. In addition, it includes a Bluetooth module for starting the programming mode and displaying the measured values via app, as well as an RGB LED for displaying feedback.

* All marked functions are only available with True Presence®.

The following settings must be configured in the sensor settings:
- Mounting type concealed or surface-mounted, because different internal correction factors must be used for the air sensors depending on the mounting type
- Mounting height, for the correct determination of the sensor ranges and the distance of movements*
- Range of the sensor as a radius, to limit detection to the desired range*
- The scenario can be left as the standard value and only adjusted in the event of switching errors*

Scenario number	Purpose	Description
9	Small office, quiet workplace	This scenario features maximum sensitivity. To prevent undesired switching, it should be used for smaller areas.
8	Large office, quiet workplace	As per scenario 9, but with a slightly reduced sensitivity. Also suitable for large areas.
7	Large office, large entrance area	As per scenario 8, but with a further reduced sensitivity.
6	Hotel room, room with persons sleeping	This scenario also features maximum sensitivity. In addition, signal processing has been optimised to reliably detect the presence of persons sleeping.
5	Hotel room, room with persons sleeping	As per scenario 6, with a slightly reduced sensitivity.
4	Noisy workspace, light industry, hallways	The sensor can be triggered by vibrations, which with scenario 7-9 sometimes leads to longer stay-ON times. This scenario, which functions more robustly, is more suitable in these cases.
3	Noisy workspace, light industry, hallways	As per scenario 4, with a slightly reduced sensitivity.
2	Very noisy environments, heavy industry	This scenario should be used if there are larger vibrations or if there are sources of electrical interference. The True Presence function is not available, the sensor functions as a conventional presence detector.
1	Very noisy environments, heavy industry	As per scenario 2, with a slightly reduced sensitivity.

The detector can take on the following functions which can be activated or deactivated in the general settings:

1.1   Functions

- Output, light outputs 1-4 – lighting switched ON and OFF for up to 4 light outputs*
- Output, constant-lighting control 1-2 – constant-lighting control for up to 2 light outputs in addition to the 4 switched light outputs*
- Output, presence – switching in response to presence, irrespective of light level*
- Output, absence – switching in response to absence, irrespective of light level*
- Output, HVAC – switching in relation to presence* with the capability of taking CO_2 and/or VOC into account
- Output, light level – output of the light level measured
- Output, temperature – output and switching based on the ambient temperature value
- Output, humidity – output and switching based on the ambient humidity value
- Output, dew point – output and alarm based on the dew point temperature
- Output, comfort – output of the thermal comfort
- Output, air pressure – output and switching based on the air pressure
- Output, CO_2 – output and switching based on the CO_2 value
- Output, VOC – output and switching based on the VOC value
- Output, logic gate – switching or scene selection based on the state of one or more input objects

The function to be used (activated) is defined via the "General settings" parameter window using the Engineering Tool Software (ETS) version ETS 4.0 and higher.

Furthermore, the type of motion detected will always be recorded. This can either be a True Presence detection (breathing), or a presence detection (movement greater than movements caused just through breathing).*

1.2   Light output*

The sensor has four independent light outputs. Each light output can be configured with an individual switching threshold. There is a choice of several data-point types for the output object. Depending on the output object's data-point type, input objects can be used to permit any appropriate overriding. Full and semi-automatic operating mode can be selected for the light output. The stay-ON time can be set to a fixed period or the IQ mode can be configured. The reach and sensor sensitivity can be set individually. A basic level of illumination can also be selected for each light output. A slave input object is available for each output to extend reach.

Whether the light output switches OFF in the event of the daylight component being sufficiently bright (presence detector logic) or does not switch OFF (motion detector logic) is configurable. Switching the light OFF when the daylight component is sufficiently bright is configured with an offset. If the light level measured exceeds the "switching threshold + offset switching threshold OFF" value, the stay-ON time is not re-triggered when presence is detected. The output switches OFF after the stay-ON time elapses.

In example 1, presence is detected at time point t_1 and the light output switches ON. From now on, presence is detected continuously. The change in light level is determined at time t_2. The light level increases again as of t_3. The light level measured exceeds the "switching threshold + offset switching threshold OFF" value as of t_4. The stay-ON time is only no longer re-triggered from time t_5. Here, the light level measured is greater than "switching threshold + offset switching threshold OFF + offset". At time t_6, stay-ON time has elapsed and the light output is switched OFF.
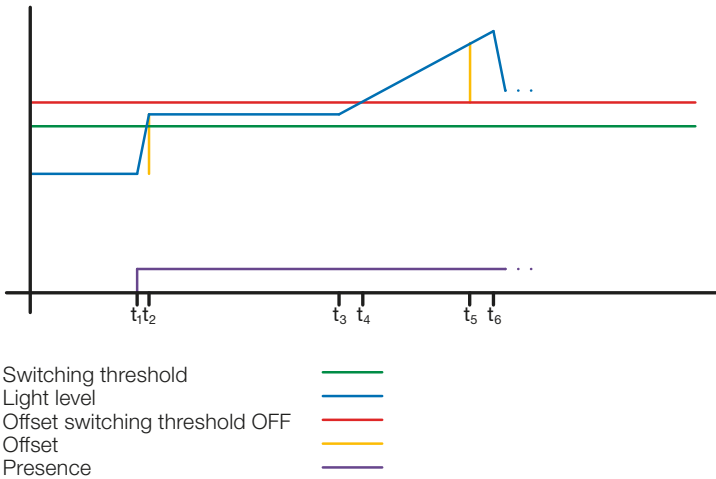
Figure 1: Example 1, switching OFF on the basis of light level

In example 2, light output 1 switches ON first (t_1). The change in light level is determined at t_2. The light level measured then falls below the switching threshold of light output 2 and switches light output 2 ON (t_3). The change in light level is determined at t_4 and, with the change in light level of light output 1, is added to an offset. As of time t_5, the light level measured exceeds the "switching threshold light output 2 + offset switching threshold light output 2 OFF + offset" value and the stay-ON time for light output 2 is no longer re-triggered. The light output 2 switches OFF after the stay-ON time elapses (t_6). The change in light level is determined at t_7 and added to the offset. As of time t_8, the light level measured exceeds the "switching threshold light output 1 + offset switching threshold light output 1 OFF + offset" value and the stay-ON time for light output 1 is no longer re-triggered. The light output 1 switches OFF after the stay-ON time elapses (t_8).
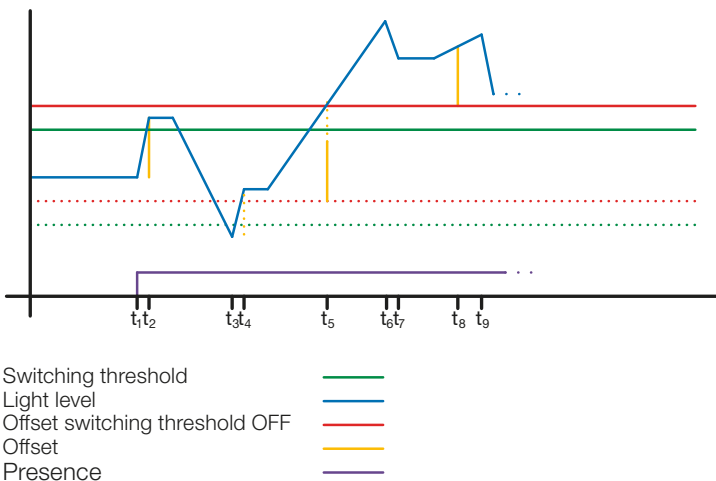
Figure 2: Example 2, switching OFF on the basis of light level

The classic application for IQ mode is an open-plan office. A large amount of movement is detected during office hours and the stay-ON time is increased (5...20 min), in order that the probability of light switching OFF, even though people are in the office, is low. In contrast, the stay-ON time is reduced overnight and at the weekends when there is little movement. If motion is, however, detected (e.g. cleaning personnel or security rounds), the light only stays ON for a brief period.

1.3 Constant-lighting control output*

Constant-lighting control always approaches the light-level setting from above to select the level of dimming. If constant-lighting control is active and below the setting, the setting must first be exceeded. The maximum deviation from the setting is only above the setting. Consequently, the permissible range in which control is corrected is only ever between the setting and the setting plus maximum deviation. This is illustrated in Figure "Constant-lighting control range corrected".
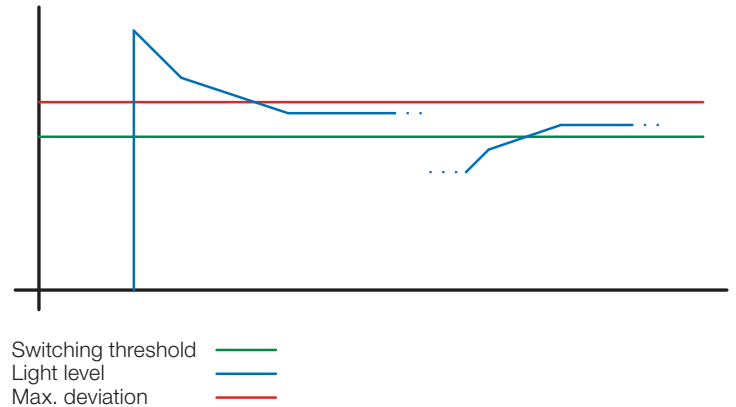
Figure 3: Constant-lighting control range corrected

The starting value for constant-lighting control can be configured as a fixed or dynamic value. When dynamic starting level is selected, the sensor tries to switch lighting ON as closely as possible to the light-level setting.

Note: Artificial light calibration must take place before the dynamic starting value can be used. The fixed level is used until calibration has taken place.

A number of parameters can be configured in two different ways for switching between day/night operating mode.

1.3.1 Calibration

The accuracy of constant-lighting control can be enhanced by including the current dimming level in sensing during the teach-in process. During the teach-in process, it is important to ensure that the maximum daylight component does not exceed 20 lux.
After the teach-in process for the light-level setting, lighting comes on at 100% output and reduces to 0% in 10% steps.

As better compensation for daylight, a correction factor is used which provides the basis for calculating a correction intensity:

$$Correction\ intensity\ =\ \frac{current\ dimming\ level\ -\ dimming\ level\ during\ teach\text{-}in}{correction\ factor}$$

$$New\ light\ level = current\ light\ level \times (1 + correction\ intensity)$$

Note: If the light-level setting is changed after calibration, calibration must be repeated for the new light-level setting.

1.3.2 Calibration procedure

1) Deactivate (disable) constant-lighting control and wait for lighting to warm up (light level measured at lux meter remains constant)
2) Manually dim lighting until the chosen light level setting is reached.
3) Send a "1" to the teach communication object.
4) The sensor starts calibrating. Duration approx. 110 seconds

1.3.3 Control speed

The control speed can be selected via the "Send new dimming level to" and "Max. dimming increment" parameters. The maximum increment is used for

Current light level ≥ light level target value + max. deviation × 2

or

Current light level ≤ light level target value − max. deviation.

If the current light level is closer to the light-level target value, the increment is halved. The increment is set to a minimum at the 100% and 0% limits.

1.3.4 Second output

A second output can be activated for constant-lighting control. The second output is controlled in relation to an adjustable offset to the first output. On switching ON, the second output is sent directly with value "Dimming Level Output 1 + Offset". The value is limited to 100%. If the first light output is set to 100%, a negative offset is selected and the current target level is not reached, the second output gradually increases light level to max. 100%. If the light output is at 0.5% or the minimum level, a positive offset is selected and the target light level is exceeded, the second output dims down to at least the level of the first output.

1.4 Presence output*

The presence output works irrespective of light level. A switch-ON delay and a stay-ON time can be configured. It is possible to send the current status cyclically in relation to state.

Note: The presence output can be used for an interconnected master/slave configuration. The slave presence output must be linked with the master's input object. Attention must be paid to the settings of the slave input at the master and the sending behaviour of the slave output.

1.5 Absence output*

In the same way as the presence output, the absence output works irrespective of light level. A switch-ON delay and a stay-ON time can be configured. In this case, stay-ON time starts as soon as someone re-enters the detection zone. It is possible to send the current status cyclically in relation to state.

1.6 HVAC output*

The HVAC output works irrespective of light level. A switch-ON delay and a stay-ON time can be configured. In addition to the presence status, switching thresholds can also be configured for the CO_2 and VOC sensor. An OR logic operation exists between the various presence, CO_2 and VOC decision-making criteria. Only one of the conditions must be met for switching to take place.

1.7 Light-level output

The light-level measurement output always sends the light level measured by the sensor to the bus either after the light level changes by a defined minimum amount or cyclically after a defined interval.

1.8 Temperature output

The sensor measures the temperature in °C. The temperature sensor can be calibrated via an ETS parameter. The temperature can be sent in the event of a change or cyclically.
In addition, an external temperature value can be received. The weighting of the external temperature value can be set.
The temperature output provides two limit value outputs. All limit value outputs are identical. The limit value, hysteresis and the behav-iour of the switching output can be configured. The outputs can be sent cyclically or disabled.

