Technical Manual

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KNX Motivity Line, Secure

MOT-LIx.02S

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1 Content

2 Overview

2.1 Overview devices

This manual applies to the following devices (article number in **bold**).

- **MOT-LIW.02S** KNX Motivity Line White, Secure
- **MOT-LIB.02S** KNX Motivity Line Black, Secure

2.2 Functions

Light channel
The light channel is freely configurable. For example, the follow-up times for "Day" and "Night" as well as the locking and unlocking behaviour can be set individually.

HVAC channel
Compared to the light channel, the separate HVAC channel (heating, ventilation, air conditioning) has adjustable monitoring time slots that can be used to monitor the presence in the room. For example, to control the ventilation of a room.

Alarm/Message channel
The Alarm/Message channel is used to detect motions during absence. Monitoring can be activated via object. By activating an interference/motion filter, monitoring time slots can be set up to avoid false alarms/messages caused by interferences or short motions.

Fully automatic, Half automatic, Manual operation
As a "fully automatic" device, the detector switches on when movement is detected and switches off again after the end of presence and the set follow-up time. In "half automatic" mode, the light must be switched on manually via an object, while switching off takes place automatically after the end of presence and follow-up time. Regardless of the operating mode, extensive manual operation is always possible via the "external button short" and "external button long" objects.

Temperature sensor
When the temperature sensor is activated, the room temperature can be sent to the bus and used, for example, for heating control. The sending behaviour of the measured value as well as a correction value can be configured.

Brightness sensor
With the help of the integrated brightness sensor, different switch-on thresholds can be set for "Day" and "Night".

Scenes
The device offers a total of 8 scenes. Predefined functions can be assigned to each scene for the light channel.

Logic
4 logic functions can be activated with the functions AND, OR, XOR. Each logic can be linked to up to 2 internal and up to 4 external 1 Bit objects. Switching commands, scenes, values or 2 Bit forced guidance objects can be sent as output objects.

KNX Secure
The device supports secure commissioning in KNX installations.

Updateable
If necessary, the device can be updated via the "MDT Firmware Update App".

Long frame support
The device supports "long frames" (longer telegrams). These contain more user data per telegram, which significantly reduces programming time.

2.3 Wiring diagram

The following figure shows the exemplary diagram:

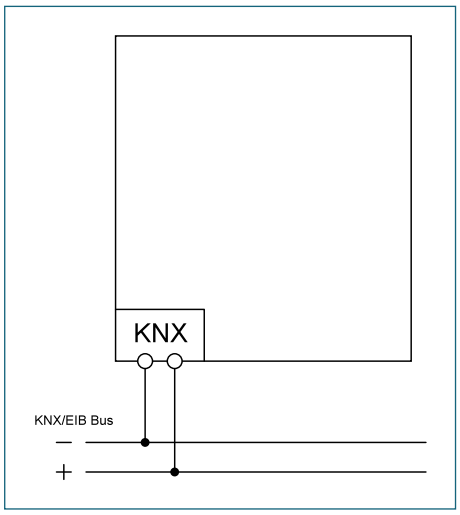


Figure 1: Wiring diagram

2.4 Structure and Handling

The following image shows the structure of the device:

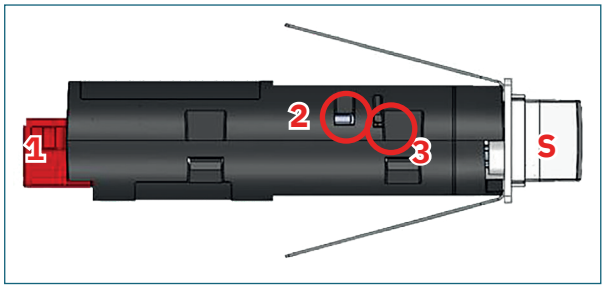


Figure 2: Structure and Handling

1 – KNX bus connection terminal
2 – Programming button
3 – Programming LED (red)
S – Motion sensor

The following images show the detection area of the detector:

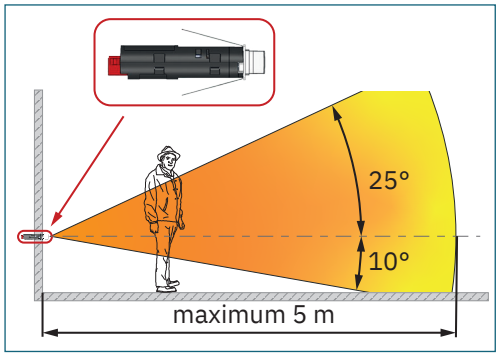


Figure 3: Detection area vertical

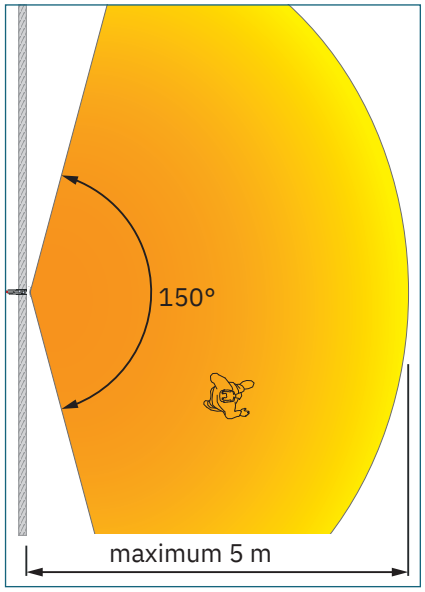


Figure 4: Detection area horizontal

2.5 Commissioning

1. Connect the device according to the wiring diagram.
2. Connect the programming interface to the bus.
3. Switch on bus voltage.
4. Press the programming button (red programming LED lights up continuously).
5. Set and program the individual address in the ETS (programming LED turns off).
6. Configure settings in the application programme and program.

2.6 Security

2.6.1 KNX Secure

The use of KNX Secure functionality requires ETS version 5.7 or higher.

KNX Secure has two different ways: IP Secure and Data Secure.

KNX IP Secure enables secure transmission in IP networks by encrypting and authenticating transmitted messages. IP Secure ensures that KNX tunnelling or routing messages at IP level cannot be read or manipulated. KNX IP Secure forms an additional security layer that protects all KNXnet IP data traffic.

KNX Data Secure ensures that messages/telegrams sent by KNX devices (regardless of the KNX medium) are encrypted and/or authenticated, provided that both participants are KNX Data Secure-capable. If one of the participants does not support KNX Data Secure, communication will continue to be unencrypted.

Device certificate
The device certificate is used for secure commissioning of a KNX Secure device. The key contained in the certificate must be scanned or entered once by the integrator/installer in the ETS. The device certificate is no longer required for further transmissions, unless the device is reset via a master reset (see 2.7 Reset to factory settings). The certificates of all devices in a project should be detached from the device label after initial commissioning and stored for the project.

Secure Mode
If a device is operated with security enabled, it works in "secured mode" (Secure Mode) and transmits the data encrypted. Recognisable by the blue shield symbol.

Unsecured mode - Plain Mode
If a device is operated without security enabled, this is referred to as "unsecured mode" (Plain Mode). The data is transmitted unencrypted.

2.6.2 Project password

Activated KNX Secure strictly requires an ETS project password. Without a project password, secure commissioning is not possible and the devices are loaded in unsecured mode.

2.6.3 Commissioning with activated KNX Secure

When importing the application program into the KNX project, a note appears regarding the necessity of a project password. If the process is cancelled at this point, the device is loaded without KNX Secure functions. Subsequently, the device certificate is entered. If a webcam is connected, this can be done by scanning the QR code. Alternatively, the certificate can be entered via the keyboard.

