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KNX

KNX Application Description for

KNX High Bay presence detector FM MEG6304-0019

KNX High Bay presence detector MEG6354-0019

KNX Corridor presence detector FM MEG6305-0019

KNX Corridor presence detector MEG6355-0019

KNX Mini presence detector MEG6303-0019

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1 Detector functions

The sensors consist of passive infrared motion detectors with integrated brightness sensor. All detectors are provided with an infrared communication interface via IR remote control as well as an LED for indicating feedback.

The following detectors are available:

KNX High Bay Presence Detector: The PIR presence detector comprises three passive infrared (PIR) motion detectors with integrated brightness sensor, integrated IR receiver and integrated red light-emitting diode (LED) for indicating a movement detected in test mode.

KNX Corridor Presence Detector: The PIR presence detector comprises two passive infrared (PIR) motion detectors with integrated brightness sensor, integrated IR receiver and integrated red light-emitting diode (LED) for indicating a movement detected in test mode.

KNX Presenced Mini: The PIR presence detector comprises one passive infrared (PIR) motion detector with integrated brightness sensor, integrated IR receiver and integrated red light-emitting diode (LED) for indicating a movement detected in test mode. The feedback for programming is signalled with a blue LED.

The following settings must be selected under the general settings:

- Selection of sensor to define the detector used

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

1.1 Functions

- Output, light outputs X – lighting switched ON and OFF for up to X light outputs
- Output, constant lighting control – constant lighting control for up to 2 light outputs in addition to the X switched light outputs
- Output, basic illumination – switches to a basic level of illumination when persons are absent
- Presence output - switching in response to presence irrespective of brightness
- Presence output – switching in response to presence irrespective of ambient brightness
- Output, HVAC – switching in relation to presence with the capability of taking into account CO2 and/or VOC
- Output, twilight Switch – switching in relation to brightness without taking account of absence
- Output, brightness – output of the brightness measured
- Output, sabotage – cyclical sending of a telegram (heartbeat)
- Output, logic gate – switching or scene selection on the basis of 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.

Detector	Number of light outputs X
KNX High Bay Presence Detector	2
KNX Corridor Presence Detector	2
KNX Presence Mini	4

1.2 Light output

The sensor has X independent light outputs. Each output can be configured with its own 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 light. The staircase time can be set to a fixed period or the IQ mode can be configured. Reach and sensor sensitivity can be set to suit any situation. A basic level of illumination can also be selected for each light. A slave input object is available for each output to extend reach.

It is possible to select whether the light output uses motion-detector logic or presence-detector logic. With motion-detector logic, the sensor does not switch OFF light in relation to incidental daylight. With presence-detector logic, lighting is switched OFF if the daylight component provides a sufficient brightness. Presence-detector logic is configured with an offset. If the brightness measured exceeds the "switching threshold + offset switching threshold OFF" value, the output switches OFF.

In example 1, presence is selected at time t1 and light is switched ON. From now on, presence is detected all the time. The change in brightness is determined at time t2. Brightness continues to increase from t3. The brightness measured exceeds the "switching threshold + offset switching threshold OFF" value as from t4. The staircase time is only no longer re-triggered from time t5. Here, the brightness measured is greater than "switching threshold + offset switching threshold OFF + offset". At time t6, staircase time has elapsed and light is switched OFF.

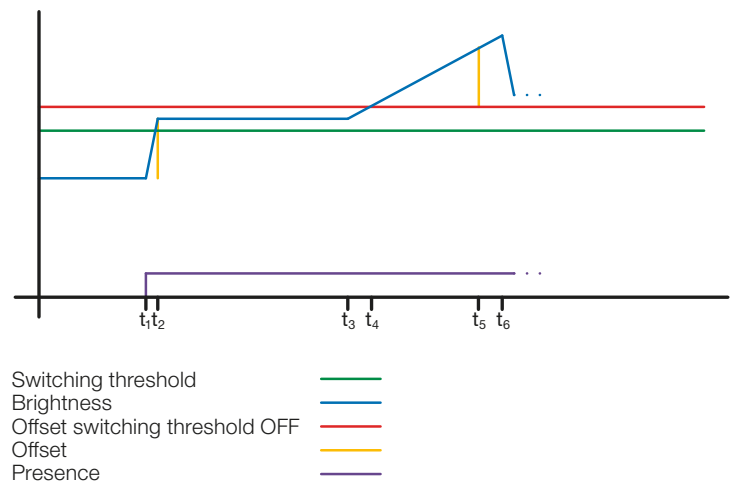


Figure 1: Example 1, switching OFF on the basis of brightness

In example 2, light 1 switches ON first (t1). The change in brightness is determined at t2. The brightness measured then falls below the switching threshold of light 2 and switches light 2 ON (t3). The change in brightness is determined at t4 and added to the change in light brightness 1 to create an offset. As from time t5, the brightness measured exceeds the "switching threshold light 2 + offset switching threshold light 2 OFF + offset" value and the staircase time for light 2 is no longer re-triggered. Light 2 switches the output OFF after the staircase time elapses (t6). The change in brightness is determined at t7 and added to the offset. As from time t8, the brightness measured exceeds the "switching threshold light 1 + offset switching threshold light 4 OFF + offset" value and the staircase time for light 1 is no longer re-triggered. Light 1 switches the output OFF after the staircase time elapses (t8).

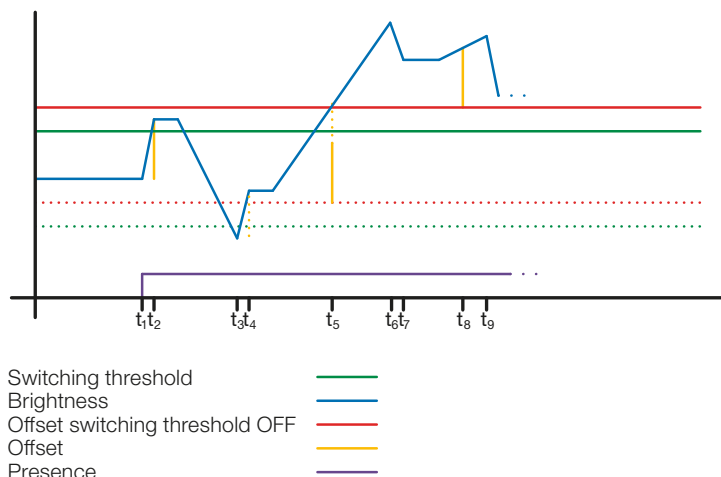


Figure 2: Example 2, switching OFF on the basis of brightness

For IQ mode the classic application would be a large office. In the working core time, a lot of movement is sensed and the light is switched on longer. The likelihood that the light will turn off even though someone is in the room is very low. Outside working core time, less or no movement is sensed (at night or on weekends). The staircase time thus moves to the minimum value. If motion is still detected (e.g., cleaning personnel, or guard duty, etc.), then the light is only switched on briefly.

1.3 Constant lighting control output

Constant lighting control always approaches the brightness 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".