1.9 Humidity output

The sensor measures the relative humidity. The relative humidity can be sent in the event of a change or cyclically.
In addition, an external humidity value can be received. The weighting of the external humidity value can be set.
The humidity output provides two limit value outputs. All limit value outputs are identical. The limit value, hysteresis and the behaviour of the switching output can be configured. The outputs can be sent cyclically or disabled.

1.10 Dew point output

The dew point, also known as the dew point temperature, is the value that the temperature must fall below at constant pressure before the water vapour can separate out as dew or fog from moist air. At the dew point, the relative humidity is 100%, or the air is (just) saturated with water vapour.
The dew point temperature is calculated by the sensor based on the measured temperature and relative humidity.
The dew point can be sent in the event of a change or cyclically. A dew point alarm can be realized via a switching command.

1.11 Comfort output

The thermal comfort in common rooms is defined in accordance with DIN 1946 by a field with 5 limiting parameters: minimum and maximum room temperature, minimum and maximum relative humidity and maximum absolute humidity of the ambient air.
A freely definable text message (ASCII 14 characters) can be issued in the event of measured values violating the comfort range. The comfort range can be adjusted for other use, operating or storage conditions.
In addition, there is a switching object available that issues the status comfortable or uncomfortable.

1.12 Air pressure output

The sensor measures the air pressure in Pa (1 Pa = 0.01 hPa = 0.01 mbar). The absolute and relative air pressure is issued. The installation altitude is specified via a parameter for the calculation.
The air pressure can be sent in the event of a change or cyclically. The air pressure output provides two limit value outputs. All limit value outputs are identical. The limit value, hysteresis and the behaviour of the switching output can be configured. The outputs can be sent cyclically or disabled.

1.13 CO₂ output

The sensor measures the true CO_2 value with a separate CO_2 sensor. The CO_2 value is not derived from the VOC value.
The measured value can be sent via the KNX bus in the event of a change or cyclically. Four limit values can be defined, for example for ventilation control. To prevent the output from switching constantly, a hysteresis and stay-ON time can be configured for each limit value. The status of the output can be sent cyclically.

1.14 VOC output

The measured VOC value can be sent via the bus in the event of a change or cyclically. In addition, four limit values can be defined, for example for ventilation control. To prevent the output from switching constantly, a hysteresis and stay-ON time can be configured for each limit value. The status of the output can be sent cyclically.

1.15 Logic gates

Up to two logic gates can be configured with up to four inputs. Possible logic operations are AND, OR and EXCLUSIVE OR. The output signal can take the form of a switching command or value. The switching command or value can be configured in relation to the logical state. In the event of a change. a change to logical 1 or a change to logical 0, the output can send the current status via the KNX bus.

1.16 Presence output / True Presence detection*

The presence and True Presence outputs specify whether the sensor is currently detecting True Presence (detection of breathing) or presence through movements greater than the micro-movements caused by breathing. An OR logic operation exists between these two communication objects. The sensor can either detect Presence or True Presence. Detection is always based on the strongest signal. True Presence can only be displayed if larger movements are not being detected.

2 Interconnection*

A slave input is available for all outputs using the presence status. Own presence output is the exception here. The input can be operated in two different ways.

1. An ON and OFF signal is expected. In the ON state, the master keeps triggering stay-ON time until its own presence status is OFF and the slave input has the value OFF.
2. Only an ON signal is expected. In the ON state, the master re-triggers stay-ON time for every ON signal.

Master/slave interconnection for:
• Light output
• Constant-lighting control
• HVAC

3 Fully and semi-automatic*

A parameter can be used for setting the presence detector to work in fully automatic or semi-automatic mode. The operating mode for the light outputs and constant-lighting control can be selected via the "Light output mode" and "Constant-lighting control mode" parameters respectively.
When operating as a fully automatic detector, lighting is automatically switched ON when persons are present (depending whether or not it is set in relation to light level), and automatically switched OFF when no persons are present and there is sufficient ambient light.

When operating as semi-automatic detector, lighting must be switched ON manually. However, it is either switched OFF automatically in relation to light level (depending on setting) or switched OFF when no person is present any more in the sensor system's detection zone.

4 Switching between day/night*

Via the "Day/night switchover" parameter, the light outputs 1-4 as well as constant-lighting control provide the capability of selecting different settings for lighting ON and OFF levels, stay-ON times, light levels, offset, switch-OFF behaviour and basic illumination.
There is an input object for each light output and for constant-lighting control which can be switched over to "night mode".

5 Bluetooth, updates, programming mode and feedback LED

5.1 Bluetooth and updates

Function	Colour	Type	Remark
Non-programmed sensor on bus voltage	Orange	ON	Permanently
Initialisation of the sensor after a download or restoration of the bus voltage (already configured)	White	ON	Approx. 2 min
Firmware update sent via Bluetooth (TP)	White	Flashing	500 ms
Firmware programming process being performed (TP)	White	Flashing	200 ms
Bluetooth connection active	Blue	ON	
Error state	Red	ON	
KNX programming mode	Green	ON	

Software updates can be downloaded via the Bluetooth interface of the Multisensor True Presence in order to update the firmware or KNX application.

5.2 Bluetooth and programming mode

The Multisensor True Presence can be switched to the KNX programming mode via the integrated Bluetooth interface and the SmartRemote app.
In addition, all measured values can be displayed in the app.

5.3 Programming mode via button

As an alternative, there is a button on the back of the detector for activating the programming mode for programming the physical KNX address using the ETS.

5.4 Feedback LED

KNX controller update sent via Bluetooth	Green	Flashing	500 ms
KNX controller programming process being performed	Green	Flashing	200 ms
Sensor micro-controller being updated	Yellow	Flashing	200 ms
Normal mode		OFF	

5.5 Bluetooth access

There are two methods of preventing access for software updates, access to the programming mode and access to the sensor data via app. Firstly, Bluetooth communication can be deactivated in the general settings via ETS.
Alternatively, a commissioning password and a user password can be assigned during configuration. The programming mode and software updates can only be started with the commissioning password. With the user password, the values measured by the sensor can be viewed in the app
One of these security measures should always be taken in order to prevent unauthorised access and misuse.

6 Changing values via bus

Some of the setting parameters can be changed via the bus. For the light outputs and constant-lighting control, these are the switching thresholds or target values and time settings. For presence, absence and HVAC, these are the time settings, and for the air sensors, these are the switching thresholds for the limit values and the hystereses.

7 Behaviour after a bus voltage failure and return, as well as on restarting and downloading

In the event of a bus voltage failure, the Multisensor True Presence also ceases to operate, because its electronic system is powered

by the bus voltage. Prior to a bus voltage failure, all user entries are saved (light levels, stay-ON times, switching thresholds, hystereses and disabled objects) so they can be restored automatically when the bus voltage returns after a bus voltage failure.

Once the bus voltage returns and after completely or partially uploading the product database to the multisensor via ETS (i.e. after restarting), the multisensor is disabled for approximately 2 minutes. Lighting is switched ON at the start of the disabling time and switched OFF for approx. 2 seconds at the end of the disabling time. From then on, the detector is ready for operation and sends the latest telegrams from the outputs.

8 Behaviour after initial start-up and unloading

If a brand-new multisensor is being installed, the RGB LED will light up orange permanently once the bus voltage is applied until the sensor is configured. This shows that bus voltage is being applied to the detector and that it is ready for programming.
If the presence detector's application programme is "unloaded" via ETS, the multisensor indicates its status via orange LED in just the same way as it does after initial start-up.

9 Communication objects

All of the communication objects listed below are available to the presence detector. Which of these are visible and capable of being linked with group addresses are determined both via the "Detector mode" parameter setting in the "General settings" parameter window as well as via further parameter settings for chosen functions and communication objects.
Maximum number of group addresses: 250
Maximum number of assignments: 250

9.1 List of communication objects

Object	Object name	Function	DPT	Flag
1	Light output 1 Switching	ON/OFF	1.001	CRWT
2	Light output 1 Dimming level	0…100%	5.001	CRT
3	Light output 1 Scene	Activate scene	18.001	CRT
4	Light output 1, switching threshold	1…1000	9.004	CRWT
5	Light output 1 external light-level	1…1000	9.004	CWT
6	Light output 1 stay-ON time	30 s…65535 s	7.005	CRWT
7	Light output 1 Disable	ON/OFF	1.001	CWT
8	Light output 1 Disabling status	ON/OFF	1.001	CRT
9	Light output 1 Switch input	ON/OFF	1.001	CWT
10	Light output 1 Dim input	Brighter/darker	3.007	CWT
11	Light output 1 Input dimming level	0…100%	5.001	CWT
12	Light output 1 Slave input	ON/OFF	1.001	CWT
13	Light output 1 Night input	ON/OFF	1.001	CWT
14	Light output 2 Switching	ON/OFF	1.001	CRWT
15	Light output 2 Dimming level	0…100%	5.001	CRT
16	Light output 2 Scene	Activate scene	18.001	CRT

Object	Object name	Function	DPT	Flag
17	Light output 2, switching threshold	1…1000	9.004	CRWT
18	Light output 2 external light-level	1…1000	9.004	CWT
19	Light output 2 stay-ON time	30 s…65535 s	7.005	CRWT
20	Light output 2 Disable	ON/OFF	1.001	CWT
21	Light output 2 Disabling status	ON/OFF	1.001	CRT
22	Light output 2 Switch input	ON/OFF	1.001	CWT
23	Light output 2 Dim input	Brighter/darker	3.007	CWT
24	Light output 2 Input dimming level	0…100%	5.001	CWT
25	Light output 2 Slave input	ON/OFF	1.001	CWT
26	Light output 2 Night input	ON/OFF	1.001	CWT
27	Light output 3 Switching	ON/OFF	1.001	CRWT
28	Light output 3 Dimming level	0…100%	5.001	CRT
29	Light output 3 Scene	Activate scene	18.001	CRT
30	Light output 3 switching threshold	1…1000	9.004	CRWT
31	Light output 3 external light-level	1…1000	9.004	CWT
32	Light output 3 stay-ON time	30 s…65535 s	7.005	CRWT
33	Light output 3 Disable	ON/OFF	1.001	CWT
34	Light output 3 Disabling status	ON/OFF	1.001	CRT
35	Light output 3 Switch input	ON/OFF	1.001	CWT
36	Light output 3 Dim input	Brighter/darker	3.007	CWT
37	Light output 3 Input dimming level	0…100%	5.001	CWT
38	Light output 3 Slave input	ON/OFF	1.001	CWT
39	Light output 3 Night input	ON/OFF	1.001	CWT
40	Light output 4 Switching	ON/OFF	1.001	CRWT
41	Light output 4 Dimming level	0…100%	5.001	CRT
42	Light output 4 Scene	Activate scene	18.001	CRT
43	Light output 4 switching threshold	1…1000	9.004	CRWT
44	Light output 4 external light-level	1…1000	9.004	CWT
45	Light output 4 stay-ON time	30 s…65535 s	7.005	CRWT
46	Light output 4 Disable	ON/OFF	1.001	CWT
47	Light output 4 Disabling status	ON/OFF	1.001	CRT
48	Light output 4 Switch input	ON/OFF	1.001	CWT
49	Light output 4 Dim input	Brighter/darker	3.007	CWT

Object	Object name	Function	DPT	Flag
50	Light output 4	0…100%	5.001	CWT
	Input dimming level			
51	Light output 4	ON/OFF	1.001	CWT
	Slave input			
52	Light output 4	ON/OFF	1.001	CWT
	Night input			
53	Constant-lighting control	ON/OFF	1.001	CRWT
	Switch 1			
54	Constant-lighting control	0% … 100%	5.001	CRT
	Dimming level 1			
55	Constant-lighting control	ON/OFF	1.001	CRT
	Switch 2			
56	Constant-lighting control	0% … 100%	5.001	CRT
	Dimming level 2			
57	Constant-lighting control	1 lux … 1000 lux	9.004	CRWT
	Light-level setting			
58	Constant-lighting control	1 lux … 1000 lux	9.004	CRWT
	External light level			
59	Constant-lighting control	30 s … 65,535 s	7.005	CRWT
	Stay-ON time			
60	Constant-lighting control	ON/OFF	1.001	CWT
	Disable			
61	Constant-lighting control	ON/OFF	1.001	CRT
	Disabling status			
62	Constant-lighting control	ON/OFF	1.001	CWT
	Switch input 1			
63	Constant-lighting control	Brighter/darker	3.007	CWT
	Dim input 1			
64	Constant-lighting control	ON/OFF	1.001	CWT
	Switch input 2			
65	Constant-lighting control	Brighter/darker	3.007	CWT
	Dim input 2			
66	Constant-lighting control			
	Teach-in			
67	Constant-lighting control	ON/OFF	1.001	CWT
	Slave input			
68	Constant-lighting control	ON/OFF	1.001	CWT
	Night input			
69	Presence output	ON/OFF	1.001	CRT
	Presence			
70	Presence output	30 s…65535 s	7.005	CRWT
	Stay-ON time			
71	Presence output	0 s…10 s	7.005	CRWT
	Turn-on delay			
72	Presence output	ON/OFF	1.001	CWT
	Disable			
73	Presence output	ON/OFF	1.001	CRT
	Disabling status			
74	HVAC	ON/OFF	1.001	CRT
	Switching			
75	HVAC	10 s … 65535 s	7.005	CRWT
	Stay-ON time			
76	HVAC	0 s … 15 min	7.005	CRWT
	Turn-on delay			
77	HVAC	ON/OFF	1.001	CWT
	Disable			
78	HVAC	ON/OFF	1.001	CRT
	Disabling status			
79	HVAC	ON/OFF	1.001	CWT
	Slave input			
80	Light level measured	1 … 1000	9.004	CRT
	Internal			
81	TruePresence	ON/OFF	1.001	CRT