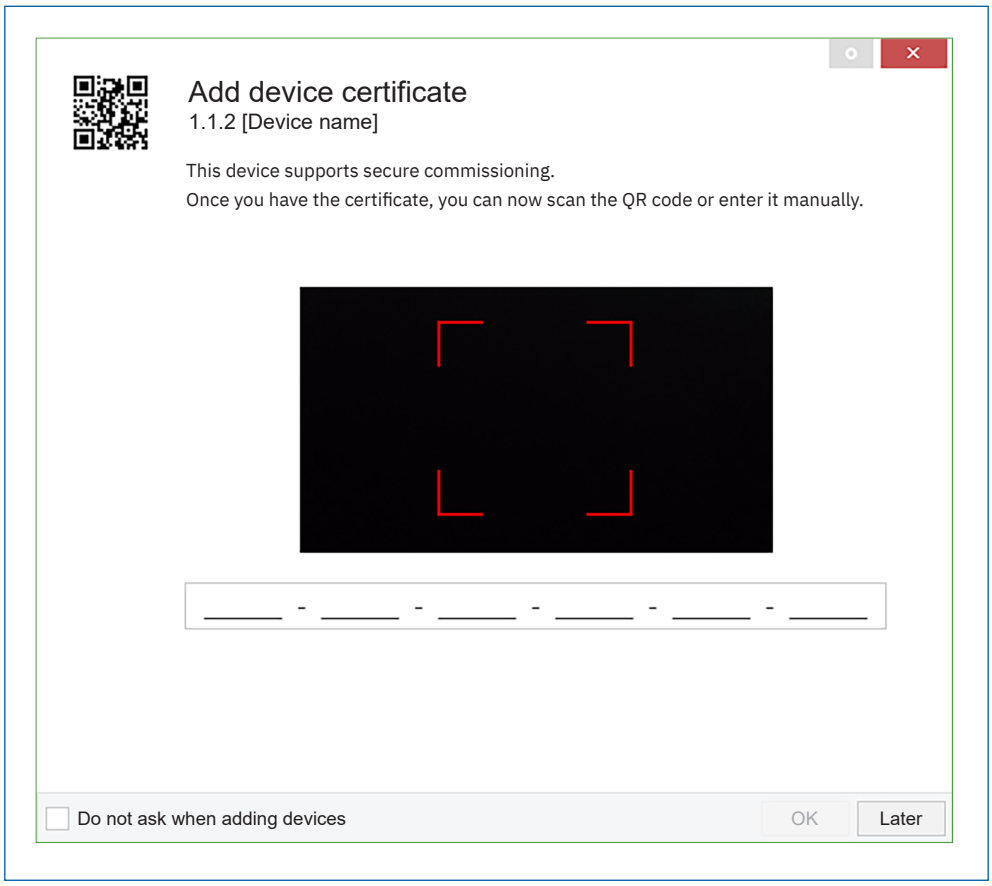


Figure 5: Commissioning with ETS – Security: Add device certificate

2.7 Reset to factory settings

If the device has already been in use or if the initial start-up has failed, it must be reset to factory settings according to the following procedure.

1. Press and hold the programming button for at least 10 seconds. The programming LED will then flash.
2. Release the button and press it again for 5 seconds until the programming LED flashes rapidly. The LED switches off by releasing the button.
3. The device will reset and reboot.

3 Communication objects

3.1 Standard settings of the communication objects

The following tables show the default settings for the communication objects:

Standard settings – General settings								
No.	Name	Object function	Length	C	R	W	T	U
1	In operation	Output	1 Bit	■	■	■		
2	Day/Night	Day = 0 / Night = 1	1 Bit	■		■	■	■
2	Day/Night	Day = 1 / Night = 0	1 Bit	■		■	■	■

Table 1: Communication objects – Standard settings: General settings

Standard settings – Scenes								
No.	Name	Object function	Length	C	R	W	T	U
3	Scene	Input	1 Byte	■		■		

Table 2: Communication objects – Standard settings: Scenes

Standard settings – Light channel								
No.	Name	Object function	Length	C	R	W	T	U
4	Light channel - Output 1	Switch	1 Bit	■	■		■	
4	Light channel - Output 1 (Day)	Switch	1 Bit	■	■		■	
4	Light channel - Output 1	Dimming absolute	1 Byte	■	■		■	
4	Light channel - Output 1	Scene	1 Byte	■	■		■	
5	Light channel - Output (Night)	Switch	1 Bit	■	■		■	
6	Light channel -Output 2 (additional)	Switch	1 Bit	■	■		■	
7	Light channel – Input	External button short	1 Bit	■		■		
8	Light channel – Input	External button long	1 Bit	■		■		
9	Light channel – Input	External motion (Slave)	1 Bit	■		■		
10	Light channel – Input	Status: Actuator channel	1 Bit	■		■		
11	Light channel – Input	Lock motion detection	1 Bit	■		■		
12	Light channel – Input	Forced guidance	2 Bit	■		■		
12	Light channel – Input	lock object	1 Bit	■		■		
13	Light channel – Input	Lock object ON	1 Bit	■		■		

Standard settings – Light channel								
No.	Name	Object function	Length	C	R	W	T	U
14	Light channel – Status	Automatic mode	1 Bit	■	■		■	
14	Light channel – Status	Lock/Manual mode	1 Bit	■	■		■	
15	Light channel – Input	Switch dark	1 Bit	■		■		
16	Light channel – Input	Teach-in dimming value for ON	1 Byte	■		■	■	■
17	Light channel – Input	Follow-up time 10 - 65000 s	2 Byte	■		■	■	■

Table 3: Communication objects – Standard settings: Light channel

Standard settings – HVAC channel								
No.	Name	Object function	Length	C	R	W	T	U
19	HVAC - Output	Switch	1 Bit	■	■		■	
19	HVAC - Output	Dimming absolute	1 Byte	■	■		■	
19	HVAC - Output	Scene	1 Byte	■	■		■	
22	HVAC - Input	External button short	1 Bit	■		■		
23	HVAC - Input	External button long	1 Bit	■		■		
24	HVAC - Input	External motion	1 Bit	■		■		
25	HVAC - Input	Status: Actuator channel	1 Bit	■		■		
26	HVAC - Input	Lock motion detection	1 Bit	■		■		
27	HVAC - Input	Forced guidance	2 Bit	■		■		
27	HVAC - Input	Lock object	1 Bit	■		■		
28	HVAC - Input	Lock object ON	1 Bit	■		■		
29	HVAC - Status	Automatic mode	1 Bit	■	■		■	
29	HVAC - Status	Lock/Manual mode	1 Bit	■	■		■	
31	HVAC - Input	Teach-in dimming value for ON	1 Byte	■		■	■	■
32	HVAC - Input	Follow-up time 10 - 65000 s	2 Byte	■		■	■	■

Table 4: Communication objects – Standard settings: HVAC channel

Standard settings – Alarm/Message channel								
No.	Name	Object function	Length	C	R	W	T	U
34	Alarm - Output	Switch	1 Bit	■	■		■	
34	Alarm - Output (Day)	Switch	1 Bit	■	■		■	
35	Alarm - Output (Night)	Switch	1 Bit	■	■		■	
42	Alarm - Input	Lock	1 Bit	■		■		
42	Alarm - Input	Release	1 Bit	■		■		

Table 5: Communication objects – Standard settings: Alarm/Message channel

Standard settings – Temperature								
No.	Name	Object function	Length	C	R	W	T	U
49	Temperature	Send measured value	2 Byte	■	■		■	

Table 6: Communication objects – Standard settings: Temperature

Standard settings – Brightness								
No.	Name	Object function	Length	C	R	W	T	U
50	Brightness	Threshold switch	1 Bit	■	■		■	
51	Brightness	Send measured value	2 Byte	■	■		■	
52	Brightness	Set switch-on threshold for light channels	2 Byte	■		■		

Table 7: Communication objects – Standard settings: Brightness

Standard settings – Logic								
No.	Name	Object function	Length	C	R	W	T	U
53	Logic 1:	Input C	1 Bit	■		■	■	■
54	Logic 1:	Input D	1 Bit	■		■	■	■
55	Logic 1:	Input E	1 Bit	■		■	■	■
56	Logic 1:	Input F	1 Bit	■		■	■	■
57	Logic 1:	Output 1	1 Bit 2 Bit 1 Byte	■	■		■	
+5	**next Logic**							

Table 8: Communication objects – Standard settings: Logic

The preset default settings of the communication objects can be taken from the respective tables. The priority of the individual communication objects, as well as the flags, can be adjusted by the user as required. The flags assign their respective function in programming to the communication objects: C stands for communication, R for reading, W for writing, T for transmit, and U for updating.