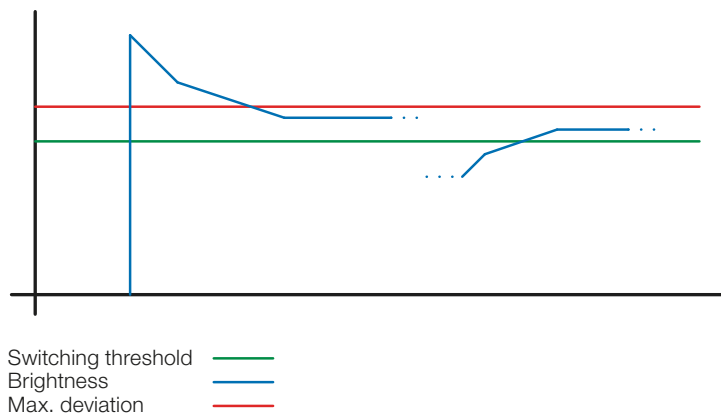


Figure 3: Constant lighting control range corrected

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 brightness setting.

Note: artificial light calibration must take place before the dynamic starting value can be used. The fixed level is used until teaching 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 teaching process. While teaching, it is important to ensure that the maximum daylight component does not exceed 20 lux. After teaching in the brightness setting, lighting comes on at 100% output and goes down to 0% in 10% steps.

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

$$\text{Correction intensity} = \frac{\text{current dimming level} - \text{dimming level on teaching}}{\text{Correction factor}}$$

$$\text{New brightness} = \text{current brightness} \times (1 + \text{correction intensity})$$

Note: if the brightness setting is changed after calibration, calibration must be repeated for the new brightness setting.

1.3.2 Calibration procedure

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

$$\text{Current brightness} \geq \text{target brightness} + \text{max. deviation} \times 2$$

or

$$\text{Current brightness} \leq \text{target brightness} - \text{max. deviation}$$

If the current brightness is closer to the brightness setting, 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 level is limited to 100%. If the first light is set to 100%, a negative offset is selected and the current target level is not reached, the second output gradually increases brightness to max. 100%. If light is at 0.5% or minimum level, a positive offset is selected and the target brightness is exceeded, the second output dims down to at least the level of the first output.

1.4 Basic illumination output

A basic level of illumination is available for the light outputs and constant lighting control. The following settings are possible here:

- **Time-limited:** at the end of staircase time, the output switches lighting OFF and checks the brightness. As soon as the target level or threshold level is below the selected brightness, basic illumination switches ON for the parameterised time. If the brightness measured is above it, lighting stays OFF.

- Dependent on brightness: if the sensor does not detect any presence and the brightness measured is below the selected target level or threshold level, basic illumination is switched ON.
- Dimming (for light output only): at the end of staircase time, the sensor gradually dims lighting down to the point at which it switches OFF.
- Always: basic illumination is always active when the output is not switched ON.

The output always switches ON when basic illumination is active and the sensor is detecting presence.

Note: if light is not in daylight mode and basic illumination has been parameterised to "always", the selected threshold level is irrelevant. The output then always switches between the activated state and basic illumination. The output switches ON whenever presence is detected during basic illumination.

1.5 Presence output

The presence output works irrespective of brightness. A switch-ON delay and a staircase time can be configured. It is possible to send the current feedback 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.

1.6 Absence output

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

1.7 HVAC output

The HVAC output works irrespective of brightness. A switch-ON delay and a staircase time can be configured. Besides presence feedback, switching thresholds can also be configured for the CO₂ and VOC sensor. An OR logic operation exists between the various presence, CO₂ and CO₂ decision-making criteria. Only one of the conditions must be met for switching to take place.

1.8 Twilight Switch output

The twilight Switch output only works in relation to the brightness measured and irrespective of whether persons are present. If the level measured is below the selected threshold, the output is switched ON. The output has an OFF delay of 3 minutes.

1.9 Brightness output

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

1.10 Sabotage output

The sabotage output serves as a heartbeat in order to take note of detector failure or manipulation, e.g. detachment of the sensor head, on the basis of the absent interval telegram.

1.11 Logic gate

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. change to logical 1 or change to logical 0, the output can send the current feedback to the KNX bus.

2 Interconnection

A slave input is available for all outputs using the presence feedback. 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 staircase time until its own presence feedback 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 staircase 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 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 brightness), 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 brightness (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 outputs for light 4-4 as well as constant lighting control provide the capability of selecting different settings for lighting ON & OFF levels, staircase times, brightness, offset, switch-OFF behaviour and basic illumination. An input object is provided for each light and for constant lighting control which can be switched over to "night mode".

5 Remote control, programming mode and feedback LED

5.1 Remote control

The remote-control functions can be activated or deactivated under General Settings.

5.2 Remote control and programming mode

The detectors can be put into KNX programming mode via the IR remote control.

5.3 Programming mode via button

Function	Colour	Type	Remark
Non-programmed sensor on bus voltage	Red	Flashing	in response to movement
Initialisation of sensor after downloading or restoring bus voltage (already parameterised)	Red	Flashing	Once a sec.
Remote control command received	Red	Flashing	1×
Programming mode KNX	Red	ON	
Programming mode KNX (Presence Mini)	Blue	ON	
Normal mode		OFF	

By way of alternative to activating the programming mode, a button is provided on the back of the detector for programming the physical KNX address using the ETS.

5.4 Brightness LED

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 brightness and time settings. The time settings for presence, absence and HVAC.

7 Behaviour after a bus voltage failure and return as well as on re-starting and downloading

In the event of a bus voltage failure, the detectors also cease to operate as their electronic system is powered by the bus voltage. Prior to a bus voltage failure, all user entries are saved (brightness, staircase times, hystereses, and locked 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 locked for between 10 and 40 seconds. Lighting is switched ON at the start of the locking time and switched OFF for approx. 2 seconds at the end of the locking 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 3000-series detector is being installed, the integrated LED will light up every time movement is detected until such time as 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 (unload), the multisensor indicates its feedback by 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.

9.1 List of communication objects for KNX Presence Production and KNX Presence Corridor

Object	Object name	Function	DPT	Flags
1	not used		19.001	CWT
2	Feedback	Feedback	5.001	CRT
3	not used		5.005	CWT
4	Twilight switch	Switching output	1.001	CRT
5	Twilight switch	Threshold value input	9.004	CRWT
6	Twilight switch	Lock input	1.001	CWT
7	Twilight switch	Lock feedback output	1.001	CWT
8	Sabotage	Switch output	1.001	CRT
9	Scene	Activate teaching response output	18.001	CRT
10	Brightness	Measured brightness output	9.004	CRWT
11	not used		9.004	CRWT
12	Presence	Lock input	1.001	CWT
13	Presence	Lock feedback output	1.001	CRT
14	Presence	Switch output	1.001	CRT
15	Presence	Staircase lighting time input	7.005	CRWT
16	Presence	Switch-ON delay input	7.005	CRWT
17	Absence	Lock input	1.001	CWT
18	Absence	Lock feedback output	1.001	CRT
19	Absence	Switch output	1.001	CRT
20	Absence	Staircase lighting time input	7.005	CRWT
21	Absence	Switch-ON delay input	7.005	CRWT
22	Light 1	Switch output	1.001	CRWT
23	Light 1	Switch input	1.001	CWT
24	Light 1	Value output	5.001	CRT
25	Light 1	Dim input	3.007	CWT
26	Light 1	Level input	5.001	CWT
27	Light 1	Scene output	18.001	CRT
28	Light 1	Slave input	1.001	CWT
29	Light 1	Brightness threshold input	9.004	CRWT
30	Light 1	Staircase lighting time input	7.005	CRWT
31	Light 1	External brightness input	9.004	CWT
32	Light 1	Night input	1.001	CWT
33	Light 1	Lock input	1.001	CWT
34	Light 1	Lock feedback output	1.001	CRT
35	Light 2	Switch output	1.001	CRWT
36	Light 2	Switch input	1.001	CWT
37	Light 2	Value output	5.001	CRT
38	Light 2	Dim input	3.007	CWT
39	Light 2	Level input	5.001	CWT
40	Light 2	Scene output	18.001	CRT
41	Light 2	Slave input	1.001	CWT
42	Light 2	Brightness threshold input	9.004	CRWT
43	Light 2	Staircase lighting time input	7.005	CRWT
44	Light 2	External brightness input	9.004	CWT
45	Light 2	Night input	1.001	CWT
46	Light 2	Lock input	1.001	CWT
47	Light 2	Lock feedback output	1.001	CRT
48	HVAC	Switch output	1.001	CRT