Object	Object name	Function	DPT	Flag
82	Presence	ON/OFF	1.001	CRT
83	Temperature measured	0 … 40°C	9.001	CRT
84	External temperature	0 … 40°C	9.001	CWT
85	Temperature limit value 1	ON/OFF	1.001	CRT
86	Disable temperature limit value 1	ON/OFF	1.001	CWT
87	Disable temperature limit value 1, status	ON/OFF	1.001	CRT
88	Temperature limit value 2	ON/OFF	1.001	CRT
89	Disable temperature limit value 2	ON/OFF	1.001	CWT
90	Disable temperature limit value 2, status	ON/OFF	1.001	CRT
91	Dew point temperature	0 … 40°C	9.001	CRT
92	Dew point alarm	ON/OFF	1.001	CRT
93	Humidity level measured	0-100%	9.007	CRT
94	External humidity	0-100%	9.007	CWT
95	Humidity limit value 1	ON/OFF	1.001	CRT
96	Disable humidity limit value 1	ON/OFF	1.001	CWT
97	Disable humidity limit value 1, status	ON/OFF	1.001	CRT
98	Humidity limit value 2	ON/OFF	1.001	CRT
99	Disable humidity limit value 2	ON/OFF	1.001	CWT
100	Disable humidity limit value 2, status	ON/OFF	1.001	CRT
101	Absolute air pressure	Pa	14.058	CRT
102	Relative air pressure	Pa	14.058	CRT
103	Air pressure limit value 1	ON/OFF	1.001	CRT
104	Disable air pressure limit value 1	ON/OFF	1.001	CWT
105	Disable air pressure limit value 1, status	ON/OFF	1.001	CRT
106	Air pressure limit value 2	ON/OFF	1.001	CRT
107	Disable air pressure limit value 2	ON/OFF	1.001	CWT
108	Disable air pressure limit value 2, status	ON/OFF	1.001	CRT
109	Comfort text	14 bytes	16.000	CRT
110	Comfort status	ON/OFF	1.001	CRT
111	Logic gate 1	ON/OFF	1.001	CRT
	Output			
112	Logic gate 1	0 … 255	5.x	CRT
	Output			
113	Logic gate 1	ON/OFF	1.001	CWT
	Input 1			
114	Logic gate 1	ON/OFF	1.001	CWT
	Input 2			
115	Logic gate 1	ON/OFF	1.001	CWT
	Input 3			
116	Logic gate 1	ON/OFF	1.001	CWT
	Input 4			
117	Logic gate 1	ON/OFF	1.001	CWT
	Disable			
118	Logic gate 1	ON/OFF	1.001	CRT
	Disabling status			
119	Logic gate 2	ON/OFF	1.001	CRT
	Output			
120	Logic gate 2	0 … 255	5.x	CRT
	Output			
121	Logic gate 2	ON/OFF	1.001	CWT
	Input 1			
122	Logic gate 2	ON/OFF	1.001	CWT
	Input 2			
123	Logic gate 2	ON/OFF	1.001	CWT
	Input 3			

Object	Object name	Function	DPT	Flag
124	Logic gate 2	ON/OFF	1.001	CWT
	Input 4			
125	Logic gate 2	ON/OFF	1.001	CWT
	Disable			
126	Logic gate 2	ON/OFF	1.001	CRT
	Disabling status			
127	CO_2 measured value	0 … 2000 ppm	9.008	CRT
128	CO_2 limit value	ON/OFF	1.001	CWT
	Disable			
129	CO_2 limit value	ON/OFF	1.001	CRT
	Disabling status			
130	CO_2 limit value 1	ON/OFF	1.001	CRT
	Output			
131	CO_2 limit value 1	0 … 2000 ppm	9.008	CRWT
	Switching threshold			
132	CO_2 limit value 1 hysteresis	0 … 2000 ppm	9.008	CRWT
133	CO_2 limit value 1	0 s … 65535 s	7.005	CRWT
	Stay-ON time			
134	CO_2 limit value 2	ON/OFF	1.001	CRT
	Output			
135	CO_2 limit value 2	0 … 2000 ppm	9.008	CRWT
	Switching threshold			
136	CO_2 limit value 2 hysteresis	0 … 2000 ppm	9.008	CRWT
137	CO_2 limit value 2	0 s … 65535 s	7.005	CRWT
	Stay-ON time			
138	CO_2 limit value 3	ON/OFF	1.001	CRT
	Output			
139	CO_2 limit value 3	0 … 2000 ppm	9.008	CRWT
	Switching threshold			
140	CO_2 limit value 3 hysteresis	0 … 2000 ppm	9.008	CRWT
141	CO_2 limit value 3	0 s … 65535 s	7.005	CRWT
	Stay-ON time			
142	CO_2 limit value 4	ON/OFF	1.001	CRT
	Output			
143	CO_2 limit value 4	0 … 2000 ppm	9.008	CRWT
	Switching threshold			
144	CO_2 limit value 4 hysteresis	0 … 2000 ppm	9.008	CRWT
145	CO_2 limit value 4	0 s … 65535 s	7.005	CRWT
	Stay-ON time			
146	VOC measured value	0 … 2000 ppb	9.xxx	CRT
147	VOC limit value	ON/OFF	1.001	CWT
	Disable			
148	VOC limit value	ON/OFF	1.001	CRT
	Disabling status			
149	VOC limit value 1	ON/OFF	1.001	CRT
	Output			
150	VOC limit value 1	0 … 2000 ppb	9.xxx	CRWT
	Switching threshold			
151	VOC limit value 1 hysteresis	0 … 2000 ppb	9.xxx	CRWT
152	VOC limit value 1	0 s … 65535 s	7.005	CRWT
	Stay-ON time			
153	VOC limit value 2	ON/OFF	1.001	CRT
	Output			
154	VOC limit value 2	0 … 2000 ppb	9.xxx	CRWT
	Switching threshold			
155	VOC limit value 2 hysteresis	0 … 2000 ppb	9.xxx	CRWT
156	VOC limit value 2	0 s … 65535 s	7.005	CRWT
	Stay-ON time			
157	VOC limit value 3	ON/OFF	1.001	CRT
	Output			

Object	Object name	Function	DPT	Flag
158	VOC limit value 3	0 … 2000 ppb	9.xxx	CRWT
	Switching threshold			
159	VOC limit value 3 hysteresis	0 … 2000 ppb	9.xxx	CRWT
160	VOC limit value 3	0 s … 65535 s	7.005	CRWT
	Stay-ON time			
161	VOC limit value 4	ON/OFF	1.001	CRT
	Output			
162	VOC limit value 4	0 … 2000 ppb	9.xxx	CRWT
	Switching threshold			
163	VOC limit value 4 hysteresis	0 … 2000 ppb	9.xxx	CRWT
164	VOC limit value 4	0 s … 65535 s	7.005	CRWT
	Stay-ON time			
165	Absence output	ON/OFF	1.001	CRT
	Absence			
166	Absence output	10 s…65535 s	7.005	CRWT
	Stay-ON time			
167	Absence output	0 s…10 s	7.005	CRWT
	Turn-on delay			
168	Absence output	ON/OFF	1.001	CWT
	Disable			
169	Absence output	ON/OFF	1.001	CRT
	Disabling status			

9.2 Description of light output X (1..4) communication objects*

Object	Description
Switch light output X	This object is always available when the light output is activated. Light output X is switched with this object. The group address linked with this object is used for sending the switching command via bus to the actuator, with it also being possible to request the switching status from the detector. When this object receives a telegram, it behaves as per "Switch light output X input".
Light output X dimming level	This object is only visible if the "Object light output" parameter is set to "Dimming level". The group address linked with this object is used for sending the dimming value via bus to the actuator, with it also being possible to request this from the detector.
Light output X scene	This object is only visible if the "Object light output" parameter is set to "Scene". The group address linked with this object is used for sending the scene via bus to the actuator, with it also being possible to request this from the detector.
Light output X switching threshold	This object is always available when the light output is activated. The group address linked with this object is used for receiving the switching threshold (in lux) for the light output via bus; this threshold can be requested at any time.
Light output X external light-level	This object is only visible if the "Light-level sensor ON" or "Light level sensor OFF" parameter is set to "External". The group address linked with this object is used for receiving the light level measured by a light-level sensor and for comparing it with the threshold.
Light output X stay-ON time	This object is always available when the light output is activated. The group address linked with this object is used for receiving the stay-ON time for the light output X via bus. Any value received outside the permissible range is rejected. This object can also be used at any time for requesting the current stay-ON time.

Object	Description
Disable light output X	This object is only visible if the "Disable output" parameter is not set to "No". The "Disable output" parameter is also used for selecting whether to perform disabling on receiving a value of "1" or on receiving a value of "0". When the output is disabled, the output does not send any telegrams. Except when manually overridden via the input objects.
Light output X disabling status	This object is only visible if the "Disable output" parameter is not set to "No". The group address linked with this object is used for automatically sending the disabling status via bus after any change, with it being possible to request the disabling status at any time.
Light output X switch input	This object is always available when the light output is activated. If the "Light output mode" parameter is set to "Automatically ON and OFF" and a telegram is received via this object, light X will be disabled because the room user wishes to permanently switch light ON or OFF. It remains disabled until either a telegram for enabling is received via the "Disable light output X" object or until the detector establishes that no person is left in the room who re-enables light output X and switches light output X OFF. If the "Light output mode" parameter is set to "Automatically OFF" and a telegram "1" is received via this object, light output X will be switched ON for the stay-ON time selected. Any presence detected in the activated state will re-trigger the stay-ON time. If a "0" is received, light output X will switch OFF without disabling.
Light output X, dim input	This object is only visible if the "Object light output" parameter is set to "Dimming level". If a telegram is received via this object, light output X will be disabled because the room user wishes to permanently dim the light output to a different level. It remains disabled until either a telegram for enabling is received via the "Disable light output X" object or until the detector establishes that no person is left in the room who re-enables light output X and switches light output X OFF. On enabling, the light output X sends its set value via the bus.
Light output X input dimming level	This object is only visible if the "Object light output" parameter is set to "Dimming level". If a telegram is received via this object, light output X will be disabled because the room user wishes to permanently dim the light output to a different level. It remains disabled until either a telegram for enabling is received via the "Disable light output X" object or until the detector establishes that no person is left in the room who re-enables light output X and switches light output X OFF. On enabling, the light output X sends its set value via the bus.
Light output X slave input	This object is only visible if the "Slave input" parameter is not set to "inactive". The group address linked with this object is used for receiving the presence status of the slave via the bus and, if applicable, linked with the presence status of further slaves as well as that of the sensor via a logical OR function and evaluated as total presence for light output X.
Light output X night input	This object is only visible if the "Day/night switchover" parameter is not set to "inactive". The group address linked with this object is used for receiving switchover between day and night. Setting a "0" activates the parameters for daytime operation. Setting a "1" activates the parameters for night-time operation.