4 ETS parameters

4.1 General settings

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Send "In operation" cyclically	**not active** 1 min – 24 h	Activation of the object and setting of the transmission interval.
Day/Night object	■ not active ■ active, no request ■ **request after reset**	Setting whether and how the Day/ Night object is used.
Value for Day/Night	■ **Day = 1 / Night = 0** ■ Day = 0 / Night = 1	Setting the polarity of the Day/Night object. **Only if "Day/Night object" is active.**
Toggle Day/Night	■ **at next presence** ■ directly on switchover	Setting when the Day/Night switching should take effect. **Only if "Day/Night object" is active.**
Basic settings: Brightness		
Switch-on threshold "Day"	5 Lux ... 1000 Lux **[100 Lux]**	Setting the value below which the sensor is active.
Switch-on threshold "Night"	5 Lux ... 1000 Lux **[10 Lux]**	
Switch off when exceeding	■ **not active** ■ active	Setting whether an OFF telegram should be sent when a brightness threshold is exceeded.
Switches OFF when exceeding	75 Lux ... 1000 Lux **[800 Lux]**	Setting the brightness threshold. **Only if "Switch off when exceeding" is activated.**
Fallback of forced guidance/lock	4. **not active** ■ after presence and follow-up time ■ after fixed time	Activation of a time for fallback from forced guidance or lock.
Follow-up time forced guidance/lock "Day" / "Night"	1 s – 9 h **[3 min]**	Setting a follow-up time for forced guidance/lock in Day or Night mode. **For "after presence and follow-up time".**

ETS text	Dynamic range **[Default value]**	Comment
Fallback time forced guidance/lock "Day" / "Night"	1 s – 9 h **[10 min]**	Setting a fallback time for forced guidance/lock in Day or Night mode. **When "after fixed time" is selected**.
Fallback external button long (Manual => Auto)	■ not active ■ **after presence and follow-up time** ■ after fixed time	Activation of a time for fallback from override via an object "external button ...".
Manual operation, follow-up time for ON / OFF "Day" / "Night"	1 s – 9 h **[3 min]**	Setting a follow-up time in manual operation for ON or OFF in Day or Night mode. **For "after presence and follow-up time"**.
Manual mode, fallback time for ON / OFF "Day" / "Night"	1 s – 9 h **[10 min]**	Setting a fallback time in manual operation for ON or OFF in Day or Night mode. **When "after fixed time" is selected**.

Table 9: General settings

Send "In operation" cyclically
The "In operation" object is used to show on the bus that the device is "alive". When activated, an ON telegram is sent cyclically at the set interval.

Day/Night object
When the Day/Night object is activated, the polarity can be set via "Value for Day/Night". Regardless of this polarity, the device always starts in "Day" mode after being reprogrammed. Furthermore, it is possible to set whether the "Day/Night" object should be queried after a bus voltage return.

Toggle Day/Night
This determines whether the Day/Night switchover is adopted immediately with the input telegram or only when the next movement (presence) is detected.

Basic settings: Brightness
This parameter allows you to specify a working range for the presence detector. The parameters "**Switch-on threshold Day/Night**" define the thresholds below which the detector detects presence. Above this threshold, no movement is detected. However, the detector does not switch off the light as soon as the brightness is exceeded; instead, the follow-up time continues as normal.
The set threshold value can be changed via object "Set switch-on threshold for light channels". The value applies to the current mode of operation. If the detector is in day mode, the threshold for "Day" is changed. If the detector is in night mode, the threshold for "Night" is changed.
Activating the parameter "**Switch-off if exceedance**" causes the light channel to switch off immediately when the set value under "**Switch-off when exceeding ...**" is reached. However, the value should not be set too low, as this may otherwise lead to continuous switching on and off.

Example: If the detector switches ON and the brightness in the room with the switched-on light is higher than the value "Switch OFF when exceeding", the channel switches off again immediately.

Note: The switch-off value must be greater than 50 % of the highest switch-on threshold.

Fallback of forced guidance/lock
If the detector is in a certain state due to forced guidance or lock, it can be specified whether it should return to automatic mode after a "**fixed time**".
With the setting "**after presence and follow-up time**", presence in the room is still detected during forced guidance/lock. If no one is in the room and the channel's follow-up time has expired, the set "**Manual mode, follow-up time...**" starts from this point, after which the detector switches back to automatic mode.

Fallback for external button long (Manual => Auto)
If the detector is switched to manual mode via the object "External button long", a fallback to automatic mode "with fixed time" or "after presence and follow-up time" can also be achieved here. The process corresponds to the description in the previous point "Fallback of forced guidance/lock".

Note: "External button short" is interpreted as movement and starts the follow-up time (adjustable in the channel). "External button long" switches to manual mode.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
1	In operation – Output	1 Bit	Sending a cyclic telegram.
2	Day/Night – Day = 1 / Night = 0 Day = 0 / Night = 1	1 Bit	Switching between Day and Night mode according to the set polarity.

Table 10: Communication objects – General settings

4.2 Selection of channels

A light channel, an HVAC channel and an Alarm/Message channel can be activated. A separate menu appears for each activated channel.
The Light channel and HVAC channel are described in the following chapter.
The Alarm/Message channel is described in a separate chapter, see 4.2.2 Alarm/Message channel.

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Light channel	■ not active ■ **active**	Activation/deactivation of the channel.
HVAC channel	■ **not active** ■ active	Activation/deactivation of the channel.
Alarm/Message channel	■ **not active** ■ active	Activation/deactivation of the channel as well as detection of the direction of movement.

Table 11: Settings – Channel selection

4.2.1 Light channel / HVAC channel

The Light channel and the HVAC channel differ only in a few "individual" parameters. Therefore, these channels will be described together below.

4.2.1.1 Basic settings – Light channel

☑ Light channel

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Brightness	■ **basic setting or object "Switch dark" active** ■ independent of brightness	Setting for how the channel should respond to brightness.
Channel operating mode	■ **fully automatic** ■ half automatic (manual switching)	Setting the operating mode.
Motion filter in standby	■ **not active, no filtering** ■ active, filter short motions	Activation of a motion filter in standby mode (= output is switched off). **Only in "fully automatic" mode.**
Reduction of follow-up time	■ **not active** ■ active	Setting whether a reduction of the follow-up time should be activated.
Maximum duration for short time presence	10 s – 30 s **[20 s]**	Setting the maximum duration for a short time presence. **Only when "Reduction..." → "active".**
Follow-up time for short time presence	10 s – 120 s **[60 s]**	Setting the follow-up time for the short time presence. **Only when "Reduction..." → "active".**
Follow-up time "Day"	1 s – 4 h **[3 min]**	Setting the follow-up time for Day and Night mode.
Follow-up time "Night"	1 s – 4 h **[30 s]**	

Table 12: Basic settings – Light channel

Brightness

With "**basic setting or object 'Switch dark' is active**", brightness thresholds refer to the settings in the "General settings" menu. However, this can be made brightness-independent via the object "Switch dark" with a "1", and thus switches at any brightness. With the setting **"independent of brightness"**, there is no threshold and the channel always switches.

Channel operating mode

- **Fully automatic:** The light channel reacts to every detected presence and switches the output. After the follow-up time has elapsed, the channel switches off again.
- **Half automatic:** In this mode, the light channel is switched on via the "External button short" object. The light channel then remains switched on until no presence is detected. After the follow-up time has elapsed, the light channel is then automatically switched off again.

Follow-up time
This parameter describes the time that elapses after the last detection of movement until the light channel is switched off. The follow-up time can be set differently for "Day" and "Night". For example, with a follow-up time of 3 minutes, the light would remain on for this period after a motion is detected. Each new detection triggers retriggers and thus restarts the follow-up time.

Reduction of follow-up time
When activated, two further parameters are displayed:

- **Maximum duration for short time presence**: Indicates the duration between the first and last motion detection for activating the short time presence.
- **Follow-up time for short time presence:** Indicates the duration of the follow-up time when the short time presence has been activated.

If, with short time presence activated, the first and last movement are detected within the set duration for short time presence, the output is not switched on for the regular follow-up time, but only for the follow-up time of the short time presence.

Object "Lock motion detection"
The permanently displayed"Lock motion detection" object deactivates motion detection for this light channel. Unlike the lock via the lock object, the light channel can still be operated manually via internal and external button functions.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
10	Light channel - Input – Status: Actuator channel	1 Bit	Feedback on the current status of the actuator.
11	Light channel - Input – Lock motion detection	1 Bit	Locks the motion detection for the light channel.
15	Light channel - Input – Switch dark	1 Bit	Operates the light channel independently of brightness.
17	Light channel - Input – Follow-up time 10 - 65000 s	2 Byte	Sets the follow-up time via an external object.