Object	Object name	Function	DPT	Flags
49	HVAC	Staircase lighting time input	7.005	CRWT
50	HVAC	Switch-ON delay input	7.005	CRWT
51	HVAC	Slave input	1.001	CWT
52	HVAC	Lock input	1.001	CWT
53	HVAC	Lock feedback output	1.001	CRT
54	Logic gate 1	Logic input 1	1.001	CWT
55	Logic gate 1	Logic input 2	1.001	CWT
56	Logic gate 1	Logic input 3	1.001	CWT
57	Logic gate 1	Logic input 4	1.001	CWT
58	Logic gate 1	Switch output	1.001	CRT
59	Logic gate 1	Value output	5.001	CRT
60	Logic gate 1	Lock input	1.001	CWT
61	Logic gate 1	Lock feedback output	1.001	CRT
62	Logic gate 1	Logic input 1	1.001	CWT
63	Logic gate 2	Logic input 2	1.001	CWT
64	Logic gate 2	Logic input 3	1.001	CWT
65	Logic gate 2	Logic input 4	1.001	CWT
66	Logic gate 2	Switch output	1.001	CRT
67	Logic gate 2	Value output	5.001	CRT
68	Logic gate 2	Lock input	1.001	CWT
69	Logic gate 2	Lock feedback output	1.001	CRT
70	Constant lighting control 1	Switch output	1.001	CRT
71	Constant lighting control 1	Value output	5.001	CRT
72	Constant lighting control 2	Brightness setting input	9.004	CWT
73	Constant lighting control 1	Staircase lighting time input	7.005	CRWT
74	Constant lighting control 1	Switch input	1.001	CRWT
75	Constant lighting control 1	Dim input	3.007	CWT
76	Constant lighting control 1	Teaching input	1.001	CWT
77	Constant lighting control	Switch output	1.001	CWT
78	Constant lighting control 2	Value output	5.001	CRT
79	Constant lighting control 2	Switch input	1.001	CWT
80	Constant lighting control 2	Dim input	3.007	CWT
81	Constant lighting control	Slave input	1.001	CWT
82	Constant lighting control	External brightness input	9.004	CWT
83	not used		9.004	CWT
84	Constant lighting control	Night input	1.001	CWT
85	Constant lighting control	Lock input	1.001	CWT
86	Constant lighting control	Lock feedback output	1.001	CRT

9.2 List of communication objects for KNX Presence Mini

Object	Object name	Function	DPT	Flags
1	not used		19.001	CWT
2	Twilight switch	Switch output	1.001	CRT
3	Twilight switch	Threshold value input	9.004	CRWT
4	Twilight switch	Lock input	1.001	CWT
5	Twilight switch	Lock feedback output	1.001	CWT
6	Sabotage	Switch output	1.001	CRT
7	Scene	Activate teaching response output	18.001	CRT
8	Brightness	Measured brightness output	9.004	CRWT
9	Presence	Lock input	1.001	CWT
10	Presence	Lock feedback output	1.001	CRT
11	Presence	Switch output	1.001	CRT
12	Presence	Staircase lighting time input	7.005	CRWT
13	Presence	Switch-ON delay input	7.005	CRWT
14	Absence	Lock input	1.001	CWT
15	Absence	Lock feedback output	1.001	CRT
16	Absence	Switch output	1.001	CRT
17	Absence	Staircase lighting time input	7.005	CRWT
18	Absence	Switch-ON delay input	7.005	CRWT
19	Light 1	Switch output	1.001	CRWT
20	Light 1	Switch input	1.001	CWT
21	Light 1	Value output	5.001	CRT
22	Light 1	Dim input	3.007	CWT
23	Light 1	Level input	5.001	CWT
24	Light 1	Scene output	18.001	CRT
25	Light 1	Slave input	1.001	CWT
26	Light 1	Brightness threshold input	9.004	CRWT
27	Light 1	Staircase lighting time input	7.005	CRWT
28	Light 1	External brightness input	9.004	CWT
29	Light 1	Night input	1.001	CWT
30	Light 1	Lock input	1.001	CWT
31	Light 1	Lock feedback output	1.001	CRT
32	Light 2	Switch output	1.001	CRWT
33	Light 2	Switch input	1.001	CWT
34	Light 2	Value output	5.001	CRT
35	Light 2	Dim input	3.007	CWT
36	Light 2	Level input	5.001	CWT
37	Light 2	Scene output	18.001	CRT
38	Light 2	Slave input	1.001	CWT
39	Light 2	Brightness threshold input	9.004	CRWT
40	Light 2	Staircase lighting time input	7.005	CRWT
41	Light 2	External brightness input	9.004	CWT
42	Light 2	Night input	1.001	CWT
43	Light 2	Lock input	1.001	CWT
44	Light 2	Lock feedback output	1.001	CRT
45	Light 3	Switch output	1.001	CRWT
46	Light 3	Switch input	1.001	CWT
47	Light 3	Value output	5.001	CRT
48	Light 3	Dim input	3.007	CWT
49	Light 3	Level input	5.001	CWT