9.3 Description of constant-lighting control communication objects*

Object	Description
Constant-lighting control switch 1	This object is always available when constant-lighting control is activated. Depending on the "Send switching object" parameter, the group address linked with this object sends the switching command via bus to the actuator, with it also being possible to request the switching status from the detector. When this object receives a telegram, it behaves as per "Switch constant-lighting control input 1".
Constant-lighting control dimming level 1	This object is always available when constant-lighting control is activated. The group address linked with this object is used for sending the dimming value via bus to the actuator, with it also being possible to request this from the detector.
Constant-lighting control switch 2	This object is only visible if the "2nd output" parameter is set to "active". Depending on the "Send switching object" parameter, the group address linked with this object sends the switching command via bus to the actuator, with it also being possible to request the switching status from the detector.
Constant-lighting control dimming level 2	This object is only visible if the "2nd output" parameter is set to "active". The group address linked with this object is used for sending the dimming value via bus to the actuator, with it also being possible to request this from the detector. When this object receives a telegram, it behaves as per "Switch constant-lighting control input 1".
Constant-lighting control light-level setting	This object is always available when constant-lighting control is activated. The group address linked with this object is used for receiving the constant lighting-level control setting (in lux) via bus; this setting can be requested at any time.
Constant-lighting control external light level	This object is only visible if the "Light-level sensor" parameter is set to "External". The group address linked with this object is used for receiving the light level measured by a light-level sensor and for comparing it with a selected setting.
Constant-lighting control stay-ON time	This object is always available when constant-lighting control is activated. The group address linked with this object is used for receiving the stay-ON time for constant-lighting control via bus. Any value received outside the permissible range is rejected. This object can also be used at any time for requesting the current stay-ON time.
Disable constant-lighting control	This object is only visible if the "Disable output" parameter is not set to "No". The "Disable output" parameter is also used for selecting whether to perform disabling on receiving a value of "1" or on receiving a value of "0". When the output is disabled, the output does not send any telegrams. Except when manually overridden via the input objects.
Constant-lighting control disabling status	This object is only visible if the "Disable output" parameter is not set to "No". The group address linked with this object is used for automatically sending the disabling status via bus after any change, with it being possible to request the disabling status at any time.

Object	Description
Constant-lighting control switch input 1	This object is always available when constant-lighting control is activated. If the "Constant-lighting control mode" parameter is set to "Automatically ON and OFF" and a telegram is received via this object, constant lighting control will be disabled because the room user wishes to permanently switch constant-lighting control light ON or OFF. It remains disabled until either the "Disable constant-lighting control" object delivers a telegram for enabling or until the detector establishes that no person is left in the room who re-enables and switches OFF constant-lighting control. If the "Constant-lighting control mode" parameter is set to "Automatically OFF" and a telegram "1" is received via this object, constant lighting control will be switched ON for the stay-ON time selected. Any presence detected in the activated state will re-trigger the stay-ON time. If a "0" is received, constant-lighting control will switch OFF without disabling.
Constant-lighting control dim input 1	This object is always available when constant-lighting control is activated. If a telegram is received via this object, and depending on the "Dim light-level control at input" parameter setting, constant-lighting control is either disabled with the relevant output being dimmed, or light-level control is not disabled and the constant-lighting control setting is increased or decreased accordingly, automatically resulting in a lighter or darker dimming of the lighting. If the detector establishes that nobody remains in the room, the altered light-level setting is returned to its original value and constant-lighting control is switched OFF.
Constant-lighting control switch input 2	This object is only visible if the "2nd Output" parameter is set to "active". If the "Constant-lighting control mode" parameter is set to "Automatically ON and OFF" and a telegram is received via this object, constant lighting control will be disabled because the room user wishes to permanently switch constant-lighting control light ON or OFF. It remains disabled until either the "Disable constant-lighting control" object delivers a telegram for enabling or until the detector establishes that no person is left in the room who re-enables and switches OFF constant-lighting control. If the "Constant-lighting control mode" parameter is set to "Automatically OFF" and a telegram "1" is received via this object, constant lighting control will be switched ON for the stay-ON time selected. Any presence detected in the activated state will re-trigger the stay-ON time. If a "0" is received, constant-lighting control will switch OFF without disabling.
Constant-lighting control dim input 2	This object is only visible if the "2nd Output" parameter is set to "active". If a telegram is received via this object, and depending on the "Dim light-level control at input" parameter setting, constant-lighting control is either disabled with the relevant output being dimmed, or light-level control is not disabled and the constant-lighting control setting is increased or decreased accordingly, automatically resulting in a lighter or darker dimming of the lighting. If the detector establishes that nobody remains in the room, the altered light-level setting is returned to its original value and constant-lighting control is switched OFF.
Teach constant-lighting control	This object is always available when constant-lighting control is activated. The group address linked with this object is used for carrying out artificial light calibration with a "1" telegram.
Constant-lighting control slave input	This object is only visible if the "Slave input" parameter is not set to "inactive". The group address linked with this object is used for receiving the presence status of the slave via the bus and, if applicable, linked with the presence status of further slaves as well as that of the sensor via a logical OR function and evaluated as total presence for constant-lighting control.

Object	Description
Constant-lighting control night input	This object is only visible if the "Day/night switchover" parameter is not set to "inactive". The group address linked with this object is used for receiving switchover between day and night. Setting a "0" activates the parameters for daytime operation. Setting a "1" activates the parameters for night-time operation.

9.4 Description of presence output communication objects*

Object	Description
Presence output presence	This object is always available when the presence output is activated. The group address linked with this object is sent to the actuator via bus, indicating whether presence of persons have been detected (output = "ON") or not (output = "OFF"); presence status can be requested from the detector at any time.
Presence output stay-ON time	This object is always available when the presence output is activated. The group address linked with this object is used for receiving the stay-ON time for the presence output via bus. Any value received outside the permissible range is rejected. This object can also be used at any time for requesting the current stay-ON time.
Presence output switch-ON delay	This object is always available when the presence output is activated. The group address linked with this object is used for receiving the switch-ON delay for the presence output via bus. Any value received outside the permissible range is rejected. This object can also be used at any time for requesting the current stay-ON time.
Disable presence output	This object is only visible if the "Disable output" parameter is not set to "No". The "Disable output" parameter is also used for selecting whether to perform disabling on receiving a value of "1" or on receiving a value of "0". When the output is disabled, the output does not send any telegrams.
Presence output disabling status	This object is only visible if the "Disable output" parameter is not set to "No". The group address linked with this object is used for automatically sending the disabling status via bus after any change, with it being possible to request the disabling status at any time.

9.5 Description of absence output communication objects*

Object	Description
Absence output absence	This object is always available when the absence output is activated. The group address linked with this object is sent to the actuator via bus, indicating whether absence of persons have been detected (output = "ON") or not (output = "OFF"); absence status can be requested from the detector at any time.
Absence output stay-ON time	This object is always available when the absence output is activated. The group address linked with this object is used for receiving the stay-ON time for the absence output via bus. Any value received outside the permissible range is rejected. This object can also be used at any time for requesting the current stay-ON time.

Object	Description
Absence output switch-ON delay	This object is always available when the absence output is activated. The group address linked with this object is used for receiving the switch-ON delay for the absence output via bus. Any value received outside the permissible range is rejected. This object can also be used at any time for requesting the current stay-ON time.
Disable absence output	This object is only visible if the "Disable output" parameter is not set to "No". The "Disable output" parameter is also used for selecting whether to perform disabling on receiving a value of "1" or on receiving a value of "0". When the output is disabled, the output does not send any telegrams.
Absence output disabling status	This object is only visible if the "Disable output" parameter is not set to "No". The group address linked with this object is used for automatically sending the disabling status via bus after any change, with it being possible to request the disabling status at any time.

9.6 Description of HVAC communication objects*

Object	Description
Switch HVAC	This object is always available when the HVAC output is activated. This object must be linked with the presence input of the room-temperature regulator used for switching the room mode between "comfort mode" and "energy-saving mode". The group address linked with this object is used for sending the HVAC status via bus to the actuator, with it also being possible to request this from the detector.
HVAC stay-ON time	This object is always available when the HVAC output is activated. The group address linked with this object is used for receiving the stay-ON time for the HVAC output via bus. Any value received outside the permissible range is rejected. This object can also be used at any time for requesting the current stay-ON time.
HVAC switch-ON delay	This object is always available when the HVAC output is activated. The group address linked with this object is used for receiving the switch-ON delay for the HVAC output via bus. Any value received outside the permissible range is rejected. This object can also be used at any time for requesting the current stay-ON time.
Disable HVAC	This object is always available when the HVAC output is activated and if the "Disable output" parameter is not set to "No". The "Disable output" parameter is also used for selecting whether to perform disabling on receiving a value of "1" or on receiving a value of "0". When the output is disabled, the output does not send any telegrams.
HVAC disabling status	This object is only visible if the "Disable output" parameter is not set to "No". The group address linked with this object is used for automatically sending the disabling status via bus after any change, with it being possible to request the disabling status at any time.
HVAC slave input	This object is only visible if the "Slave input" parameter is not set to "inactive". The group address linked with this object is used for receiving the presence status of the slave via the bus and, if applicable, linked with the presence status of further slaves as well as that of the sensor via a logical OR function and evaluated as total presence for HVAC control.

9.7 Description of light level communication objects

Object	Description
Internal light level measured	This object is always available when the light-level output is activated. The group address linked with this object is used for sending the internal light level measured by the detector via bus, with it also being possible to request this from the detector.

9.8 Description of temperature communication objects

Object	Description
Temperature measured	This object is always available when the temperature output is activated. The group address linked with this object is used for sending the temperature measured by the detector via bus, with it also being possible to request this from the detector.
External temperature	This object is only visible if the "External temperature" parameter is set to "active". The group address linked with this object is used for receiving an external temperature value and, depending on the setting "External temperature weighting", it is calculated with the internal temperature value.
Temperature limit value X	This object is always available when the temperature output is activated. The group address linked with this object is used for sending a switching command depending on the parameter "Limit value switching output mode".
Disable temperature limit value X	This object is always available when the temperature output is activated and if the "Disable output" parameter is not set to "No". The "Disable output" parameter is also used for selecting whether to perform disabling on receiving a value of "1" or on receiving a value of "0". When the output is disabled, the output does not send any telegrams.
Temperature limit value X disabling status	This object is always available when the temperature output is activated and if the "Disable output" parameter is not set to "No". The group address linked with this object is used for automatically sending the disabling status via bus after any change, with it being possible to request the disabling status at any time.

9.9 Description of humidity communication objects

Object	Description
Humidity level measured	This object is always available when the humidity output is activated. The group address linked with this object is used for sending the humidity measured by the detector via bus, with it also being possible to request this from the detector.
External humidity	This object is only visible if the "External humidity" parameter is set to "active". The group address linked with this object is used for receiving an external humidity value and, depending on the setting "External humidity weighting", it is calculated with the internal temperature value.
Humidity limit value X	This object is always available when the humidity output is activated. The group address linked with this object is used for sending a switching command depending on the parameter "Limit value switching output mode".
Disable humidity limit value X	This object is always available when the humidity output is activated and if the "Disable output" parameter is not set to "No". The "Disable output" parameter is also used for selecting whether to perform disabling on receiving a value of "1" or on receiving a value of "0". When the output is disabled, the output does not send any telegrams.

Object	Description
Humidity limit value X disabling status	This object is always available when the humidity output is activated and if the "Disable output" parameter is not set to "No". The group address linked with this object is used for automatically sending the disabling status via bus after any change, with it being possible to request the disabling status at any time.

9.10 Description of dew point communication objects

Object	Description
Dew point temperature	This object is always available when the dew point is activated. The group address linked with this object is used for sending the dew point temperature measured by the detector via bus, with it also being possible to request this from the detector.
Dew point alarm	This object is always available when the dew point is activated. The group address linked with this object is used for sending the switching command for transmitting the dew point alarm.

9.11 Description of comfort communication objects

Object	Description
Comfort text	This object is always available when the comfort range is activated. The group address linked with this object is used for sending the set text depending on the comfort.
Comfort status	This object is always available when the comfort range is activated. The group address linked with this object is used for sending the comfort status via the bus depending on the parameter "Comfort level status"

9.12 Description of air pressure communication objects

Object	Description
Absolute air pressure	This object is always available when the air pressure output is activated. The group address linked with this object is used for sending the absolute air pressure via the bus.
Relative air pressure	This object is always available when the air pressure output is activated. The group address linked with this object is used for sending the relative air pressure via the bus.
Air pressure limit value X	This object is always available when the air pressure output is activated. The group address linked with this object is used for sending a switching command depending on the parameter "Limit value switching output mode".
Disable air pressure limit value X	This object is always available when the air pressure output is activated and if the "Disable output" parameter is not set to "No". The "Disable output" parameter is also used for selecting whether to perform disabling on receiving a value of "1" or on receiving a value of "0". When the output is disabled, the output does not send any telegrams.
Air pressure limit value X disabling status	This object is always available when the air pressure output is activated and if the "Disable output" parameter is not set to "No". The group address linked with this object is used for automatically sending the disabling status via bus after any change, with it being possible to request the disabling status at any time.

9.13 Description of CO₂ output communication objects

Object	Description
CO$_2$ measured value	This object is always available when the CO$_2$ output is activated. The group address linked with this object is used for sending the CO$_2$ level measured by the detector via bus, with it also being possible to request this from the detector.
Disable CO$_2$ limit value	This object is always available when the CO$_2$ output is activated. The "Disable output" parameter is also used for selecting whether to perform disabling on receiving a value of "1" or on receiving a value of "0". When the output is disabled, the output does not send any telegrams.
CO$_2$ limit value disabling status	This object is only visible if the "Disable output" parameter is not set to "No". The group address linked with this object is used for automatically sending the disabling status via bus after any change, with it being possible to request the disabling status at any time.
CO$_2$ limit value X output	This object is always available when the CO$_2$ output is activated. The group address linked with this object is used for sending the limit value status via bus to the actuator, with it also being possible to request this from the detector.
CO$_2$ limit value X switching threshold	This object is always available when the CO$_2$ output is activated. The group address linked with this object can be used for setting the switching threshold via bus, with it also being possible to request this from the detector.
CO$_2$ limit value X hysteresis	This object is always available when the CO$_2$ output is activated. The group address linked with this object can be used for setting the hysteresis via bus, with it also being possible to request this from the detector.
CO$_2$ limit value X stay-ON time	This object is always available when the CO$_2$ output is activated. The group address linked with this object can be used for setting the stay-ON time via bus, with it also being possible to request this from the detector.