Table 13: Communication objects – Basic settings: Light channel

4.2.1.2 Basic settings – HVAC channel

☑ HVAC channel

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Channel operating mode	■ **fully automatic** ■ half automatic (manual switching)	Setting the operating mode.
Number of monitoring time slots	1 – 30 **[3]**	Setting how many time slots are used. **Only in "fully automatic" mode.**
• Length of monitoring time slot	0 s ... 30000 s **[30 s]**	Setting the length of the time slots. **Only in "fully automatic" mode.**
Follow-up time "Day"	1 s – 4 h **[3 min]**	Setting the follow-up time for Day and Night operation.
Follow-up time "Night"	1 s – 4 h **[30 s]**	

Table 14: Settings – Basic settings: HVAC channel

Operating mode

- **Fully automatic:** The HVAC channel responds to every detected motion and switches the output. After the follow-up time has elapsed, the channel switches off again.
- **Half automatic:** In this mode, the HVAC channel is switched on via the "External button short" object. The HVAC channel then remains switched on until no presence is detected. After the follow-up time has elapsed, the HVAC channel is automatically switched off again.

Monitoring time slot

In one or more observation time windows, motion must be detected at least once within a certain period in order to switch the channel output. This prevents the output from being switched with every small detection. The "**Number of monitoring time slots"** as well as the "**Length of the monitoring time slot**" can be set individually.

Follow-up time

The "Follow-up time Day/Night" describes the time that elapses after the last detection of motion until the output is switched off. The follow-up time can be set differently for Day/Night. For example, with a follow-up time of 3 minutes, the light would remain on for at least 3 minutes after a motion is detected. Each new detection triggers a retrigger, restarting the follow-up time.

Object "Lock motion detection"

The permanently displayed object "lock motion detection" deactivates motion detection for the HVAC channel. Unlike the lock via the lock object, the channel can still be operated manually via internal and external button functions.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
25	HVAC - Input – Status: Actuator channel	1 Bit	Feedback from the actuator's status output.
26	HVAC - Input – Lock motion detection	1 Bit	Locks the motion detection for this channel.
32	HVAC - Input – Follow-up time 10 – 65000 s	2 Byte	Sets the follow-up time via an external object.

Table 15: Communication objects – Basic settings: HVAC channel

4.2.1.3 Forced guidance or lock object

☑ Light channel
☑ HVAC channel

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Forced guidance or lock object	■ **forced guidance object (2 Bit)** ■ lock object ■ lock object and lock object ON	Setting whether a forced guidance object or which lock object should be used.
Action on locking	■ **lock motion (lock current state)** ■ switch ON ■ switch OFF	Defines the action when the lock is set. **Only when "lock object" is selected.**
Fallback of forced guidance/lock (General setting)	■ **active** ■ not active	Setting whether the channel should respond to "Fallback of forced guidance/ lock" in the "General settings" menu.

Table 16: Settings – Forced guidance or lock object

Functionality:
The forced guidance or lock object can be used to override the motion detector and call up a specific state. The **forced guidance object** knows 3 possible states:

- **Forced guidance ON** (11 - Priority, ON) The command for "ON" is sent unconditionally to the output object. Evaluation is then stopped and the forced guidance reset time begins. If nothing is received on the forced guidance object after the reset time has elapsed, normal operation is resumed.
- **Forced guidance OFF** (10 - Priority, OFF) The command for "OFF" is sent unconditionally to the output object. Evaluation is then stopped and the forced guidance reset time begins. If nothing is received on the forced guidance object after the reset time has elapsed, normal operation is resumed.
- **Forced guidance AUTO** (00 - no priority, OFF) Deactivates forced guidance. Normal operation of the detector is resumed.

Alternatively to the forced guidance object, 1 or 2 objects (1 Bit) can be displayed. For the lock object, 3 different states can be configured:

- **lock motion (lock current state)** The channel is locked in the current state and remains in this state until the locking process is deactivated.
- **switch ON** The channel switches ON and remains in this state until the locking process is deactivated.
- **switch OFF** The channel switches OFF and remains in this state until the locking process is deactivated.

By activating the object "Lock object ON", the channel sends the output value for "ON" and remains in this state until the locking process is deactivated.

The parameter "**Fallback of forced guidance/lock (General setting)**" allows you to set individually for each channel whether it should respond to the parameterisation for "Fallback of forced guidance/lock" in the "General settings" menu.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
12	Light channel - Input – Lock object	1 Bit	Locking the light channel.
12	Light channel - Input – Forced guidance	2 Bit	Activate/deactivate forced guidance.
13	Light channel - Input – Lock object ON	1 Bit	Switching on the light channel and locking the light channel in the ON state.
27	HVAC - Input – Lock object	1 Bit	Locking the HVAC channel.
27	HVAC - Input – Forced guidance	2 Bit	Activate/deactivate forced guidance.
28	HVAC - Input – Lock object ON	1 Bit	Switching on the HVAC channel and locking the HVAC channel in ON state.

Table 17: Communication objects – Forced guidance or lock object

4.2.1.4 Output objects

☑ Light channel
☑ HVAC channel

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Object type for output - Light Object type for output - HVAC	■ **Switch** ■ Dimming absolute ■ Scene	Setting which object type the output sends.
Output 2 (Additional switch object)	■ **not active** ■ ON and OFF	Activation of an additional switch object. **Only available for the light channel.**

Table 18: Settings – Output objects

Object type for output
This parameter defines the datapoint type of the output object.

Output 2 (Additional switch object)
Additionally, regardless of the object type, a separate switch object can be activated. This is always available as a 1 Bit object. For example, if a dimming value is sent as output object 1, a 1 Bit telegram can also be sent via output 2 to control a status LED or similar.

Important: This object is only available for the light channel!

4.2.1.4.1 Output object: Switch

☑ Light channel
☑ HVAC channel

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Only for Light channel		
Output objects for Day/Night	■ one common object ■ separate objects	Setting whether to send via one or two objects.
Only for HVAC channel		
Object value for “Day” when ON	■ Value "0" ■ **Value "1"**	Definition of the value for the switch function in Day/Night mode.
Object value for "Day" when OFF	■ **Value "0"** ■ Value "1"	
Object value for “Night” when ON	■ Value "0" ■ **Value "1"**	
Object value for "Night" when OFF	■ **Value "0"** ■ Value "1"	

Table 19: Settings – Output object: Switch

Light channel
With the selection "**one common object**", the output always sends to only one object, regardless of whether in day or Night mode. The sent object value cannot be inverted.
With "**separate objects**", 2 switch objects are displayed - one for Day mode and one for Night mode. For example, the main light can be switched on in Day mode and a small night light in Night mode.

HVAC channel
There is only one output here. The object values for the respective mode are set directly.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
4	Light channel - Output 1 – Switch	1 Bit	Switch function for Day/Night mode.
4	Light channel - Output 1 (Day) – Switch	1 Bit	Switch function for Day mode.
5	Light channel - Output (Night) – Switch	1 Bit	Switch function for Night mode.
6	Light channel - Output 2 (Additional) – Switch	1 Bit	Switching function with additional object.
19	HVAC - Output – Switch	1 Bit	Switching function of the HVAC channel.

Table 20: Communication objects – Output object: Switch

4.2.1.4.2 Output object: Dimming absolute

☑ Light channel
☑ HVAC channel

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Dimming value for "Day" when ON	0% – 100 % **[100 %]**	Specification of the value for the dimming function in Day/Night mode.
Dimming value for “Day” when OFF	0 – 100 % **[0%]**	
Dimming value for “Night” when ON	0 – 100 % **[30 %]**	
Dimming value for “Night” when OFF	0 – 100 % **[0 %]**	
Orientation light for leaving	■ **switch off immediately** ■ other dimming value and switch-off delay	Setting whether the light switches off directly or a night light should be activated.
For "other dimming value and switch-off delay"		
Switch-off delay for "Day"	not active, 1 s – 60 min **[30 s]**	Setting whether and at what time the switch-off is delayed in Day mode.
Switch-off dimming value for "Day"	0 – 100 % **[30 %]**	Setting a dimming value.
Switch-off delay for "Night"	not active, 1 s – 60 min **[30 s]**	Setting whether and at what time the switch-off is delayed in Night mode.
Switch-off dimming value for "Night"	0 – 100 % **[20%]**	Setting a dimming value.

Table 21: Settings – Output object: Dimming absolute

Note: An additional "Switch" object can be activated for the light channel.