Object	Object name	Function	DPT	Flags
50	Light 3	Scene output	18.001	CRT
51	Light 3	Slave input	1.001	CWT
52	Light 3	Brightness threshold input	9.004	CRWT
53	Light 3	Staircase lighting time input	7.005	CRWT
54	Light 3	External brightness input	9.004	CWT
55	Light 3	Night input	1.001	CWT
56	Light 3	Lock input	1.001	CWT
57	Light 3	Lock feedback output	1.001	CRT
58	Light 4	Switch output	1.001	CRWT
59	Light 4	Switch input	1.001	CWT
60	Light 4	Value output	5.001	CRT
61	Light 4	Dim input	3.007	CWT
62	Light 4	Level input	5.001	CWT
63	Light 4	Scene output	18.001	CRT
64	Light 4	Slave input	1.001	CWT
65	Light 4	Brightness threshold input	9.004	CRWT
66	Light 4	Staircase lighting time input	7.005	CRWT
67	Light 4	External brightness input	9.004	CWT
68	Light 4	Night input	1.001	CWT
69	Light 4	Lock input	1.001	CWT
70	Light 4	Lock feedback output	1.001	CRT
71	HVAC	Switch output	1.001	CRT
72	HVAC	Staircase lighting time input	7.005	CRWT
73	HVAC	Switch-ON delay input	7.005	CRWT
74	HVAC	Slave input	1.001	CWT
75	HVAC	Lock input	1.001	CWT
76	HVAC	Lock feedback output	1.001	CRT
77	Logic gate 1	Logic input 1	1.001	CWT
78	Logic gate 1	Logic input 2	1.001	CWT
79	Logic gate 1	Logic input 3	1.001	CWT
80	Logic gate 1	Logic input 4	1.001	CWT
81	Logic gate 1	Switch output	1.001	CRT
82	Logic gate 1	Value output	5.001	CRT
83	Logic gate 1	Lock input	1.001	CWT
84	Logic gate 1	Lock feedback output	1.001	CRT
85	Logic gate 1	Logic input 1	1.001	CWT
86	Logic gate 2	Logic input 2	1.001	CWT
87	Logic gate 2	Logic input 3	1.001	CWT
88	Logic gate 2	Logic input 4	1.001	CWT
89	Logic gate 2	Switch output	1.001	CRT
90	Logic gate 2	Value output	5.001	CRT
91	Logic gate 2	Lock input	1.001	CWT
92	Logic gate 2	Lock feedback output	1.001	CRT
93	Constant lighting control 1	Switch output	1.001	CRWT
94	Constant lighting control 1	Value output	5.001	CRT
95	Constant lighting control 2	Switch output	9.004	CRWT
96	Constant lighting control 1	Brightness setting input	7.005	CRWT
97	Constant lighting control 1	Staircase lighting time input	1.001	CWT

Object	Object name	Function	DPT	Flags
98	Constant lighting control 1	Switch input	3.007	CWT
99	Constant lighting control 1	Dim input	1.001	CWT
100	Constant lighting control	Teaching input	1.001	CRWT
101	Constant lighting control 2	Value output	5.001	CRT
102	Constant lighting control 2	Switch input	1.001	CWT
103	Constant lighting control 2	Dim input	1.001	CWT
104	Constant lighting control	Slave input	1.001	CWT
105	Constant lighting control	External brightness input	1.001	CRT
106	Constant lighting control	Night input	1.001	CWT
107	Constant lighting control	Lock input	1.001	CRT
108	Constant lighting control	Lock feedback output	1.001	CWT

9.3 Description of Object Feedback (Highbay and Corridor)

Feedback output	<p>This object is always present.</p> <p>With this object a feedback defines if the selected sensor in Select sensor type inside Express settings is the same as the connected sensor. If it is the same, the corresponding sensor type is sent back, if not compatible an error is given back and the sensor don't work. Product and corresponding Hex-Value:</p> <p>Error 0x00 Corridor 0x03 High Bay 0x07</p>
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9.4 Description of light X communication objects (see 1.1 Functions)

Object	Description
Light X Switch output	<p>This object is always available when light is activated. Light output X is switched with this object. The group address linked with this object is used for sending the switch command via bus to the actuator, with it also being possible to request the switching feedback from the detector.</p>
Light X Value output	<p>This object is only visible if the "Object Light" 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.</p>
Light X Scene output	<p>This object is only visible if the "Object Light" parameter is set to "Dimming Level".</p>
Light X Brightness threshold input	<p>This object is always available when light is activated. The group address linked with this object is used for receiving the switching threshold (in lux) for the light via bus; this threshold can be requested at any time.</p>
Light X External brightness input	<p>This object is only visible if the "Brightness Sensor ON" or "Brightness Sensor OFF" parameter is set to "External". The group address linked with this object is used for receiving the brightness measured by a brightness sensor and for comparing it with the threshold.</p>
Light X Staircase lighting time input	<p>This object is always available when light is activated. The group address linked with this object is used for receiving the staircase time for 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.</p>

Object	Description
Light X Lock input	This object is only visible if the "Lock Output" parameter is not set to "No". The "Lock Output" parameter is also used for selecting whether to perform locking on receiving a value of "1" "ON" or on receiving a value of "0" "OFF". When presence output is locked, the output sends no telegrams. Except when manually overridden via the input objects.
Light X Lock feedback output	This object is only visible if the "Lock Output" parameter is not set to "No". The group address linked with this object is used for automatically sending the locking feedback via bus after any change, with it being possible to request the locking feedback at any time.
Light X Switch input	This object is always available when light is activated. If the "Light Mode" parameter is set to "automatically ON and OFF" and this object is used for receiving a telegram, light X will be locked as the room user wishes to permanently switch light ON or OFF. It remains locked until either the "Disable Light X" object delivers a telegram for unlocking or until the detector establishes that no person is left in the room who re-enables light X and switches light X OFF. If the "Light Mode" parameter is set to "automatically OFF" and this object is used for receiving a telegram "1", light X will be switched ON for the staircase time selected. Any presence detected in the activated state will re-trigger the staircase time. If a "0" is received, light X will switch OFF without locking.
Light X Dim input	This object is only visible if the "Object Light" parameter is set to "Dimming Level". Receiving a telegram through this object disables light X as the room user wishes to permanently dim light to a different level. It remains locked until either the "Disable Light X" object delivers a telegram for unlocking or until the detector establishes that no person is left in the room who re-enables light X and switches light X OFF. On unlocking, light X sends its setting via bus.
Light X Level input	This object is only visible if the "Object Light" parameter is set to "Dimming Level". Receiving a telegram through this object disables light X as the room user wishes to permanently dim light to a different level. It remains locked until either the "Disable Light X" object delivers a telegram for unlocking or until the detector establishes that no person is left in the room who re-enables light X and switches light X OFF. On unlocking, light X sends its setting via bus.
Light 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 feedback of the slave via the bus and, if applicable, linked with the presence feedback of further slaves as well as that of the sensor via a logical OR function and evaluated as total presence for light X.
Light 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.

9.5 Description of constant lighting control communication objects

Object	Description
Constant lighting control 1 Switch output	This object is always available when constant lighting control is activated. Depending on the "Switch object sends" 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 feedback from the detector.
Constant lighting control 1 Value output	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.

Object	Description
Constant lighting control 2 Switch output	This object is only visible if the "2nd Output" parameter is set to "Active". Depending on the "Switch object sends" 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 feedback from the detector.
Constant lighting control 2 Value output	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.
Constant lighting control Brightness setting input	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 brightness input	This object is only visible if the "Brightness Sensor" parameter is set to "External". The group address linked with this object is used for receiving the brightness measured by a brightness sensor and for comparing it with a selected setting.
Constant lighting control Staircase lighting time input	This object is always available when constant lighting control is activated. The group address linked with this object is used for receiving the staircase 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.
Constant lighting control Lock input	This object is only visible if the "Lock Output" parameter is not set to "No". The "Lock Output" parameter is also used for selecting whether to perform locking on receiving a value of "1" or on receiving a value of "0". When presence output is locked, the output sends no telegrams. Except when manually overridden via the input objects.
Constant lighting control Lock feedback output	This object is only visible if the "Lock Output" parameter is not set to "No". The group address linked with this object is used for automatically sending the locking feedback via bus after any change, with it being possible to request the locking feedback at any time.
Constant lighting control 1 Switch input	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 this object is used for receiving a telegram, constant lighting control will be locked as the room user wishes to permanently switch constant lighting control light ON or OFF. It remains locked until either the "Disable Constant lighting control" object delivers a telegram for unlocking 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 this object is used for receiving a telegram "1", constant lighting control will be switched ON for the staircase time selected. Any presence detected in the activated state will re-trigger the staircase time. If a "0" is received, constant lighting control will switch OFF without locking.
Constant lighting control 1 Dim input	This object is always available when constant lighting control is activated. If a telegram is received via this object, and depending on the "Dim Brightness Control at Input" parameter setting, constant lighting control is either locked with the relevant output being dimmed, or brightness control is not locked 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 brightness setting is returned to its original value and constant lighting control is switched OFF.