9.14 Description of VOC output communication objects

Object	Description
VOC measured value	This object is always available when the VOC output is activated. The group address linked with this object is used for sending the VOC level measured by the detector via bus, with it also being possible to request this from the detector.
Disable VOC limit value	This object is always available when the VOC output is activated. The "Disable output" parameter is also used for selecting whether to perform disabling on receiving a value of "1" or on receiving a value of "0". When the output is disabled, the output does not send any telegrams.
VOC limit value disabling status	This object is only visible if the "Disable output" parameter is not set to "No". The group address linked with this object is used for automatically sending the disabling status via bus after any change, with it being possible to request the disabling status at any time.
VOC limit value X output	This object is always available when the VOC output is activated. The group address linked with this object is used for sending the limit value status via bus to the actuator, with it also being possible to request this from the detector.
VOC limit value X switching threshold	This object is always available when the VOC output is activated. The group address linked with this object can be used for setting the switching threshold via bus, with it also being possible to request this from the detector.

Object	Description
VOC limit value X hysteresis	This object is always available when the VOC output is activated. The group address linked with this object can be used for setting the hysteresis via bus, with it also being possible to request this from the detector.
VOC limit value X stay-ON time	This object is always available when the VOC output is activated. The group address linked with this object can be used for setting the stay-ON time via bus, with it also being possible to request this from the detector.

9.15 Description of logic gate communication objects

Object	Description
Logic gate X output 1 bit	This object is only visible if the "Logic gate" parameter is set to "active" in the "General parameters" parameter window and the "Logic gate X type output object" is set to "ON/OFF". The group address linked with this object is used for sending the output state via bus to the actuator, with it also being possible to request this from the detector.
Logic gate X output 1 byte	This object is only visible if the "Logic gate" parameter is set to "active" in the "General parameters" parameter window and the "Logic gate X type output object" is set to "Level". The group address linked with this object is used for sending the output value via bus to the actuator, with it also being possible to request this from the detector.
Logic gate X input 1	This object is always available when the logic gate is activated. The group address linked with this object is used for controlling the logical input of the logic gate. The inputs can be linked in the way defined by the "Type of logic operation" parameter.
Logic gate X input 2	This object is always available when the logic gate is activated and if the "Number of inputs" parameter is greater than or equal to two inputs. The group address linked with this object is used for controlling the logical input of the logic gate. The inputs can be linked in the way defined by the "Type of logic operation" parameter.
Logic gate X input 3	This object is always available when the logic gate is activated and if the "Number of inputs" parameter is greater than or equal to three inputs. The group address linked with this object is used for controlling the logical input of the logic gate. The inputs can be linked in the way defined by the "Type of logic operation" parameter.
Logic gate X input 4	This object is always available when the logic gate is activated and if the "Number of inputs" parameter is equal to four inputs. The group address linked with this object is used for controlling the logical input of the logic gate. The inputs can be linked in the way defined by the "Type of logic operation" parameter.
Disable logic gate X	This object is always available when the logic gate is activated. The "Disable output" parameter is also used for selecting whether to perform disabling on receiving a value of "1" or on receiving a value of "0". When the output is disabled, the output does not send any telegrams.
Logic gate X blocking status	This object is only visible if the "Disable output" parameter is not set to "No". The group address linked with this object is used for automatically sending the disabling status via bus after any change, with it being possible to request the disabling status at any time.

9.16 Description of True Presence / presence communication objects*

Object	Description
True Presence	This object is always available. The group address linked with this object is used to send to the actuator via bus whether the a True Presence of persons (presence at a position) has been detected (output = "ON") or not (output = "OFF"); the True Presence status can be requested from the detector at any time.
Presence	This object is always available. The group address linked with this object is sent to the actuator via bus, indicating whether a presence of persons (presence with movement) has been detected (output = "ON") or not (output = "OFF"); the presence status can be requested from the detector at any time.

10 ETS parameters

Note on the colours in the parameter settings:

	Parameters always available. All parameter-related colours are reset from here on downwards.
	Parameter only visible in relation to a setting of another parameter. Settings and dependent parameters are marked in the same colour.
	Parameter only visible in relation to settings of two other parameters. Settings and dependent parameters are marked in the same colour.

10.1 General parameters

Name	Settings	Factory setting
Number of light outputs	0…4	1
This parameter is used for setting how many light outputs are to be available.		
Constant-lighting control	inactive active	inactive
active: the constant-lighting control output with the associated parameters is additionally available. inactive: the constant-lighting control output is not available.		
Presence output	inactive active	inactive
active: the presence output with the associated parameters is additionally available. inactive: the presence output is not available.		
Absence output	inactive active	inactive
active: the absence output with the associated parameters is additionally available. inactive: the absence output is not available.		
HVAC output	inactive active	inactive
active: the HVAC output with the associated parameters is additionally available. inactive: the HVAC output is not available.		
Light level output	inactive active	inactive
active: the light level output with the associated parameters is additionally available. inactive: the light level output is not available.		
Temperature output	inactive active	inactive
active: the temperature output with the associated parameters is additionally available. inactive: the temperature output is not available.		

Name	Settings	Factory setting
Humidity output	inactive active	inactive
active: the humidity output with the associated parameters is additionally available. inactive: the humidity output is not available.		
Dew point	inactive active	inactive
active: the dew point output with the associated parameters is additionally available. inactive: the dew point output is not available.		
Comfort	inactive active	inactive
active: the comfort output with the associated parameters is additionally available. inactive: the comfort output is not available.		
Air pressure	inactive active	inactive
active: the air pressure output with the associated parameters is additionally available. inactive: the air pressure output is not available.		
CO₂ output	inactive active	inactive
active: the CO_2 output with the associated parameters is additionally available. inactive: the CO_2 output is not available.		
VOC output	inactive active	inactive
active: the VOC output with the associated parameters is additionally available. inactive: the VOC output is not available.		
Logic gates	inactive 1 … 2	inactive
1 … 2: the selected number of logic gates with the associated parameters is additionally available. inactive: the logic gate output is not available.		
Bluetooth	inactive active	inactive
active: access to the sensor via Bluetooth is possible. The corresponding parameters are available. inactive: it is not possible to access the sensor via Bluetooth.		

10.2   Light output 1..4

Name	Settings	Factory setting
Light output object	ON/OFF	ON/OFF
	Dimming level	
	Scene	
This parameter is used to select which object the output is sent with.		
ON level in percent	0%…100%	100%
This parameter is used to select which dimming level to send for the ON state.		
OFF level in percent	0%…100%	0%
This parameter is used to select which dimming level to send for the OFF state.		
Send switching object	ON/OFF ON OFF	ON/OFF
This parameter is used to select whether to send the ON and OFF switching commands for the dimming level object or whether to send only ON or only OFF.		
Switch ON scene	1…64	1
This parameter is used to select which scene to send for the ON state.		
Switch OFF scene	1…64	2
This parameter is used to select which scene to send for the OFF state.		

Name	Settings	Factory setting
Send status cyclically	Do not send status cyclically	
	ON/OFF	
	ON	
	OFF	
This parameter is used for selecting whether the output not only sends after any change but also cyclically and, if so, for which status. Do not send status cyclically: no status is sent cyclically. ON/OFF: ON and OFF status is sent cyclically. ON: only ON status is sent cyclically. OFF: only OFF status is sent cyclically.		
Interval for sending cyclically	hh:mm:ss	00:00:30
Time interval for sending at cyclical intervals. The maximum time interval is 18:12:15.		
Light output mode	automatically ON and OFF automatically OFF only	automatically ON and OFF
This parameter is used for selecting whether to switch the light output ON and OFF automatically in relation to presence and light level (fully automatic operation) or whether only to switch it OFF automatically (semi-automatic operation).		
Daytime operation	Yes	NO
	No	
Setting to define whether light output is to be switched irrespective of light level.		
Light-level sensor ON	Internal	Internal
	External	
This parameter is used to define which light-level measurement the sensor compares its switching threshold with.		
Initial level, light-level sensor, external	10 lux … 1000 lux	200
This parameter is used to define which value the sensor works with until the first value is received via the KNX bus.		
Weighting, light-level sensor, external	1% … 100%	100%
This value defines the extent to which the external value is weighted.		
Switching threshold ON	10…1000	500
This parameter is used to select the light level and detected presence from which to switch the light output ON.		
Switch OFF in relation to light level	Yes	Yes
	No	
Yes: despite presence being detected, the light output is switched OFF if light level is sufficient. No: the light output stays switched ON until stay-ON time elapses. Stay-ON time is re-triggered if presence is detected.		
Light-level sensor OFF	Mixed light	Mixed light
	External (same object as ON)	
This parameter is used to define which light-level measurement the sensor compares its switching threshold with.		
Offset switching threshold OFF	10…1000	100
This parameter is used to select the offset from which to switch the light output OFF.		
Weighting, light-level sensor, external	1% … 100%	100%
Stay-ON time, IQ mode	Active	Active
	Inactive	
The stay-ON time automatically adjusts to the time persons spend in the detection zone.		
Light output stay-ON time	hh:mm:ss	00:05:00
Stay-ON time is started if no presence is detected. This has the purpose of preventing the output from switching OFF immediately if the room is only vacated for a short time and having to be switched back ON again when a person returns to the room. The stay-ON time can be set from 00:00:10 to 18:12:15.		

Name	Settings	Factory setting
Disable output	No	No
	ON for disabling / OFF for enabling	
	OFF for disabling / ON for enabling	

This parameter is used for selecting whether the output can be disabled, and which telegram can be used for disabling and re-enabling the output.
No: the output cannot be disabled.
Disabling with ON / enabling with OFF: the output is disabled by a telegram with value "1" to the disabled object and enabled by a telegram with value "0".
Disabling with OFF / enabling with ON: the output is disabled by a telegram with value "0" to the disabled object and enabled by a telegram with value "1".

Name	Settings	Factory setting
Behaviour on disabling	no action ON OFF	no action

This parameter is used to select whether to switch the output ON or OFF before disabling or whether to leave the output unchanged.
no action: no further action takes place before disabling.
ON: output is switched ON before disabling.
OFF: output is switched OFF before disabling.

Name	Settings	Factory setting
Behaviour on enabling	Continue control ON OFF	Continue control

This parameter is used to select whether the output is to resume its activity after enabling or whether to switch the output ON or OFF first.
Continue control: the output is immediately in normal mode and sets the output in line with configuration.
ON: output is switched ON after enabling. Normal operation is reactivated after a delay of 5 seconds.
OFF: output is switched OFF after enabling. Normal operation is reactivated after a delay of 5 seconds.

Name	Settings	Factory setting
Basic illumination	inactive	inactive
	active	

Setting to specify whether the basic illumination is to be activated.

Name	Settings	Factory setting
Basic illumination ON	for a limited time	for a limited time
	in relation to light level	
	dim	
	always	

If required, the output can either be set to provide basic illumination either for a limited period at the end of the stay-ON time or always when the light level falls below a threshold.

time-limited: at the end of stay-ON time, the output switches lighting OFF and checks the level of light for max. 5 seconds. As soon as the target level or threshold level is below the selected light level, basic illumination switches ON for the parameterised time. If the light level measured is above it, lighting stays OFF.
depending on light level: when no presence is being identified by the detector, this does not result in the output being switched OFF but in the activation of basic illumination if the level of light measured at this time by the sensor is below the basic light-level threshold. It remains switched ON until either presence is detected or the level of light measured significantly exceeds the basic light-level threshold. The light-level measurement setting is used by the "Light-Level Measurement ON" parameter.
dim: the sensor automatically dims lighting down to the point at which it switches OFF.
always: basic illumination is always active when the output is not switched ON.

Name	Settings	Factory setting
Basic illumination dimming level	1%...100%	10

This parameter is used for setting the dimming level at which basic illumination is switched ON.

Name	Settings	Factory setting
Basic illumination threshold level	10 lux …1000 lux	50

This parameter is used for setting the threshold at which basic illumination is activated if the threshold is not met, and at which it is deactivated again if the threshold is significantly exceeded. This takes place irrespective of whether persons are present in the detection zone or not.

Name	Settings	Factory setting
Basic illumination stay-ON time	hh:mm:ss	00:15:00

Basic illumination is switched OFF after expiry of the stay-ON time that is set here.