Dimming values for Day/Night when ON/OFF
With these parameters, the corresponding absolute values are defined, which the channel sends after detection or after the follow-up time has elapsed.

Object "Teach-in dimming value for ON"
This allows new values to be specified externally via an object:

- **Day mode:** If the channel is in Day mode, the "Dimming value for 'Day' when ON" is changed.
- **Night mode:** If the channel is in Night mode, the "Dimming value 'Night' for ON" is changed.

Orientation light for leaving

- **Switch off immediately:** The light will be switched off directly.
- **Other dimming value and switch-off delay:** With this function, the light is not switched off directly after the follow-up time has elapsed, but is first switched to an adjustable diming value. The OFF command is only sent after the switch-off delay has elapsed. The delay time and dimming value can vary for “Day” and “Night” mode.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
4	Light channel - Output 1 – Dimming absolute	1 Byte	Sending an absolute dimming value.
6	Light channel - Output 2 (Additional) – Switch	1 Bit	Additional switching function of the light channel.
16	Light channel - Input – Teach-in dimming value for ON	1 Byte	Presetting a new dimming value when switch-on.
19	HVAC - Output – Dimming absolute	1 Byte	Sending an absolute dimming value.
31	HVAC - Input – Teach-in dimming value for ON	1 Byte	Presetting a new dimming value when switch-on.

Table 22: Communication objects – Output object: Dimming absolute

4.2.1.4.3 Output object: Scene

☑ Light channel
☑ HVAC channel

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Scene number for "Day" when ON	not active, 1 – 64 **[1]**	Activation and specification of the scene number in Day or Night mode.
Scene number for "Day" when OFF	not active, 1 – 64 **[2]**	
Scene number for "Night" when ON	not active, 1 – 64 **[3]**	
Scene number for "Night" when OFF	not active, 1 – 64 **[4]**	

Table 23: Settings – Output object: Scene

Important: For the Light channel, an additional "Switch" object can be activated.

Function description
With the scene numbers for "Day" and "Night" when ON/OFF, the corresponding scene is defined, which the channel sends after a detection or after the follow-up time has elapsed.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
4	Light channel - Output 1 – Scene	1 Byte	Sending a scene number.
6	Light channel - Output 2 (Additional) – Switch	1 Bit	Additional switching function of the light channel.
19	HVAC - Output – Scene	1 Byte	Sending a scene number.

Table 24: Communication objects – Output object: Scene

4.2.1.4.4 Sending conditions for output objects

☑ Light channel
☑ HVAC channel

Important: The parameters for the sending conditions are only available in the "Fully automatic" operating mode!

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
For "Object type for output Light/HVAC" → "Switch"		
Output object 1 sends	■ only ON ■ only OFF ■ **ON and OFF**	Setting the sending filter.
Output object 1 sends ON cyclically	**not active** 10 s – 60 min	Setting the transmission interval. **For "ON" and "ON and OFF".**
Output 2 (Additional switch object)	■ **not active** ■ ON and OFF	Activation of output 2 **Only for "Light channel".**
For "Object type for output Light/HVAC" → "dimming absolute"		
Output object 1 sends	■ only dimming value for ON ■ only dimming value for OFF ■ **dimming value for ON and OFF**	Setting the sending filter.
Output object 1 sends value for ON cyclically	**not active** 10 s – 60 min	Setting the transmission interval. **For "ON" and "ON and OFF".**
Output 2 (Additional switch object)	■ **not active** ■ ON and OFF	Activation of output 2 **Only for "Light channel".**
For "Object type for output Light/HVAC" → "scene"		
Output object 1 sends	■ only scene number for ON ■ only scene number for OFF ■ **scene number for ON and OFF**	Setting the sending filter.
Output object 1 sends scene for ON cyclically	**not active** 10 s – 60 min	Setting the transmission interval. **For "ON" and "ON and OFF".**
Output 2 (Additional switch object)	■ **not active** ■ ON and OFF	Activation of Output 2. **Only for "Light channel".**

Table 25: Settings – Sending conditions for output objects

"Output object 1 sends" defines which value (according to the set object type) should be sent.

With "Output object 1 sends cyclically ... ON" you set whether and at what interval the output object for "ON" should be sent cyclically.

For the light channel, an additional 1 Bit switching object can be activated via **"Output 2 (additional switch object)"**.
Important: If output object 1 sends cyclically, then output 2 (if active) will also send cyclically at the same interval.

4.2.1.5 External button short/long

☑ Light channel
☑ HVAC channel

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
External button short reacts to	■ only ON ■ only OFF ■ **ON and OFF** ■ toggle on telegram input	Setting which telegrams are valid for the "external button".
External button long reacts to	■ only ON ■ only OFF ■ **ON and OFF** ■ toggle on telegram input	Setting which telegrams are valid for the "external button".
Only for "button short"		
If Night light is active	■ switch to Day light ■ **remains on Night light**	Setting the action when "external button short" is pressed while Night light is active.
If output "Day" is already ON	■ remains in automatic mode ■ **switch to manual mode**	Setting the operating mode when the output is already ON for "Day". **Only for "Switch to Day light".**
If output is already ON	■ remains in automatic mode ■ **switch to manual mode**	Setting the operating mode if the output is already ON. **Only for "remains on Night light".**

Table 26: Settings – External button short/long

Object "External button short"
Used for manually switching between the states of the light channel or switching on the light channel in half-automatic mode.

Object "External button long"
Used to manually switch the light channel ON/OFF.

With the "external button" input, the Light/HVAC channel can be switched on independently of a motion detection.

The exact procedures for "external button short/long" are explained in more detail in chapter 4.2.1.8 Process diagrams.

The parameters for "Idle time" are described in the following chapter 4.2.1.6 Idle time.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
7	Light channel - Input – External button short	1 Bit	Object for the input of an external button.
8	Light channel - Input – External button long	1 Bit	Object for the input of an external button.
22	HVAC - Input – External button short	1 Bit	Object for the input of an external button.
23	HVAC - Input – External button long	1 Bit	Object for the input of an external button.

Table 27: Communication objects – External button short/long

4.2.1.6 Idle time

☑ Light channel
☑ HVAC channel

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Idle time after external button short is off	1 s ... 30 s **[5 s]**	Setting the time for which the detector is locked for further detection after being switched off via "external button short".
Idle time after switch off	1 s ... 30 s **[1 s]**	Setting the time for which the detector is locked for further detection after the follow-up time has elapsed.

Table 28: Settings – Idle time

Idle time after external button short is off
The use of this parameter makes it possible to leave the room after switching off the light via the "external button short" without the light being accidentally switched on again by a motion detection.

4.2.1.7 Status information

☑ Light channel
☑ HVAC channel

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Status information	■ **not active** ■ send value "1" for automatic mode ■ Send value "1" for lock/manual mode	Activation of a status object.

Table 29: Settings – Status Information

With activation, a status object is available in each case.

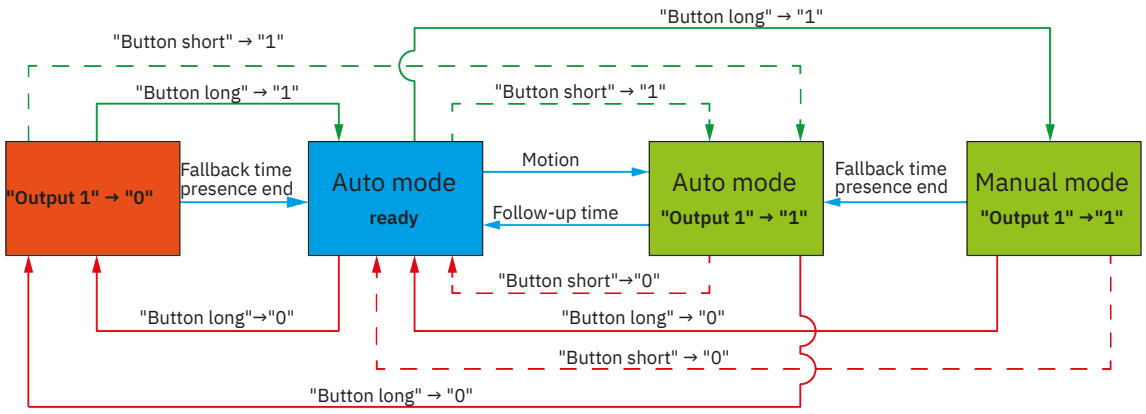
The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
14	Light channel - Status – Automatic mode	1 Bit	Sends the current status.
14	Light channel - Status – Lock/Manual mode	1 Bit	Sends the current status.
29	HVAC – Status – Automatic mode	1 Bit	Sends the current status.
29	HVAC – Status – Lock/Manual mode	1 Bit	Sends the current status.