Object	Description
Constant lighting control 2 Switch input	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 this object is used for receiving a telegram, constant lighting control will be locked as the room user wishes to permanently switch constant lighting control light ON or OFF. It remains locked until either the "Disable Constant lighting control" object delivers a telegram for unlocking 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 this object is used for receiving a telegram "1", constant lighting control will be switched ON for the staircase time selected. Any presence detected in the activated state will re-trigger the staircase time. If a "0" is received, constant lighting control will switch OFF without locking.
Constant lighting control 2 Dim input	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 Brightness Control at Input" parameter setting, constant lighting control is either locked with the relevant output being dimmed, or brightness control is not locked 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 brightness setting is returned to its original value and constant lighting control is switched OFF.
Constant lighting control Teaching input	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 feedback of the slave via the bus and, if applicable, linked with the presence feedback of further slaves as well as that of the sensor via a logical OR function and evaluated as total presence for constant lighting control.
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.

9.6 Description of presence output communication objects

Object	Description
Presence Switch output	This object is always available when 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 feedback can be requested from the detector at any time.
Presence Staircase lighting time input	This object is always available when presence output is activated. The group address linked with this object is used for receiving the staircase 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 staircase time.
Presence Switch-ON delay input	This object is always available when 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 staircase time.

Object	Description
Presence Lock input	This object is only visible if the "Lock Output" parameter is not set to "No". The "Lock Output" parameter is also used for selecting whether to perform locking on receiving a value of "1" or on receiving a value of "0". When presence output is locked, the output sends no telegrams.
Presence Lock feedback output	This object is only visible if the "Lock Output" parameter is not set to "No". The group address linked with this object is used for automatically sending the locking feedback via bus after any change, with it being possible to request the locking feedback at any time.

9.7 Description of absence communication objects

Object	Description
Absence Switch output	This object is always available when absence 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 feedback can be requested from the detector at any time.
Absence Staircase lighting time input	This object is always available when absence is activated. The group address linked with this object is used for receiving the staircase time for absence via bus. Any value received outside the permissible range is rejected. This object can also be used at any time for requesting the current staircase time.
Absence Switch-ON delay input	This object is always available when absence is activated. The group address linked with this object is used for receiving the switch-ON delay for absence via bus. Any value received outside the permissible range is rejected. This object can also be used at any time for requesting the current staircase time.
Absence Lock input	This object is only visible if the "Lock Output" parameter is not set to "No". The "Lock Output" parameter is also used for selecting whether to perform locking on receiving a value of "1" or on receiving a value of "0". When presence output is locked, the output sends no telegrams.
Absence Lock feedback output	This object is only visible if the "Lock Output" parameter is not set to "No". The group address linked with this object is used for automatically sending the locking feedback via bus after any change, with it being possible to request the locking feedback at any time.

9.8 Description of HVAC communication objects

Object	Description
HVAC Switch output	This object is always available when 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 feedback via bus to the actuator, with it also being possible to request this from the detector.
HVAC Staircase lighting time input	This object is always available when HVAC output is activated. The group address linked with this object is used for receiving the staircase 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 staircase time.
HVAC Switch-ON delay input	This object is always available when 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 staircase time.

Object	Description
HVAC Lock input	This object is always available when HVAC output is activated and if the "Lock Output" parameter is not set to "No". The "Lock Output" parameter is also used for selecting whether to perform locking on receiving a value of "1" or on receiving a value of "0". When presence output is locked, the output sends no telegrams.
HVAC Lock feedback output	This object is only visible if the "Lock Output" parameter is not set to "No". The group address linked with this object is used for automatically sending the locking feedback via bus after any change, with it being possible to request the locking feedback 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 feedback of the slave via the bus and, if applicable, linked with the presence feedback of further slaves as well as that of the sensor via a logical OR function and evaluated as total presence for HVAC control.

9.9 Description of twilight switch communication objects

Object	Description
Twilight switch Switch output	This object is always available when twilight Switch outputs are activated. The group address linked with this object is sent to the actuator via bus if the brightness measured is below the twilight threshold selected (output = "ON") or not (output = "OFF"); twilight Switch feedback can be requested from the detector at any time.
Twilight switch Threshold value input	This object is always available when twilight Switch 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.
Twilight switch Lock input	This object is only visible if the "Lock Output" parameter is not set to "No". The "Lock Output" parameter is also used for selecting whether to perform locking on receiving a value of "1" or on receiving a value of "0". When presence output is locked, the output sends no telegrams.
Twilight switch Lock feedback output	This object is only visible if the "Lock Output" parameter is not set to "No". The group address linked with this object is used for automatically sending the locking feedback via bus after any change, with it being possible to request the locking feedback at any time.

9.10 Description of brightness communication objects

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

9.11 Description of sabotage communication objects

Object	Description
Sabotage Switch output	This object is always available when brightness output is activated. An ON or OFF telegram is sent cyclically to the group address linked to this object while the sensor is not disconnected from the bus or if it is faulty.

9.12 Description of logic gate communication objects

Object	Description
Logic gate X Switch output	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 Value output	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 Logic input 1	This object is always available when 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 Logic input 2	This object is always available when 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 Logic input 3	This object is always available when 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 Logic input 4	This object is always available when 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.
Logic gate X Lock input	This object is always available when logic gate is activated. The "Lock Output" parameter is also used for selecting whether to perform locking on receiving a value of "1" or on receiving a value of "0". When presence output is locked, the output sends no telegrams.
Logic gate X Lock feedback output	This object is only visible if the "Lock Output" parameter is not set to "No". The group address linked with this object is used for automatically sending the locking feedback via bus after any change, with it being possible to request the locking feedback 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.

Settings: Difference between High Bay / Corridor and Presence Mini

	Setting for High Bay and Corridor	Setting for Presence Mini
Brightness	2 Lux...1000 Lux	10 Lux...1000 Lux

10.1 Express settings

Name	Settings	Factory setting
Select sensor	KNX Corridor 63x5 KNX High Bay 63x4	KNX Corridor 63x5
For High Bay and Corridor sensor, select the sensor used.		
Number of light channels	0...X	1
This parameter is used for setting how many light outputs are to be available.		
Constant lighting control	Inactive Active	Inactive
<u>Active:</u> the constant lighting control output with the associated parameters is additionally available. <u>Inactive:</u> the constant lighting control output is not available.		
Presence	Inactive Active	Inactive
<u>Active:</u> the presence output with the associated parameters is additionally available. <u>Inactive:</u> the presence output is not available.		
Absence	Inactive Active	Inactive
<u>Active:</u> the absence output with the associated parameters is additionally available. <u>Inactive:</u> the absence output is not available.		
HVAC	Inactive Active	Inactive
<u>Active:</u> the HVAC output with the associated parameters is additionally available. <u>Inactive:</u> the HVAC output is not available.		
Twilight Switch	Inactive Active	Inactive
<u>Active:</u> the twilight Switch output with the associated parameters is additionally available. <u>Inactive:</u> the twilight output is not available.		
Brightness	Inactive Active	Inactive
<u>Active:</u> the brightness output with the associated parameters is additionally available. <u>Inactive:</u> the brightness output is not available.		
Sabotage	Inactive Active	Inactive
<u>Active:</u> the sabotage output with the associated parameters is additionally available. <u>Inactive:</u> the sabotage 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. <u>Inactive:</u> the logic gate output is not available.		