Name	Settings	Factory setting
Slave input	inactive ON ON/OFF	ON

This parameter defines whether the slave input expects an ON telegram or whether it expects an ON and OFF telegram.

Name	Settings	Factory setting
Day/night switchover	inactive	inactive
	active	

When day/night switchover is activated, the parameter setting can be switched over via an input object.

Name	Settings	Factory setting
ON level in percent (for dimming level only)	0%…100%	100%

This parameter is used to select which dimming level to send for the ON state.

Name	Settings	Factory setting
OFF level in percent (for dimming level only)	0%...100%	0%

This parameter is used to select which dimming level to send for the OFF state.

Name	Settings	Factory setting
Switch ON scene (for scene only)	1…64	1

This parameter is used to select which scene to send for the ON state.

Name	Settings	Factory setting
Switch OFF scene (for scene only)	1…64	2

This parameter is used to select which scene to send for the ON state.

Name	Settings	Factory setting
Daytime operation	Yes	NO
	No	

Setting to define whether light output is to be switched irrespective of light level.

Name	Settings	Factory setting
Switching threshold ON	10…1000	500

This parameter is used to select the light level and detected presence from which to switch the light output ON.

Name	Settings	Factory setting
Offset switching threshold OFF	10…1000	100

This parameter is used to select the offset from which to switch the light output OFF.

Name	Settings	Factory setting
Light output stay-ON time	hh:mm:ss	00:05:00

Stay-ON time is started if no presence is detected. This has the purpose of preventing the output from switching OFF immediately if the room is only vacated for a short time and having to be switched back ON again when a person returns to the room.
The stay-ON time can be set from 00:00:10 to 18:12:15.

Name	Settings	Factory setting
Basic illumination dimming level (only when basic illumination is activated)	1%...100%	10

This parameter is used for setting the dimming level at which basic illumination is switched ON.

Name	Settings	Factory setting
Basic illumination threshold level (only if basic illumination is activated)	10 lux …1000 lux	50

This parameter is used for setting the threshold at which basic illumination is activated if the threshold is not met, and at which it is deactivated again if the threshold is significantly exceeded. This takes place irrespective of whether persons are present in the detection zone or not.

Name	Settings	Factory setting
Basic illumination stay-ON time (only when basic illumination is activated)	hh:mm:ss	00:15:00

Basic illumination is switched OFF after expiry of the stay-ON time that is set here.

10.3 Constant-lighting control

Name	Settings	Factory setting
Constant-lighting control stay-ON time	hh:mm:ss	00:05:00
Stay-ON time is started if no presence is detected. This has the purpose of preventing the output from switching OFF immediately if the room is only vacated for a short time and having to be switched back ON again when a person returns to the room. The stay-ON time can be set from 00:00:10 to 18:12:15.		
Light-level setting	10 lux …1000 lux	500
This parameter is used for selecting the setting for light level control.		
Light-level sensor input	Internal External	Internal
This parameter is used for activating an input object for external light-level measurement. This value is used instead of the light level measured internally.		
Initial level, light-level sensor, external	10 lux … 1000 lux	200
This parameter is used to define which value the sensor works with until the first value is received via the KNX bus.		
Weighting, light-level sensor, external	1% … 100%	100%
This value defines the extent to which the external value is weighted.		
Automatic starting value	Yes No	Yes
Yes: the sensor automatically determines the starting value after artificial light calibration. No: the sensor always starts with the given starting value.		
Starting value, dimming level until first Teach	1% … 100%	80
This parameter defines the ON level when constant-lighting control is started. The value is adopted until artificial light calibration. The sensor then determines the starting value for directly reaching the light-level setting as accurately as possible.		
Starting value, dimming level	1% … 100%	80
This parameter defines the ON level when constant-lighting control is started.		
Send switching object	ON/OFF ON OFF	ON/OFF
This parameter is used to select whether to send the ON and OFF switching commands for the dimming level object or whether to send only ON or only OFF.		
Constant-lighting control mode	automatically ON and OFF automatically OFF only	automatically ON and OFF
This parameter is used for selecting whether to switch the light output ON and OFF automatically in relation to presence and light level (fully automatic operation) or whether only to switch it OFF automatically (semi-automatic operation).		
Max. variation from the setting	10 lux … 1000 lux	30
This parameter defines the precision with which the required level of light is controlled. This is necessary because lighting is controlled in dimming steps. Setting an insufficient maximum variation from the set level can therefore sometimes result in a further "brighter" adjustment step exceeding the set level and in a further "darker" adjustment step taking illumination below the set level. This leads to light being dimmed or brightened all the time (i.e. continuously fluctuating light level). If this is the case, the maximum permissible variation from the set level must either be increased or the dimming step reduced.		
Max. dimming step	0.5%; 1%; 1.5%; 2%; 2.5%; 3%; 5%	2%
This parameter is used for setting the maximum dimming "step" (this being the maximum level by which a new dimming level may increase or decrease from the previous level with constant-lighting control). Note: The larger the "Max. dimming step", the smaller the "Max. variation from the set value" should be.		
Send new dimming level after	0.5s; 1s; 2s; 3s; 4s; 5s	2s
This parameter is used for setting the delay after which a new dimming level is sent in constant-lighting control mode. This ensures that even if actuator dimming times are short they do not result in constant-lighting control producing any abrupt change in light level that a room user may find unpleasant.		

Name	Settings	Factory setting
Lighting with sufficient daylight	switch OFF dim to minimum dimming level	switch OFF
This parameter is used for selecting whether to switch the lighting OFF completely when constant-lighting control is activated and there is sufficient daylight or whether to leave it ON but dim it to the selectable "minimum dimming level". switch OFF: lighting is switched OFF if the dimming level remains dimmed at the minimum level for a specific period. If stay-ON time elapses first, the output switches OFF directly. dim to minimum dimming level: lighting remains switched ON and is dimmed to "minimum dimming level" even if the dimming level measured by the light-level controller is below the "minimum dimming level" selected. It is only brightened again when the dimming level measured by the light-level controller is above the "minimum dimming level" selected.		
Minimum dimming level	0.5%; 1%; 2%; 3%; 4%; 5%; 6%; 7%; 8%; 9%; 10%	0,5%
If the light-level controller measures a dimming level below the level selected here, lighting remains dimmed at the minimum dimming level.		
Light-level control for dimming input	disable and dim do not disable and alter setting	disable and dim
disable and dim: if a telegram is received via the "Dim Light x Input" object, light-level control is disabled and the addressed output dimmed. This setting is recommended if room lighting consists of several lighting groups. do not disable and alter set value: light-level control is not disabled after receiving a telegram via the dimming object. After receiving a telegram, a delay of approx. 5 seconds elapses before the new light-level value is adopted as the set value. This setting is recommended if only one output is used for illuminating the room.		
2nd output	inactive active	inactive
This parameter can be used to activate a second output.		
Offset, 2nd output	-100% … 100%	
This parameter is used for selecting the offset value for second output that must be added to or subtracted from the dimming level measured by the light-level controller for the first output (depending on whether the second output is further away from or closer to the window than output 1) to provide a workplace below output 2 with a level of light that is roughly the same as that provided at the light-level setting selected for output 1.		
Disable output	No ON for disabling / OFF for enabling OFF for disabling / ON for enabling	No
This parameter is used for selecting whether the output can be disabled, and which telegram can be used for disabling and re-enabling the output. No: the output cannot be disabled. Disabling with ON / enabling with OFF: the output is disabled by a telegram with value "1" to the disabled object and enabled by a telegram with value "0". Disabling with OFF / enabling with ON: the output is disabled by a telegram with value "0" to the disabled object and enabled by a telegram with value "1".		
Behaviour on disabling	no action ON OFF	no action
This parameter is used to select whether to switch the output ON or OFF before disabling or whether to leave the output unchanged. no action: no further action takes place before disabling. ON: output is switched ON before disabling. OFF: output is switched OFF before disabling.		
Behaviour on enabling	Continue control ON OFF	Continue control
This parameter is used to select whether the output is to resume its activity after enabling or whether to switch the output ON or OFF first. Continue control: the output is immediately in normal mode and sets the output in line with configuration. ON: output is switched ON after enabling. Normal operation is reactivated after a delay of 5 seconds. OFF: output is switched OFF after enabling. Normal operation is reactivated after a delay of 5 seconds.		

Name	Settings	Factory setting
Basic illumination	inactive	inactive
	active	
If required, the output can either be set to provide basic illumination either for a limited period at the end of the stay-ON time or always when the light level falls below a threshold.		
Basic illumination ON	for a limited time	for a limited time
	in relation to light level	
	always	
time-limited: at the end of stay-ON time, the output switches lighting OFF and checks the level of light for max. 5 seconds. As soon as the target level or threshold level is below the selected light level, basic illumination switches ON for the parameterised time. If the light level measured is above it, lighting stays OFF. light-level dependent: if the measured light level is below the setting and the output is not switched ON, basic illumination is activated. always: basic illumination is always active when the output is not switched ON.		
Basic illumination dimming level	1%...100%	10
This parameter is used for setting the dimming level at which basic illumination is switched ON.		
Basic illumination stay-ON time	hh:mm:ss	00:15:00
Basic illumination is switched OFF after expiry of the stay-ON time that is set here. Maximum stay-ON time is 18:12:15.		
Basic illumination threshold level	10 lux …1000 lux	50
This parameter is used for setting the threshold at which basic illumination is activated if the threshold is not met, and at which it is deactivated again if the threshold is significantly exceeded. This takes place irrespective of whether persons are present in the detection zone or not.		
Slave input	inactive	ON
	ON	
	ON/OFF	
This parameter defines whether the slave input expects an ON telegram or whether it expects an ON and OFF telegram.		
Day/night switchover	inactive	inactive
	active	
When day/night switchover is activated, the parameter setting can be switched over via an input object.		
Constant-lighting control stay-ON time	hh:mm:ss	00:05:00
Stay-ON time is started if no presence is detected. This has the purpose of preventing the output from switching OFF immediately if the room is only vacated for a short time and having to be switched back ON again when a person returns to the room. The stay-ON time can be set from 00:00:10 to 18:12:15.		
Light-level setting	10 lux …1000 lux	500
This parameter is used for selecting the setting for light level control.		
Automatic starting value	Yes	Yes
	No	
Yes: the sensor automatically determines the starting value after artificial light calibration. No: the sensor always starts with the given starting value.		
Dimming level starting value (only for automatic starting value "No")	1% … 100%	80
This parameter defines the ON level when constant-lighting control is started.		
Lighting with sufficient daylight	switch OFF	switch OFF
	dim to minimum dimming level	
This parameter is used for selecting whether to switch the lighting OFF completely when constant-lighting control is activated and there is sufficient daylight or whether to leave it ON but dim it to the selectable "minimum dimming level". switch OFF: lighting is switched OFF if the dimming level remains dimmed at the minimum level for a specific period. If stay-ON time elapses first, the output switches OFF directly. dim to minimum dimming level: lighting remains switched ON and is dimmed to "minimum dimming level" even if the dimming level measured by the light-level controller is below the "minimum dimming level" selected. It is only brightened again when the dimming level measured by the light-level controller is above the "minimum dimming level" selected.		

Name	Settings	Factory setting
Minimum dimming level (only for "dim to minimum dimming level" setting)	0.5%; 1%; 2%; 3%; 4%; 5%; 6%; 7%; 8%; 9%; 10%	0.5%
If the light-level controller measures a dimming level below the level selected here, lighting remains dimmed at the minimum dimming level.		
Basic illumination dimming level (only when basic illumination is activated)	1%...100%	10
This parameter is used for setting the dimming level at which basic illumination is switched ON.		
Basic illumination stay-ON time (only when basic illumination is activated on time basis)	hh:mm:ss	00:15:00
Basic illumination is switched OFF after expiry of the stay-ON time that is set here. Maximum stay-ON time is 18:12:15.		
Basic illumination threshold level (only if basic illumination is activated in relation light level)	10 lux …1000 lux	50
This parameter is used for setting the threshold at which basic illumination is activated if the threshold is not met, and at which it is deactivated again if the threshold is significantly exceeded. This takes place irrespective of whether persons are present in the detection zone or not.		