Table 30: Communication Objects – Status Information

4.2.1.8 Process diagrams

4.2.1.8.1 Fully automatic without orientation light



States:

Manual mode, OFF: The output is switched off, the device was switched off manually.

Auto mode, Ready: The output is switched off, the device switches on automatically when movement is detected.

Auto mode, ON: The output is switched on, the device switches off automatically after the follow-up time has elapsed.

Manual mode, ON: The output is switched on, the motion detector was switched on manually.

State transitions:

Button OFF: OFF telegram to object "External button short".

Button ON: ON telegram to object "External button short".

Movement: Detector detects movement.

Follow-up time: Expiry of the follow-up time set in the light channel.

Fallback time / presence end: Expiry of the fallback time set in the general settings for the external button input.

Button long: Activates / deactivates manual mode.

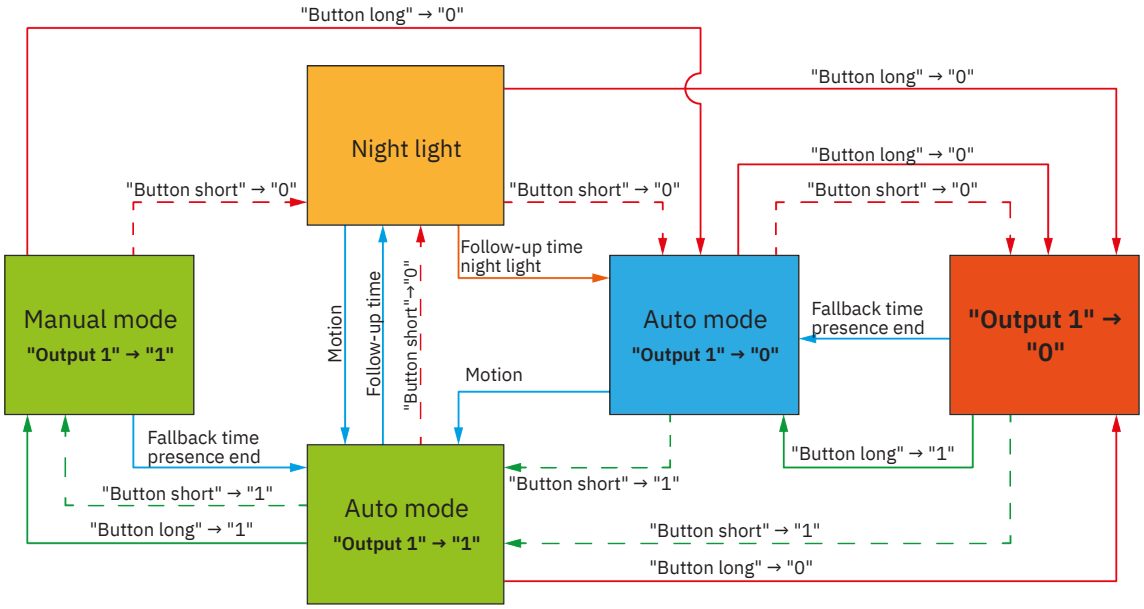
Figure 6: Process diagram – Fully automatic without orientation light

In "Fully automatic" mode, the detector switches on automatically when movement is detected. The automatic mode can be overridden using the "External button short" object, forcing the presence detector to switch. From this mode, the detector automatically reverts to automatic mode in accordance with the settings in the "General settings – Fallback for external button long" menu.

If the output of the light channel is switched on (state automatic mode – ON or manual mode – ON) and the light channel is switched off via the "external button short" object, the light channel is locked for motion detection for 10 s to allow the room to be left and to prevent it from being switched on again briefly.

The detector can be switched to manual mode via the "External button long" object. The device automatically returns from this mode to automatic mode according to the settings in the "General Settings – Fallback for external button long" menu.

4.2.1.8.2 Fully automatic with night light



States:

Manual mode, OFF: The output is switched off, the device was switched off manually.

Auto mode, Ready: The output is switched off, the device switches on automatically when movement is detected.

Auto mode, ON: The output is switched on, the device switches off automatically after the follow-up time has elapsed.

Manual mode, ON: The output is switched on, the device was switched on manually

Night light: The output switches to the dimming value of the night light.

State transitions:

Button OFF: OFF telegram to object "External button short".

Button ON: ON telegram to object "External button short".

Movement: Detector detects movement.

Follow-up time: Expiry of the follow-up time set in the light channel.

Fallback time / presence end: Expiry of the fallback time set in the general settings for the external button input.

Button long: Activates / deactivates manual mode.

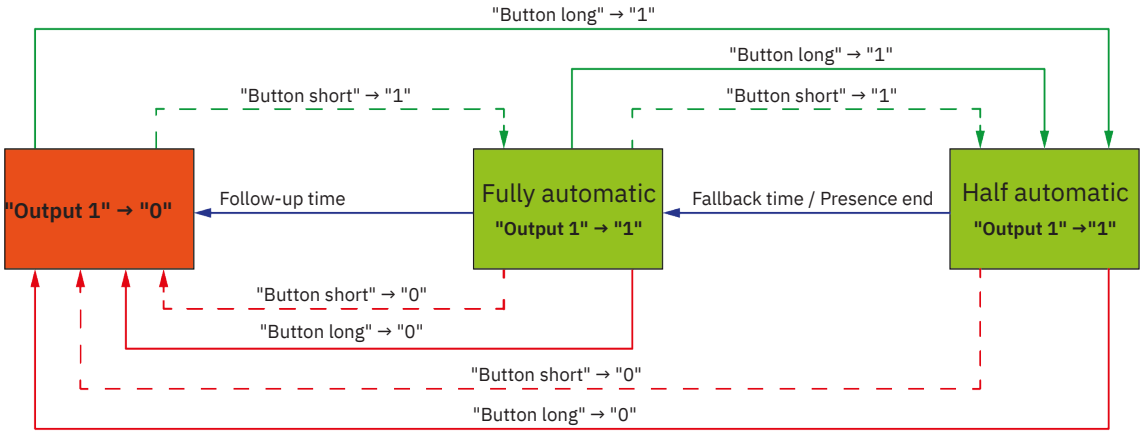
Follow-up time night light: Set switch-off delay when night light is active.

Figure 7: Process diagram – Fully automatic with orientation light

The "Fully automatic with night light" operating mode extends the fully automatic mode by adding the night light state. The night light can be activated as soon as the parameter "Object type for output – Light" is set to "Dimming absolute".

The night light is switched on as soon as the follow-up time of the light channel has expired. The output is then switched to the night light state and can thus dim the light to a darker level to allow the room to be exited safely.

4.2.1.8.3 Half automatic without orientation light



States:

OFF: The output is switched off and must be switched on manually.

Fully automatic: The output is switched on, the device switches off automatically after the follow-up time has elapsed.

Half automatic: The output is switched on, the device was switched on manually.

State transitions:

Button OFF: OFF telegram to object "External button short".

Button ON: ON telegram to object "External button short".

Follow-up time: Expiry of the follow-up time set in the light channel.

Fallback time / presence end: Expiry of the fallback time set in the general settings for the external button input.