Name	Settings	Factory setting
Remote control	Inactive Program	Inactive
<u>Inactive:</u> the IR receiver integrated in the detector is deactivated. <u>Program:</u> enables service personnel to change a number of detector parameters (e.g. switch-ON delay, staircase times and brightness setting) via a special IR remote control without using ETS.		

10.2 Light X

10.2.1 Light X "General parameters"

Name	Settings	Factory setting
Object light output	ON / OFF Dimming level Scene	ON / OFF
This parameter is used to select which object the output sends with.		
Switch-ON level	0%...100%	100%
This parameter is used to select which dimming level to send for the ON state.		
Switch-OFF level	0%...100%	0%
This parameter is used to select which dimming level to send for the OFF state.		
Switch object sends	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 ON state.		
Send value cyclically	Do not send value cyclically ON/OFF ON OFF	Do not send value cyclically
This parameter is used for selecting whether the output not only sends after any change but also cyclically and, if so, for which feedback. <u>Do not send value cyclically:</u> no value is sent cyclically. <u>ON/OFF:</u> ON and OFF value is sent cyclically <u>ON:</u> only ON value is sent cyclically. <u>OFF:</u> only OFF value is sent cyclically.		
Cyclically send interval	hh:mm:ss	00:00:30
Time interval for sending at cyclical intervals. The maximum time interval is 18:12:15.		
Mode light output	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 brightness (fully automatic operation) or whether only to switch it OFF automatically (semi-automatic operation).		
Staircase time, IQ mode	Active Inactive	Inactive
<u>Active:</u> the slave input with the associated parameters is additionally available. <u>Inactive:</u> the slave input is not available.		
Staircase time light output	hh:mm:ss	00:05:00
Staircase 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. Staircase time can be set from 00:00:10 to 18:12:15.		

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.		

10.2.2 Light X "Brightness"

Name	Settings	Factory setting
Daytime operation	Yes	No
	No	
Setting to define whether light output is to be switched irrespective of brightness.		
Brightness sensor ON	Internal	Internal
	External	
This parameter is used to define which brightness measurement the sensor compares its switching threshold with.		
Start value brightness sensor external	Brightness range see Chapter 10	200
This parameter is used to define which value the sensor works with until the first value is received via the KNX bus.		
Weighting brightness sensor, external	1% ... 100%	100%
This value defines the extent to which the external value is weighted.		
Brightness threshold ON	Brightness range see Chapter 10	500
This parameter is used to select the brightness and detected presence from which to switch the light output ON.		
Switch-OFF depending on brightness	Yes	Yes
	No	
<u>Yes</u> : despite presence being detected, the light output is switched OFF if brightness is sufficient. <u>No</u> : the light output stays switched ON until staircase time elapses. Staircase time is re-triggered if presence is detected.		
Offset brightness threshold OFF	10lux... 1000lux	100
This parameter is used to select the offset from which to switch the light OFF.		

10.2.3 Light X "Basic illumination" (for dimming level only)

Name	Settings	Factory setting
Basic illumination	Inactive	Inactive
	Active	
Setting to define whether basic illumination is activated.		
Basic illumination ON	For limited time	For limited time
	Depending on measured brightness	
	Dim	
	Always	

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

time-limited: at the end of staircase time, the output switches light to basic illumination, if the detector is parametrised or the actual measured brightness is below switching threshold ON + Offset threshold OFF.

depending on brightness: 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 brightness measured at this time by the sensor is below the basic brightness threshold. It remains switched ON until either presence is detected or the brightness measured significantly exceeds the basic brightness threshold. The brightness measurement setting is used by the "Brightness 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.		
Basic illumination light-level threshold	10lux ... 1000lux	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.		
Basic illumination ON period	hh:mm:ss	00:15:00
<p>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.</p> <p>Basic illumination is switched OFF after expiry of the ON period that is set here.</p>		

10.2.4 Light X "Day/night parameters"

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.		
Switch-ON level (only with General parameters → dimming level)	0%...100%	100%
This parameter is used to select which dimming level to send for the ON state.		
Switch-OFF level (only with General parameters → dimming level)	0%...100%	0%
This parameter is used to select which dimming level to send for the OFF state.		
Switch-ON scene (only with General parameters → scene)	1...64	1
This parameter is used to select which scene to send for the ON state.		
Switch-OFF scene (only with General parameters → scene)	1...64	2
This parameter is used to select which scene to send for the ON state.		
Daytime operation	Yes	NO
	No	
Setting to define whether lighting is to be switched irrespective of brightness.		
Brightness threshold ON	Brightness range see Chapter 10	500
This parameter is used to select the brightness and detected presence from which to switch the light ON.		
Switch off depending on brightness	Yes	No
	No	
This parameter is used to select if Output light is switching OFF without movement depending on brightness.		
Offset brightness threshold OFF	10lux ... 1000lux	100
This parameter is used to select the offset from which to switch the light OFF.		
Staircase time light output	hh:mm:ss	00:05:00
Staircase 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. Staircase time can be set from 00:00:10 to 18:12:15.		

Name	Settings	Factory setting
Basic illumination dimming level (only with Basic illumination → active and Basic illumination: Basic illumination ON → not "Dim")	1%...100%	10
This parameter is used to select to which dimming level the basic illumination is switched on.		
Basic illumination light-level threshold (only with Basic illumination → active and Basic illumination: Basic illumination ON → "Depending on light level")	Brightness range see Chapter 10	50
This parameter is used to select light level threshold. Under this threshold the basic illumination is activated and with significantly exceeding this threshold it will be deactivated. This is independent if people are in the detection range or not.		
Basic illumination ON period (only with Basic illumination → active and Basic illumination: Basic illumination ON → "For limited time")	hh:mm:ss	00:15:00
Basic illumination is switched OFF after expiry the here set switch on period.		