10.4 Presence output

Name	Settings	Factory setting
Switch-ON delay (in seconds)	0…10	1
A movement must be detected throughout the switch-ON delay period. Only then will the output switch ON.		
Stay-ON time	hh:mm:ss	00:00:30
Stay-ON time is started if no presence is detected. This has the purpose of preventing the output from switching OFF immediately if the room is only vacated for a short time and having to be switched back ON again when a person returns to the room. The stay-ON time can be set from 00:00:10 to 18:12:15.		
Send status cyclically	Do not send status cyclically	ON
	ON/OFF	
	ON	
	OFF	
This parameter is used for selecting whether the output not only sends after any change but also cyclically and, if so, for which status. Do not send status cyclically: status is not sent cyclically. ON/OFF: the ON and OFF status is sent cyclically ON: only the ON status is sent cyclically. OFF: only the OFF status is sent cyclically.		
Interval for sending cyclically	hh:mm:ss	00:00:30
Time interval for sending at cyclical intervals.		
Disable output	No	No
	ON for disabling / OFF for enabling	
	OFF for disabling / ON for enabling	
This parameter is used for selecting whether the output can be disabled, and which telegram can be used for disabling and re-enabling the output. No: the output cannot be disabled. Disabling with ON / enabling with OFF: the output is disabled by a telegram with value "1" to the disabled object and enabled by a telegram with value "0". Disabling with OFF / enabling with ON: the output is disabled by a telegram with value "0" to the disabled object and enabled by a telegram with value "1".		

Name	Settings	Factory setting
Behaviour on disabling	no action ON OFF	no action
This parameter is used to select whether to switch the output ON or OFF before disabling or whether to leave the output unchanged. <u>no action</u>: no further action takes place before disabling. <u>ON</u>: output is switched ON before disabling. <u>OFF</u>: output is switched OFF before disabling.		
Behaviour on enabling	Continue control ON OFF	Continue control
This parameter is used to select whether the output is to resume its activity after enabling or whether to switch the output ON or OFF first. <u>Continue control</u>: the output is immediately in normal mode and sets the output in line with configuration. <u>ON</u>: output is switched ON after enabling. Normal operation is reactivated after a delay of 5 seconds. <u>OFF</u>: output is switched OFF after enabling. Normal operation is reactivated after a delay of 5 seconds.		

Name	Settings	Factory setting
Behaviour on enabling	Continue control ON OFF	Continue control
This parameter is used to select whether the output is to resume its activity after enabling or whether to switch the output ON or OFF first. <u>Continue control</u>: the output is immediately in normal mode and sets the output in line with configuration. <u>ON</u>: output is switched ON after enabling. Normal operation is reactivated after a delay of 5 seconds. <u>OFF</u>: output is switched ON after enabling. Normal operation is reactivated after a delay of 5 seconds.		

10.5 Absence output

Name	Settings	Factory setting
Switch-ON delay (in seconds)	0…10	1
No movement must be detected throughout the switch-ON delay period. Only then will the output switch ON.		
Stay-ON time	hh:mm:ss	00:00:30
Stay-ON time is started if no absence is detected. This has the purpose of preventing the output from switching OFF immediately if the room is only vacated for a short time and having to be switched back ON again when a person returns to the room. The stay-ON time can be set from 00:00:10 to 18:12:15.		
Send status cyclically	Do not send status cyclically	ON
	ON/OFF	
	ON	
	OFF	
This parameter is used for selecting whether the output not only sends after any change but also cyclically and, if so, for which status. Do not send status cyclically: the status is not sent cyclically. <u>ON/OFF</u>: ON and OFF status is sent cyclically. <u>ON</u>: only ON status is sent cyclically. <u>OFF</u>: only OFF status is sent cyclically.		
Interval for sending cyclically	hh:mm:ss	00:00:30
Time interval for sending at cyclical intervals.		
Disable output	No	No
	ON for disabling / OFF for enabling	
	OFF for disabling / ON for enabling	
This parameter is used for selecting whether the output can be disabled, and which telegram can be used for disabling and re-enabling the output. <u>No</u>: the output cannot be disabled. <u>Disabling with ON / enabling with OFF</u>: the output is disabled by a telegram with value "1" to the disabled object and enabled by a telegram with value "0". <u>Disabling with OFF / enabling with ON</u>: the output is disabled by a telegram with value "0" to the disabled object and enabled by a telegram with value "1".		
Behaviour on disabling	no action ON OFF	no action
This parameter is used to select whether to switch the output ON or OFF before disabling or whether to leave the output unchanged. <u>no action</u>: no further action takes place before disabling. <u>ON</u>: output is switched ON before disabling. <u>OFF</u>: output is switched OFF before disabling.		

10.6 HVAC output

Name	Settings	Factory setting
Switch-ON delay (only presence-dependent)	hh:mm:ss	00:05:00
A movement must be detected throughout the switch-ON delay period. Only then will the output switch ON. The maximum switch-ON delay is 18:12:15.		
Stay-ON time (only presence-dependent)	hh:mm:ss	00:15:00
Stay-ON time is started if no presence is detected. This has the purpose of preventing the output from switching OFF immediately if the room is only vacated for a short time and having to be switched back ON again when a person returns to the room. The stay-ON time can be set from 00:00:10 to 18:12:15.		
CO$_2$	inactive	inactive
	active	
This parameter can be used to include the CO$_2$ sensor in the HVAC control system.		
CO$_2$ switch ON value	0 … 65535 ppm	800
If the value measured is greater than the value set here, the input switches ON.		
CO$_2$ switch OFF value	0 … 65535 ppm	400
This parameter is used to set at which CO$_2$ value the output is switched OFF again. The output only switches OFF if all other active conditions (presence, VOC) also have the status OFF.		
VOC	inactive	inactive
	active	
This parameter can be used to include the VOC sensor in the HVAC control system.		
VOC switch ON value	0 … 65535 ppb	800
If the value measured is greater than the value set here, the input switches ON.		
VOC switch OFF value	0 … 65535 ppb	400
This parameter is used to set at which VOC value the output is switched OFF again. The output only switches OFF if all other active conditions (presence, VOC) also have the status OFF.		
Disable output	No	No
	ON for disabling / OFF for enabling	
	OFF for disabling / ON for enabling	
This parameter is used for selecting whether the output can be disabled, and which telegram can be used for disabling and re-enabling the output. <u>No</u>: the output cannot be disabled. <u>Disabling with ON / enabling with OFF</u>: the output is disabled by a telegram with value "1" to the disabled object and enabled by a telegram with value "0". <u>Disabling with OFF / enabling with ON</u>: the output is disabled by a telegram with value "0" to the disabled object and enabled by a telegram with value "1".		

Name	Settings	Factory setting
Behaviour on disabling	no action ON OFF	no action
This parameter is used to select whether to switch the output ON or OFF before disabling or whether to leave the output unchanged. no action: no further action takes place before disabling. ON: output is switched ON before disabling. OFF: output is switched OFF before disabling.		
Behaviour on enabling	Continue control ON OFF	Continue control
This parameter is used to select whether the output is to resume its activity after enabling or whether to switch the output ON or OFF first. Continue control: the output is immediately in normal mode and sets the output in line with configuration. ON: output is switched ON after enabling. Normal operation is reactivated after a delay of 5 seconds. OFF: output is switched ON after enabling. Normal operation is reactivated after a delay of 5 seconds.		
Slave input	inactive ON ON/OFF	ON
This parameter defines whether the slave input expects an ON telegram or whether it expects an ON and OFF telegram.		

10.7 Light level output

Name	Settings	Factory setting
Send measured value cyclically or upon change	Change Cyclically	Change
This parameter is used for selecting whether only to send the measurement values after a change or cyclically via bus.		
Min. light-level change	1 lux – 255 lux	30 lux
This parameter is used to select which level the last measured value sent must have changed by before the measured value is to be sent again.		
Send measured value cyclically	hh:mm:ss	00:00:30
Time interval for sending all measured light levels at cyclical intervals. The maximum time interval is 18:12:15.		

10.8 Temperature output

Name	Settings	Factory setting
Send measured value cyclically or upon change	Change Cyclically	Change
This parameter is used for selecting whether only to send the measured value after a change or cyclically via bus.		
Min. change	1 … 255	10
This parameter is used to select which level the last measured value sent must have changed by before the measured value is to be sent again. The set value is multiplied by 0.1°C.		
Send measured value cyclically	hh:mm:ss	00:01:00
Time interval for sending the measured value at cyclical intervals. The maximum time interval is 18:12:15.		
Sensor calibration	-128 … 127	0
The internal temperature sensor can be calibrated with this value * 0.1°C.		
External temperature	inactive active	inactive
This parameter is used to select whether an external temperature is to be included. After a restart, the external temperature is only included if a temperature has been received. Until then, only the internal temperature value will be used.		
External temperature weighting	1% … 100%	50%
This value defines the extent to which the external value is weighted.		

Name	Settings	Factory setting
Limit value Temperature	0 … 400	200
This parameter is used for setting a limit value. The value must be multiplied by the factor 0.1°C.		
Limit value Hysteresis	0 … 400	50
This parameter is used for setting the hysteresis to the limit value. The value must be multiplied by the factor 0.1°C.		
Limit value Switching output mode	THR over = ON / THR – hyst. under = OFF THR over = OFF / THR – hyst. under = ON THR under = ON / THR + hyst. under = OFF THR under = OFF / THR + hyst. over = ON	THR over = 1 / THR – hyst. under = 0
This parameter is used to set how the switching output behaves if the vale exceeds or falls below the threshold.		
Limit value Send status cyclically	Do not send status cyclically ON/OFF ON OFF	Do not send status cyclically
This parameter is used for selecting whether the output not only sends after any change but also cyclically and, if so, for which status. Do not send status cyclically: the status is not sent cyclically. ON/OFF: ON and OFF status is sent cyclically. ON: only ON status is sent cyclically. OFF: only OFF status is sent cyclically.		
Interval for sending cyclically	hh:mm:ss	00:00:30
Time interval for sending at cyclical intervals. The maximum time interval is 18:12:15.		
Disable threshold	No ON for disabling / OFF for enabling OFF for disabling / ON for enabling	No
This parameter is used for selecting whether the output can be disabled, and which telegram can be used for disabling and re-enabling the output. No: the output cannot be disabled. Disabling with ON / enabling with OFF: the output is disabled by a telegram with value "1" to the disabled object and enabled by a telegram with value "0". Disabling with OFF / enabling with ON: the output is disabled by a telegram with value "0" to the disabled object and enabled by a telegram with value "1".		
Behaviour on disabling	no action ON OFF	no action
This parameter is used to select whether to switch the output ON or OFF before disabling or whether to leave the output unchanged. no action: no further action takes place before disabling. ON: output is switched ON before disabling. OFF: output is switched OFF before disabling.		

10.9 Humidity output

Name	Settings	Factory setting
Send measured value cyclically or upon change	Change Cyclically	Change
This parameter is used for selecting whether only to send the measured value after a change or cyclically via bus.		
Min. change	1 … 255	10
This parameter is used to select which level the last measured value sent must have changed by before the measured value is to be sent again. The set value is multiplied by 0.1%.		
Send measured value cyclically	hh:mm:ss	00:01:00
Time interval for sending the measured value at cyclical intervals. The maximum time interval is 18:12:15.		

Name	Settings	Factory setting
External humidity	inactive	Change
	active	
This parameter is used to select whether an external humidity is to be included. After a restart, the external humidity is only included if a humidity has been received. Until then, only the internal humidity value will be used.		
External humidity weighting	1% … 100%	50%
This value defines the extent to which the external value is weighted.		
Limit value Humidity	0% … 100%	65%
This parameter is used for setting a limit value. The value must be multiplied by the factor 0.1°C.		
Limit value Hysteresis	0% … 100%	10%
This parameter is used for setting the hysteresis to the limit value. The value must be multiplied by the factor 0.1°C.		
Limit value Switching output mode	THR over = ON / THR – hyst. under = OFF	THR over = 1 / THR – hyst. under = 0
	THR over = OFF / THR – hyst. under = ON	
	THR under = ON / THR + hyst. under = OFF	
	THR under = OFF / THR + hyst. over = ON	
This parameter is used to set how the switching output behaves if the vale exceeds or falls below the threshold.		
Limit value Send status cyclically	Do not send status cyclically	Do not send status cyclically
	ON/OFF	
	ON	
	OFF	
This parameter is used for selecting whether the output not only sends after any change but also cyclically and, if so, for which status. Do not send status cyclically: no status is sent cyclically. ON/OFF: ON and OFF status is sent cyclically. ON: only ON status is sent cyclically. OFF: only OFF status is sent cyclically.		
Interval for sending cyclically	hh:mm:ss	00:00:30
Time interval for sending at cyclical intervals. The maximum time interval is 18:12:15.		
Disable threshold	No	No
	ON for disabling / OFF for enabling	
	OFF for disabling / ON for enabling	
This parameter is used for selecting whether the output can be disabled, and which telegram can be used for disabling and re-enabling the output. No: the output cannot be disabled. Disabling with ON / enabling with OFF: the output is disabled by a telegram with value "1" to the disabled object and enabled by a telegram with value "0". Disabling with OFF / enabling with ON: the output is disabled by a telegram with value "0" to the disabled object and enabled by a telegram with value "1".		
Behaviour on disabling	no action ON OFF	no action
This parameter is used to select whether to switch the output ON or OFF before disabling or whether to leave the output unchanged. no action: no further action takes place before disabling. ON: output is switched ON before disabling. OFF: output is switched OFF before disabling.		