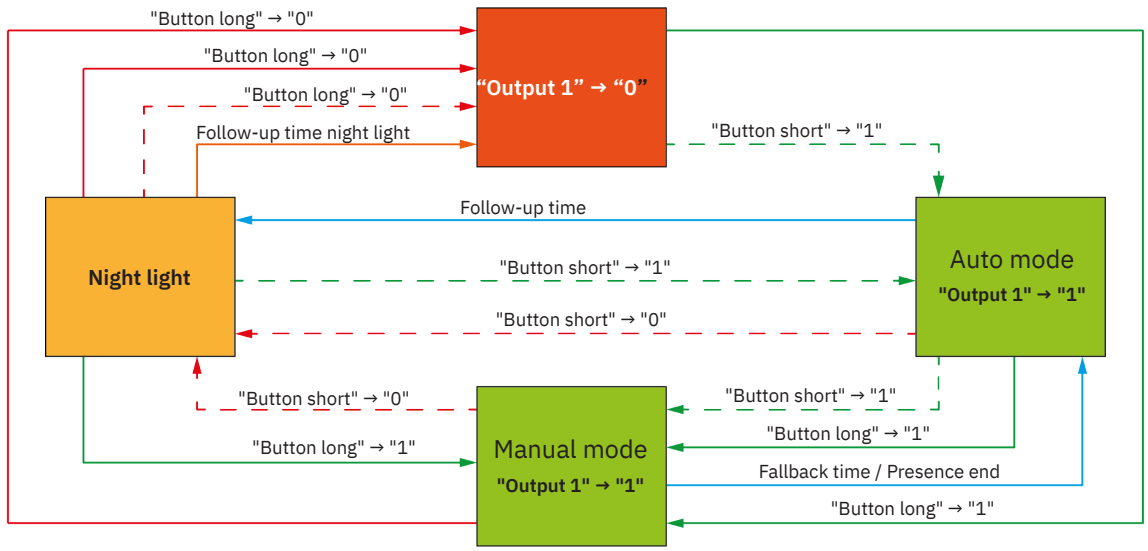
Button long: Activates / deactivates manual mode.

Figure 8: Process diagram – Half automatic without orientation light

In the operating mode “half automatic”, the detector must be switched on manually via the object “external button short”. The light channel is automatically switched off again after the follow-up time (= no detection during the set follow-up time) has elapsed.

The light channel can also be overwritten via the “external button short” object. The motion detector can be switched to manual mode by pressing twice.

4.2.1.8.4 Half automatic with night light



States:

OFF: The output is switched off and must be switched on manually.

Auto mode, ON: The output is switched on, the device switches off automatically after the follow-up time has elapsed.

Manual mode, ON: The output is switched on, the device was switched on manually.

Night light: The output switches to the dimming value of the night light.

State transitions:

Button OFF: OFF telegram to object "External button short".

Button ON: ON telegram to object "External button short".

Follow-up time: Expiry of the follow-up time set in the light channel.

Fallback time / presence end: Expiry of the fallback time set in the general settings for the external button input.

Button long: Activates / deactivates manual mode.

Follow-up time night light: Set switch-off delay when night light is active.

Figure 9: Process diagram – Half automatic with orientation light

The operating mode “half-automatic with night light” extends the operating mode half-automatic by the night light state. The night light can be activated as soon as the “Object type for output - Light” parameter is set to “Dimming absolute”.

The night light is switched on as soon as the follow-up time of the light channel has expired. The output is then set to the "night light" state and can thus dim the light to a darker level, allowing the room to be left safely.

4.2.1.9 Master-Slave operation

The following is a short description of the settings. For more details, there is a suggested solution on our website “https://www.mdt-group.com/for-professionals/tips-tricks.html” under „Presence Detector”.

4.2.1.9.1 Light channel

In larger rooms, the use of a single motion/presence detector is often not sufficient. To detect movements in every corner of the room, several detectors must be used throughout the entire room. Here, however, a detected movement should always lead to the same settings, regardless of which corner of the room the movement was detected in. For this purpose, one detector is set as the master and any number of others as slaves.

The settings for master-slave control are made in the menu for each individual light channel.

The master is configured as a fully or half-automatic device as desired. A follow-up time of 3-5 minutes is recommended.

Slaves are set as follows:

- "Brightness" → "**independent of brightness**".
- "Channel operating mode" → "**fully automatic**".
- "Follow-up time day/night" ➔ less than the follow-up time in the master (e.g. 1 minute).
- "Object type for output - Light" → "**Switch**".
- "Output object sends" → "**only ON**".
- "Output object sends ON cyclically" → A value of 30 seconds is recommended.

The "slaves" send their output object for "Switch" to the "external motion (slave)" object of the master.

The following table shows the corresponding communication object:

No.	Name/Object function	Length	Usage
9	Light channel - Input – External motion (Slave)	1 Bit	Input object for additional (slave) detector.

Table 31: Communication objects – Light channel: Master-Slave operation

4.2.1.9.2 HVAC channel

The master-slave function can also be used for the HVAC channel. The settings for the "slave" are the same as for the slaves for the light groups. However, for the HVAC channel, the settings for the brightness values are omitted. The observation windows must be set according to individual requirements.

Important: As long as the slave is in its follow-up time, it cyclically sends a “1” to the master. After the last “1” has been sent to the master, the master’s follow-up time elapses before the master switches off its output. In this case, the follow-up time of the master and slave are added up.

The following table shows the corresponding communication object:

No.	Name/Object function	Length	Usage
24	HVAC - Input – External motion	1 Bit	Input object for additional (slave) detector.

Table 32: Communication objects – HVAC channel: Master-Slave operation

4.2.2 Alarm/Message channel

The Alarm/Message function can be used to monitor a room in the absence of people and to trigger certain actions when movement is detected.

Important: The Alarm/Message channel is always independent of brightness.

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Interference / motion filter	■ **not active, no filtering** ■ active, filter interferences / short motions	Activation of a motion filter when in standby (= output is not active).
If "interference / motion filter" → "active, filter interference/short motions"		
Length of monitoring time slot	1 ... 5 s **[2 s]**	Setting the time for how long a time window is open for detection.
Number of monitoring time slots	2 ... 5 **[3]**	Setting how many time windows are open for detection.
Follow-up time "Day"	1 s – 4 h **[3 min]**	Setting the follow-up time in day mode.
Follow-up time "Night"	1 s – 4 h **[30 s]**	Setting the follow-up time in night mode.
Lock object or release object	■ **lock object** ■ Release object	Setting whether a release object or a lock object should be used.
Fallback for forced guidance/lock (General settings)	■ **not active** ■ active	Setting whether the channel should react to “Fallback forced guidance/lock” in the menu “General settings”. **Only available for "lock object".**
Output objects for Day/Night	■ **one common object** ■ separate objects	Setting whether "Day" and "Night" should be sent via one object or separate objects.
Output object sends at	■ only ON ■ **ON and OFF**	Setting a filter for the output object.
Output object sends cyclically	**not active** 10 s – 60 min	Activation of cyclic sending for the output object.

Table 33: Settings – Alarm/Message channel

Interference / motion filter
To avoid false detections, an "interference / motion filter" can be activated, which filters out very short motions, e.g. caused by draughts. If this filter is activated, the parameters **"Length of monitoring time slots"** and **"Number of monitoring time slots"** can subsequently be set. This means that a longer detection is required to switch on. In order to switch on the channel, at least one detection must have taken place in each of the set monitoring time slots. For example, if there are three time slots, each with a length of 2 seconds, at least one detection must occur in the first 2 seconds, at least one detection in the second 2 seconds and at least one detection in the third 2 seconds. Thus, it takes at least 6 seconds before the alarm channel is triggered. If the motion filter is not activated, detection takes place with just one motion.

Follow-up time
This time defines the switch-off delay that expires after the last motion detection up to the switch-off of the output. Thus, with a follow-up time of 3 min, the signalling channel would be switched on for at least 3 min if motion is detected. Each new detection restarts the follow-up time. This time can be set to different values for Day and Night.

Lock object or release object
This parameter can be used to set which of the two objects is active. The lock object switches off the channel with a "1". The release object activates the channel with a "1". If the parameter is configured as a lock object, it is possible to use the parameter "**Fallback of forced guidance/lock (General setting)"** to set whether the channel should respond to the configuration for "Fallback of forced guidance/lock" in the "General settings" menu or not.

Output objects for "Day" / "Night"
Here it is set whether to switch via a common object or separate objects for Day and Night. Separate objects can be used, for example, to execute a different action for Day than for Night.

Output object sends at
This parameter can be used to activate a sending filter for the output. It is defined whether the channel should only send on "ON" telegrams or on "ON" and "OFF" telegrams.

Output object sends cyclically
Determines whether, and at what intervals, the output object cyclically sends its value in a specified interval.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
34	Alarm - Output – Switch	1 Bit	Sending an alarm (common object).
34	Alarm - Output (Day) – Switch	1 Bit	Sending an alarm in day mode.
35	Alarm - Output (Night) – Switch	1 Bit	Sending an alarm in night mode.
42	Alarm - Input – Lock	1 Bit	Locking the Alarm/Message function.
42	Alarm - Input – Release	1 Bit	Releasing the Alarm/Message function.

Table 34: Communication Objects – Alarm/Message channel

4.3 Scenes

The scene function allows actions to be triggered for the light channel by receiving the corresponding scene numbers.