10.2.5 Light X "Lock"

Name	Settings	Factory setting
Lock output	No	No
	Locking ON / Unlocking OFF	
	Locking OFF / Unlocking ON	
<p>This parameter is used for selecting whether the output can be locked, and which telegram can be used for locking and unlocking the output.</p> <p><u>No</u>: the output cannot be locked.</p> <p><u>Locking ON / unlocking OFF</u>: the output is locked by a telegram with value "1" to the lock object and unlocked by a telegram with value "0".</p> <p><u>Locking OFF / unlocking ON</u>: the output is locked by a telegram with value "0" to the lock object and unlocked by a telegram with value "1".</p>		
Behaviour on locking	No action ON OFF	No action
<p>This parameter is used to select whether to switch the output ON or OFF before locking or whether to leave the output unchanged.</p> <p><u>no action</u>: no further action takes place before locking.</p> <p><u>ON</u>: output is switched ON before locking.</p> <p><u>OFF</u>: output is switched OFF before locking.</p>		
Behaviour on unlocking	Continue regulation ON OFF	Continue regulation
<p>This parameter is used to select whether the output is to resume its activity after unlocking or whether to switch the output ON and OFF first.</p> <p><u>Continue regulation</u>: the output is immediately in normal mode and sets the output in line with configuration.</p> <p><u>ON</u>: output is switched ON after unlocking. Normal operation is reactivated after a delay of 5 seconds.</p> <p><u>OFF</u>: output is switched OFF after unlocking. Normal operation is reactivated after a delay of 5 seconds.</p>		

10.3 Constant lighting control

10.3.1 Constant lighting control "General parameters"

Name	Settings	Factory setting
Staircase time constant lighting control	hh:mm:ss	00:05:00
Staircase 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. Staircase time can be set from 00:00:10 to 18:12:15.		
Automatic starting value	Yes	Yes
	No	
<u>Yes</u> : the sensor automatically determines the starting value after artificial light calibration. <u>No</u> : 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 brightness setting as accurately as possible.		
Starting value, dimming level	1% ... 100%	80
This parameter defines the ON level when constant lighting control is started.		
Switch object sends	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.		
Mode constant lighting control	Automatically ON and OFF	automatically ON and OFF
	Automatically OFF only	
This parameter is used for selecting whether to switch light ON and OFF automatically in relation to presence and brightness (fully automatic operation) or whether only to switch it OFF automatically (semi-automatic operation).		
Brightness control at dimming input	Lock and dim	Lock and dim
	Do not lock and shift setpoint	
<u>Lock and dim</u> : if a telegram is received via the "Dim Light x Input" object, brightness control is locked and the addressed output dimmed. This setting is recommended if room lighting consists of several lighting groups. <u>do not lock and alter set value</u> : brightness control is not locked after receiving a telegram via the dimming object. After receiving a telegram, a delay of approx. 5 seconds elapses before the new brightness value is adopted as the set value. This setting is recommended if only one output is used for illuminating the room.		
2nd output	Inactive	Inactive
	Active	
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 brightness 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 brightness that is roughly the same as that provided at the brightness setting selected for output 1.		
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.		

10.3.2 Constant lighting control "Brightness"

Name	Settings	Factory setting
Brightness setpoint	Brightness range see Chapter 10	500
This parameter is used for selecting the setting for brightness control.		
Brightness sensor	Internal External	Internal
This parameter is used for activating an input object for external brightness measurement. This value is used instead of the brightness measured internally.		
Start value brightness sensor external	Brightness range see Chapter 10	200
This parameter is used to define which value the sensor works with until the first value is received via the KNX bus.		
Weighting brightness sensor external	1% ... 100%	100%
This value defines the extent to which the external value is weighted.		
Max. deviation from setpoint	10lux ... 1000lux	30
This parameter defines the precision with which the required brightness 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 brightness). 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 size	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	2 s
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 brightness that a room user may find unpleasant.		
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 staircase 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 brightness controller is below the "minimum dimming level" selected. It is only brightened again when the dimming level measured by the brightness 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 brightness controller measures a dimming level below the level selected here, lighting remains dimmed at the minimum dimming level.		

10.3.3 Constant lighting control "Basic illumination" (see 10.2.3)

10.3.4 Constant lighting control "Day night parameters"

Name	Settings	Factory setting
Day night switchover	Inactive Active	Inactive
When day/night switchover is activated, the parameter setting can be switched over via an input object.		
Staircase time, constant lighting control	hh:mm:ss	00:05:00
Staircase 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. Staircase time can be set from 00:00:10 to 18:12:15.		
Brightness setpoint	Brightness range see Chapter 10	500
This parameter is used for selecting the setting for brightness control.		
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 brightness setting as accurately as possible.		
Start value dimming level	1% ... 100%	80
This parameter defines the ON level when constant lighting control is started.		
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 staircase 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 brightness controller is below the "minimum dimming level" selected. It is only brightened again when the dimming level measured by the brightness controller is above the "minimum dimming level" selected.		
Minimum dimming level (only for "Dim to minimum dimming level")	0.5%; 1%; 2%; 3%; 4%; 5%; 6%; 7%; 8%; 9%; 10%	0.5%
If the brightness 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 ON period (only when basic illumination is activated "For limited time")	hh:mm:ss	00:15:00
Basic illumination is switched OFF after expiry of the ON period that is set here. Maximum ON time is 18:12:15.		
Basic illumination light-level threshold (only if basic illumination is activated "Depending on light level")	10lux ... 1000lux	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.		

10.3.5 Constant lighting control "Lock"

Name	Settings	Factory setting
Lock output	No	No
	Locking ON / Unlocking OFF	
	Locking OFF / Unlocking ON	
<p>This parameter is used for selecting whether the output can be locked, and which telegram can be used for locking and unlocking the output.</p> <p><u>No</u>: the output cannot be locked.</p> <p><u>Locking ON / unlocking OFF</u>: the output is locked by a telegram with value "1" to the lock object and unlocked by a telegram with value "0".</p> <p><u>Locking OFF / unlocking ON</u>: the output is locked by a telegram with value "0" to the lock object and unlocked by a telegram with value "1".</p>		
Behaviour on locking	No action ON OFF	No action
<p>This parameter is used to select whether to switch the output ON or OFF before locking or whether to leave the output unchanged.</p> <p><u>No action</u>: no further action takes place before locking.</p> <p><u>ON</u>: output is switched ON before locking.</p> <p><u>OFF</u>: output is switched OFF before locking.</p>		
Behaviour on unlocking	Continue regulation ON OFF	Continue regulation
<p>This parameter is used to select whether the output is to resume its activity after unlocking or whether to switch the output ON and OFF first.</p> <p><u>Continue regulation</u>: the output is immediately in normal mode and sets the output in line with configuration.</p> <p><u>ON</u>: output is switched ON after unlocking. Normal operation is reactivated after a delay of 5 seconds.</p> <p><u>OFF</u>: output is switched OFF after inlocking Normal operation is reactivated after a delay of 5 seconds.</p>		

10.4 Presence

Name	Settings	Factory setting
Switch-ON delay	0...10 sec.	1 sec.
A movement must be detected throughout the switch-ON delay period. Only then will the output Switch-ON.		
Staircase time	hh:mm:ss	00:00:30
Staircase 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. Staircase time can be set from 00:00:10 to 18:12:15.		
Send value cyclically	Do not send value 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 value. Do not send value cyclically: no value is sent cyclically. <u>ON/OFF</u> : ON and OFF value is sent cyclically. <u>ON</u> : only ON value is sent cyclically. <u>OFF</u> : only OFF value is sent cyclically.		
Cyclically send interval	hh:mm:ss	00:00:30
Time interval for sending at cyclical intervals.		
Lock output	No	No
	Locking ON / Unlocking OFF	
	Locking OFF / Unlocking ON	
This parameter is used for selecting whether the output can be locked, and which telegram can be used for locking and unlocking the output. <u>No</u> : the output cannot be locked. <u>Locking ON / Unlocking OFF</u> : the output is locked by a telegram with value "1" to the locked object and unlocked by a telegram with value "0". <u>Locking OFF / Unlocking ON</u> : the output is locked by a telegram with value "0" to the locked object and unlocked by a telegram with value "1".		