10.10 Dew point

Name	Settings	Factory setting
Send dewpoint temperature	Change	Change
	Cyclically	
This parameter is used for selecting whether only to send the measured value after a change or cyclically via bus.		

Name	Settings	Factory setting
Min. change	1 … 255	10
This parameter is used to select which level the last measured value sent must have changed by before the measured value is to be sent again. The set value is multiplied by 0.1°C.		
Send measured value cyclically	hh:mm:ss	00:01:00
Time interval for sending the measured value at cyclical intervals. The maximum time interval is 18:12:15.		
Lead, dew point alarm	1 … 255	20
This parameter is used to select from which threshold the dew point alarm is to be sent. The set value is multiplied by 0.1°C.		
Hysteresis, dew point alarm	1 … 255	10
This parameter is used to select from which threshold, based on the set lead, the dew point alarm is to switch OFF again. The set value is multiplied by 0.1°C.		

10.11 Comfort range

Name	Settings	Factory setting
Maximum temperature	0°C … 50°C	26°C
This parameter is used to set the upper temperature limit of the comfort range. If the temperature value exceeds this, the room situation is considered to be uncomfortable.		
Minimum temperature	0°C … 50°C	20°C
This parameter is used to set the lower temperature limit of the comfort range. If the temperature value falls below this, the room situation is considered to be uncomfortable.		
Max. rel. humidity	0% … 100%	65%
This parameter is used to set the upper relative humidity limit of the comfort range. If the humidity value exceeds this, the room situation is considered to be uncomfortable.		
Min. rel. humidity	0% … 100%	30%
This parameter is used to set the lower relative humidity limit of the comfort range. If the humidity value falls below this, the room situation is considered to be uncomfortable.		
Max. specific humidity	0 ... 255	255
This parameter x 0.1 g/kg is used to set the maximum specific humidity limit of the comfort range. If the humidity value exceeds this, the room situation is considered to be uncomfortable.		
Text message within comfort range	14-byte text message	comfortable
This parameter is used to select which freely definable 14-byte text message is sent via the bus when the values are within the comfort range.		
Text message outside of comfort range	14-byte text message	uncomfortable
This parameter is used to select which freely definable 14-byte text message is sent via the bus when the values are outside of the comfort range.		
Status, comfort level	comfortable = ON / uncomfortable = OFF	comfortable = ON / uncomfortable = OFF
	comfortable = OFF / uncomfortable = ON	
This parameter is used to select which status value the object sends at comfortable and uncomfortable.		

10.12 Air pressure

Name	Settings	Factory setting
Installation altitude	0 m … 5000 m	70 m
This parameter is used to specify the installation altitude. The entry is to be specified in metres above mean sea level (MSL)		
Send measured value cyclically or upon change	Change	Change
	Cyclically	
This parameter is used for selecting whether only to send the measured value after a change or cyclically via bus.		
Min. change	1 hPa … 255 hPa	10 hPa
This parameter is used to select which level the last measured value sent must have changed by before the measured value is to be sent again.		

Name	Settings	Factory setting
Send measured value cyclically	hh:mm:ss	00:01:00
Time interval for sending the measured value at cyclical intervals. The maximum time interval is 18:12:15.		
Limit value, air pressure, input	Absolute air pressure	Absolute air pressure
	Relative air pressure	
This parameter is used to select which air pressure is to be evaluated for the limit value calculation.		
Air pressure limit value	3000 … 11000	10200
This parameter is used for setting a limit value. The value must be multiplied by the factor 10°Pa.		
Hysteresis limit value	0 … 11000	100
This parameter is used for setting the hysteresis to the limit value. The value must be multiplied by the factor 10°Pa.		
Limit value Switching output mode	THR over = ON / THR – hyst. under = OFF	THR over = 1 / THR – hyst. under = 0
	THR over = OFF / THR – hyst. under = ON	
	THR under = ON / THR + hyst. under = OFF	
	THR under = OFF / THR + hyst. over = ON	
This parameter is used to set how the switching output behaves if the vale exceeds or falls below the threshold.		
Limit value send status cyclically	Do not send status cyclically	Do not send status cyclically
	ON/OFF	
	ON	
	OFF	
This parameter is used for selecting whether the output not only sends after any change but also cyclically and, if so, for which status. Do not send status cyclically: the status is not sent cyclically. ON/OFF: ON and OFF status is sent cyclically. ON: only ON status is sent cyclically. OFF: only OFF status is sent cyclically.		
Interval for sending cyclically	hh:mm:ss	00:00:30
Time interval for sending at cyclical intervals. The maximum time interval is 18:12:15.		
Disable threshold	No	No
	ON for disabling / OFF for enabling	
	OFF for disabling / ON for enabling	
This parameter is used for selecting whether the output can be disabled, and which telegram can be used for disabling and re-enabling the output. No: the output cannot be disabled. Disabling with ON / enabling with OFF: the output is disabled by a telegram with value "1" to the disabled object and enabled by a telegram with value "0". Disabling with OFF / enabling with ON: the output is disabled by a telegram with value "0" to the disabled object and enabled by a telegram with value "1".		
Behaviour on disabling	no action ON OFF	no action
This parameter is used to select whether to switch the output ON or OFF before disabling or whether to leave the output unchanged. no action: no further action takes place before disabling. ON: output is switched ON before disabling. OFF: output is switched OFF before disabling.		

10.13 CO₂ output

Name	Settings	Factory setting
Number of limit values	1	1
	2	
	3	
	4	
This parameter is used for setting the number of limit values.		

Name	Settings	Factory setting
Send measured value cyclically or upon change	Change	Change
	Cyclically	
This parameter is used for selecting whether only to send the measured value after a change or cyclically via bus.		
Min. change	1 … 255	10
This parameter is used to select which level the last measured value sent must have changed by before the measured value is to be sent again.		
Send measured value cyclically	hh:mm:ss	00:01:00
Time interval for sending the measured value at cyclical intervals. The maximum time interval is 18:12:15.		
Limit value in ppm	0 … 6535	1200
This parameter is used to define at which ppm value the output is to be switched ON.		
Hysteresis limit value	0 … 6535	600
This parameter is used for setting which hysteresis the output has. The output switches OFF, if the measured value is below the "Hysteresis limit value".		
Limit value stay-ON time	hh:mm:ss	00:00:00
This parameter is used to set with which delay the output is switched OFF. The measured value must be below the value for the specified "Hysteresis limit value" stay-ON time before the output is switched OFF. If the measured value is not below this, the stay-ON time is re-triggered. The stay-ON time can be set from 00:00:00 to 18:12:15.		
Send status cyclically	Do not send status cyclically	ON
	ON/OFF	
	ON	
	OFF	
This parameter is used for selecting whether the output not only sends after any change but also cyclically and, if so, for which status. Do not send status cyclically: the status is not sent cyclically. ON/OFF: ON and OFF status is sent cyclically. ON: only ON status is sent cyclically. OFF: only OFF status is sent cyclically.		
Interval for sending cyclically	hh:mm:ss	00:00:30
Time interval for sending at cyclical intervals. The maximum time interval is 18:12:15.		
Disable output	No	No
	ON for disabling / OFF for enabling	
	OFF for disabling / ON for enabling	
This parameter is used for selecting whether the output can be disabled, and which telegram can be used for disabling and re-enabling the output. No: the output cannot be disabled. Disabling with ON / enabling with OFF: the output is disabled by a telegram with value "1" to the disabled object and enabled by a telegram with value "0". Disabling with OFF / enabling with ON: the output is disabled by a telegram with value "0" to the disabled object and enabled by a telegram with value "1".		
Behaviour on disabling	no action ON OFF	no action
This parameter is used to select whether to switch the output ON or OFF before disabling or whether to leave the output unchanged. no action: no further action takes place before disabling. ON: the output (all active limit values) is switched ON before disabling. OFF: the output (all active limit values) is switched OFF before disabling.		
Behaviour on enabling	Continue control ON OFF	Continue control
This parameter is used to select whether the output is to resume its activity after enabling or whether to switch the output ON or OFF first. Continue control: the output is immediately in normal mode and sets the output in line with configuration. ON: output is switched ON after enabling. Normal operation is reactivated after a delay of 5 seconds. OFF: output is switched ON after enabling. Normal operation is reactivated after a delay of 5 seconds.		

10.14 VOC output

Name	Settings	Factory setting
Number of limit values	1	1
	2	
	3	
	4	
This parameter is used for setting the number of limit values.		
Send measured value cyclically or upon change	Change	Change
	Cyclically	
This parameter is used for selecting whether only to send the measured value after a change or cyclically via bus.		
Min. change	1 … 100	10
This parameter is used to select which level the last measured value sent must have changed by before the measured value is to be sent again.		
Send measured value cyclically	hh:mm:ss	00:01:00
Time interval for sending the measured value at cyclical intervals. The maximum time interval is 18:12:15.		
Limit value	0 … 6535	100
This parameter is used to define at which ppm value the output is to be switched ON.		
Hysteresis limit value	0 … 6535	20
This parameter is used for setting which hysteresis the output has. The output switches OFF, if the measured value is below the "Hysteresis limit value".		
Limit value stay-ON time	hh:mm:ss	00:00:00
This parameter is used to set with which delay the output is switched OFF. The measured value must be below the value for the specified "Hysteresis limit value" stay-ON time before the output is switched OFF. If the measured value is not below this, the stay-ON time is re-triggered. The stay-ON time can be set from 00:00:00 to 18:12:15.		
Send status cyclically	Do not send status cyclically	ON
	ON/OFF	
	ON	
	OFF	
This parameter is used for selecting whether the output not only sends after any change but also cyclically and, if so, for which status. Do not send status cyclically: the status is not sent cyclically. ON/OFF: ON and OFF status is sent cyclically. ON: only ON status is sent cyclically. OFF: only OFF status is sent cyclically.		
Interval for sending cyclically	hh:mm:ss	00:00:30
Time interval for sending at cyclical intervals. The maximum time interval is 18:12:15.		
Disable output	No	No
	ON for disabling / OFF for enabling	
	OFF for disabling / ON for enabling	
This parameter is used for selecting whether the output can be disabled, and which telegram can be used for disabling and re-enabling the output. No: the output cannot be disabled. Disabling with ON / enabling with OFF: the output is disabled by a telegram with value "1" to the disabled object and enabled by a telegram with value "0". Disabling with OFF / enabling with ON: the output is disabled by a telegram with value "0" to the disabled object and enabled by a telegram with value "1".		
Behaviour on disabling	no action ON OFF	no action
This parameter is used to select whether to switch the output ON or OFF before disabling or whether to leave the output unchanged. no action: no further action takes place before disabling. ON: the output (all active limit values) is switched ON before disabling. OFF: the output (all active limit values) is switched OFF before disabling.		

Name	Settings	Factory setting
Behaviour on enabling	Continue control ON OFF	Continue control
This parameter is used to select whether the output is to resume its activity after enabling or whether to switch the output ON or OFF first. Continue control: the output is immediately in normal mode and sets the output in line with configuration. ON: output is switched ON after enabling. Normal operation is reactivated after a delay of 5 seconds. OFF: output is switched ON after enabling. Normal operation is reactivated after a delay of 5 seconds.		

10.15 Logic gates 1…2 (all identical)

Name	Settings	Factory setting
Logic gate type of logic operation	OR; AND; exclusive OR	OR
This parameter defines the logical operation the gate performs.		
Logic gate number of inputs	1 … 4	2
This parameter defines how many inputs the gate has.		
Logic gate type of output object	ON/OFF	ON/OFF
	Value	
This parameter is used to specify the output type.		
Logic gate switching command for logical 0	ON; OFF	OFF
This parameter is used to configure which switching command is sent for a logical "0".		
Logic gate switching command for logical 1	ON; OFF	ON
This parameter is used to configure which switching command is sent for a logical "1".		
Logic gate value for logical 0	0 … 255	0
This parameter is used to configure which value is sent for a logical "0".		
Logic gate value for logical 1	0 … 255	255
This parameter is used to configure which value is sent for a logical "1".		
Logic gate output sending behaviour	on changing logic; on changing logic to 1; on changing logic to 0;	ON/OFF
This parameter is used for setting the output sending behaviour.		
Disable logic gate	No	No
	ON for disabling / OFF for enabling	
	OFF for disabling / ON for enabling	
This parameter is used for selecting whether the output can be disabled, and which telegram can be used for disabling and re-enabling the output. No: the output cannot be disabled. Disabling with ON / enabling with OFF: the output is disabled by a telegram with value "1" to the disabled object and enabled by a telegram with value "0". Disabling with OFF / enabling with ON: the output is disabled by a telegram with value "0" to the disabled object and enabled by a telegram with value "1".		
Logic gate behaviour on disabling	no action ON OFF	no action
This parameter is used to select whether to switch the output ON or OFF before disabling or whether to leave the output unchanged. no action: no further action takes place before disabling. ON: output is switched ON before disabling. OFF: output is switched OFF before disabling.		