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

10.5 Absence

Name	Settings	Factory setting
Switch-ON delay	0...10 sec.	1 sec.
No movement must be detected throughout the switch-ON delay period. Only then will the output Switch-ON.		
Staircase time	hh:mm:ss	00:00:30
Staircase 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. Staircase time can be set from 00:00:10 to 18:12:15.		
Send value cyclically	Do not send value cyclically	ON
	ON/OFF	
	ON	
	OFF	
<p>This parameter is used for selecting whether the output not only sends after any change but also cyclically and, if so, for which Depending on measured brightness.</p> <p><u>Do not send value cyclically</u>: no feedback is sent cyclically.</p> <p><u>ON/OFF</u>: ON and OFF feedback is sent cyclically</p> <p><u>ON</u>: only ON feedback is sent cyclically.</p> <p><u>OFF</u>: only OFF feedback is sent cyclically.</p>		
Cyclically send interval	hh:mm:ss	00:00:30
Time interval for sending at cyclical intervals.		
Lock output	No	No
	Locking ON / Unlocking OFF	
	Locking OFF / Unlocking ON	
<p>This parameter is used for selecting whether the output can be locked, and which telegram can be used for locking and unlocking the output.</p> <p><u>No</u>: the output cannot be locked.</p> <p><u>Locking ON / Unlocking OFF</u>: the output is locked by a telegram with value "1" to the locked object and unlocked by a telegram with value "0".</p> <p><u>Locking OFF / Unlocking ON</u>: the output is locked by a telegram with value "0" to the locked object and unlocked by a telegram with value "1".</p>		
Behaviour on locking	no action ON OFF	no action
<p>This parameter is used to select whether to switch the output ON or OFF before locking or whether to leave the output unchanged.</p> <p><u>no action</u>: no further action takes place before locking.</p> <p><u>ON</u>: output is switched ON before locking.</p> <p><u>OFF</u>: output is switched OFF before locking.</p>		

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

10.6 HVAC

10.6.1 HVAC output "General parameters"

Name	Settings	Factory setting
Switch-ON delay (only depending on presence)	hh:mm:ss	00:05:00
<p>A movement must be detected throughout the switch-ON delay period. Only then will the output switch-ON.</p> <p>The maximum switch-ON delay is 18:12:15.</p>		
Staircase time (only depending on presence)	hh:mm:ss	00:15:00
<p>Staircase 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.</p> <p>Staircase time can be set from 00:00:10 to 18:12:15.</p>		
Slave input	Inactive ON ON/OFF	ON
<p>This parameter defines whether the slave input expects an ON telegram or whether it expects an ON and OFF telegram.</p>		

10.6.2 HVAC "Lock"

Name	Settings	Factory setting
Lock output	No Locking ON / Unlocking OFF Locking OFF / Unlocking ON	No
<p>This parameter is used for selecting whether the output can be locked, and which telegram can be used for locking and unlocking the output.</p> <p><u>No</u>: the output cannot be locked.</p> <p><u>Locking ON / Unlocking OFF</u>: the output is locked by a telegram with value "1" to the locked object and unlocked by a telegram with value "0".</p> <p><u>Locking OFF / Unlocking ON</u>: the output is locked by a telegram with value "0" to the disabled object and unlocked by a telegram with value "1".</p>		
Behaviour on locking	no action ON OFF	no action
<p>This parameter is used to select whether to switch the output ON or OFF before locking or whether to leave the output unchanged.</p> <p><u>no action</u>: no further action takes place before locking.</p> <p><u>ON</u>: output is switched ON before locking.</p> <p><u>OFF</u>: output is switched OFF before locking.</p>		

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

10.7 Twilight switch

Name	Settings	Factory setting
Twilight threshold	Brightness range see Chapter 10	50 lux
<p>This parameter is used for selecting whether only to send the measurement readings after any change or cyclically via bus.</p>		
Lock output	No Locking ON / Unlocking OFF Locking OFF / Unlocking ON	No
<p>This parameter is used for selecting whether the output can be disabled, and which telegram can be used for locking and unlocking the output.</p> <p><u>No</u>: the output cannot be locked.</p> <p><u>Locking ON / Unlocking OFF</u>: the output is locked by a telegram with value "1" to the locked object and unlocked by a telegram with value "0".</p> <p><u>Locking OFF / Unlocking ON</u>: the output is locked by a telegram with value "0" to the locked object and unlocked by a telegram with value "1".</p>		
Behaviour on locking	no action ON OFF	no action
<p>This parameter is used to select whether to switch the output ON or OFF before locking or whether to leave the output unchanged.</p> <p><u>no action</u>: no further action takes place before locking.</p> <p><u>ON</u>: output is switched ON before locking.</p> <p><u>OFF</u>: output is switched OFF before locking.</p>		
Behaviour on unlocking	Continue regulation ON OFF	Continue regulation
<p>This parameter is used to select whether the output is to resume its activity after unlocking or whether to switch the output ON and OFF first.</p> <p><u>Continue regulation</u>: the output is immediately in normal mode and sets the output in line with configuration.</p> <p><u>ON</u>: output is switched ON after unlocking. Normal operation is reactivated after a delay of 5 seconds.</p> <p><u>OFF</u>: output is switched OFF after unlocking. Normal operation is reactivated after a delay of 5 seconds.</p>		

10.8 Brightness

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

10.9 Sabotage

Name	Settings	Factory setting
Cyclically send interval	hh:mm:ss	00:01:00
Time interval for cyclically sending the sabotage telegram as heartbeat. The maximum time interval is 18:12:15.		
Telegram	ON	ON
	OFF	
This parameter defines whether to send an ON telegram or OFF telegram cyclically.		

10.10 Logic gate X (all identical)

Name	Settings	Factory setting
Type of link	OR; AND; exclusive OR	OR
This parameter defines the logic operation the gate performs.		
Number of inputs	1 ... 4	2
This parameter defines how many inputs the gate has.		
Type of output object	ON/OFF	ON/OFF
	Value	
This parameter selects output type.		
Switching command for logic 0	ON	OFF
	OFF	
This parameter is used to configure which switching command is sent for a logic "0".		
Switching command for logic 1	ON	ON
	OFF	
This parameter is used to configure which switching command is sent for a logic "1".		
Value for logic 0	0 ... 255	0
This parameter is used to configure which value is sent for a logic "0".		
Value for logic 1	0 ... 255	255
This parameter is used to configure which value is sent for a logic "1".		
Send Behaviour of the output	When the logic is changed	When the logic is changed
	When the logic is changed to 1	
	When the logic is changed to 0	
This parameter is used for setting output sending behaviour.		
Lock logic gate	No	No
	Locking ON / Unlocking OFF	
	Locking OFF / Unlocking ON	
This parameter is used for selecting whether the output can be locked, and which telegram can be used for locking and unlocking the output. <u>No</u> : the output cannot be locked. <u>Locking ON / Unlocking OFF</u> : the output is locked by a telegram with value "1" to the locked object and unlocked by a telegram with value "0". <u>Locking OFF / Unlocking ON</u> : the output is locked by a telegram with value "0" to the locked object and unlocked by a telegram with value "1".		
Behaviour on locking	no action ON OFF	no action
This parameter is used to select whether to switch the output ON or OFF before locking or whether to leave the output unchanged. <u>no action</u> : no further action takes place before locking. <u>ON</u> : output is switched ON before locking. <u>OFF</u> : output is switched OFF before locking.		