Important: Scenes are only possible for the Light channel, not for the HVAC channel or the Alarm/Message channel. Only actions for light channels that have been activated in the “Channel selection” menu can be set.

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Scene A - H number	**not active** 1 – 64	Setting the scene number.
Scene A - H Light channel	■ **not active** ■ lock active, ON ■ lock active, OFF ■ Lock active ■ lock disable (last state) ■ lock disable, OFF ■ set external button short to value "1" ■ set external button short to value "0" ■ set external button long (manual mode) to value "1" ■ set external button long (manual mode) to value "0" ■ set object Day/Night to "Day" (for all channels) ■ set object Day/Night to "Night" (for all channels)	Setting the action to be performed when a scene is called up.

Table 35: Settings – Scenes

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
3	Scene – Input	1 Byte	Calling up a scene.

Table 36: Communication objects – Scenes

4.4 Brightness

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Send brightness on change of	not active, 5% – 50% **[10%]**	Setting whether and from which change the measured value is sent.
Send measured value cyclically	**not active** 5 s – 30 min	Setting whether and at what interval the measured value is sent cyclically.
Correction value	- 50 % – 70 % **[0 %]**	Increase/decrease of the value to correct the measured brightness.
Room reflection factor	■ 1 ■ 0.7 very high ■ 0.5 high ■ **0.4 medium** ■ 0.3 low ■ 0.25 low ■ 0.2 very low	Reflection coefficient of the environment.
Threshold switch		
Threshold switch	■ **not active** ■ active	Activation of a threshold switch.
Threshold switch switches at	5 Lux– 1000 Lux **[300 Lux]**	Setting the threshold at which the threshold switch changes over = defined switch-on point.
Hysteresis of the threshold switch	5 Lux– 200 Lux **[30 Lux]**	Distance between switch-off and switch-on point. Switch-off point = value for switching the threshold switch – hysteresis.
Object value for "Day" and exceedance	■ **ON** ■ OFF	Setting the value to be sent.
Object value for "Night" and exceedance	■ **ON** ■ OFF	Setting the value to be sent.
Object value at lower deviation	■ **ON** ■ OFF	Setting the value to be sent.
Send at "Day" / "Night"	■ not active ■ only ON ■ only OFF ■ **ON and OFF**	Setting the transmission filter for day or night operation

Table 37: Settings – Brightness

The parameter **"Send brightness on change of"** determines whether, and at what percentage change, the current measured value is sent. If the setting is "not active", the sensor does not send any value, regardless of the size of the change.
The **"Send measured value cyclically"** parameter can be used to determine whether and at what intervals the current measured value is sent cyclically.

Note: The sending functions can be activated or deactivated independently of each other. If both parameters are deactivated, no value will be sent.

The **correction value** (brightness) is used to increase or decrease the actual measured value. The object "Brightness – Send measured value" sends the corrected brightness value.

Note: The correction value is entered as a percentage. For example, entering -10 % shifts the value to be sent down by 40 Lux for a measured value of 400 Lux.

The **room reflection factor** indicates what percentage of the emitted light is reflected by the surroundings. A value of "1" means that 100 % of the emitted light is reflected. For dark floors, a reflection factor of 0.25 is usually suitable. The device measures, for example, 400 Lux at desk height and only 100 Lux at the ceiling. These are then recalculated to 400 Lux.

Communication object "Set switch-on threshold for light channels"
This object makes it possible to send a switch-on threshold for brightness to the device via the bus. This value replaces the "switch-on threshold 'Day'/'Night'" specified under "General Settings" for the active Day/Night mode. After a bus voltage failure, the device operates again with the preset values. The object is permanently displayed.

Additionally, a **threshold switch** can be set for a specific brightness. This can be set with a hysteresis to avoid frequent switching.

The interaction between hysteresis and threshold is illustrated in the following graphic:
Threshold switch switches at: 1800 Lux
Hysteresis: 600 Lux

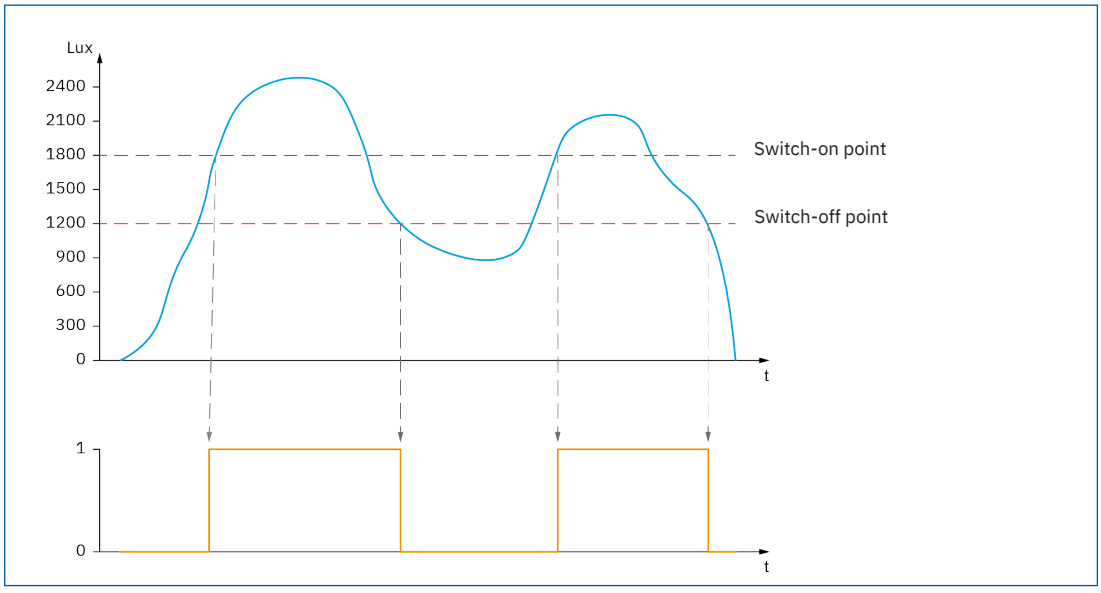


Figure 10: Diagram – Threshold Switch / Hysteresis

The **object values** and the **sending conditions** can be freely defined using the other parameters. Both the polarity and a send filter can be set.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
50	Brightness – Threshold switch	1 Bit	Sending the set value when exceeded or fallen below.
51	Brightness – Send measured value	2 Byte	Sends the measured value of the brightness sensor.
52	Brightness – Set switch-on threshold for light channels	2 Byte	Receives a value for the switch-on threshold for light channels.

Table 38: Communication objects – Brightness

4.5 Temperature

With temperature measurement, the temperature in the room can be measured and sent to the bus.

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Temperature measurement	■ **not active** ■ active	Activation of temperature measurement.
Send measured value on change of	not active 0.1 K – 1 K **[0.2 K]**	Setting at which change the measured value is sent.
Send measured value cyclically	**not active** 1 min – 120 min	Setting whether and at what interval the measured value is sent cyclically.
Correction value for sensor	-80 ... 50 x 0.1 K **[0 K]**	Setting the value by which the temperature is corrected.

Table 39: Settings – Temperature

Sending functions
The parameter **"Send measured value on change of"** determines whether, and at what percentage change, the current measured value is sent. If the setting is "not active", the sensor does not send any value, regardless of the size of the change.
The **"Send measured value cyclically"** parameter can be used to determine whether and at what intervals the current measured value is sent cyclically.

Note: The sending functions can be activated or deactivated independently of each other. If both parameters are deactivated, no value will ever be sent.

Correction value for sensor
This value is used to increase/decrease the actual measured value. The corrected value is sent.

Note: The value is entered with the factor "x 0.1 K". Entering "25" increases the sent temperature value by 2.5 °C.

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
49	Temperature – Send measured value	2 Byte	Sending the current temperature value.

Table 40: Communication objects – Temperature

4.6 Logic

4.6.1 Activation of the logic function

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Logic function 1 - 4	■ **not active** ■ active	Activation of the respective logic function.
Request inputs after bus power return	■ **not active** ■ active	Setting whether the inputs should be actively queried after the bus voltage returns.

Table 41: Settings – Activation of the logic function

After activating the logic function, a submenu for the corresponding logic function is displayed, in which the logic can be further configured accordingly.

4.6.2 Logic settings

There are two text fields available:

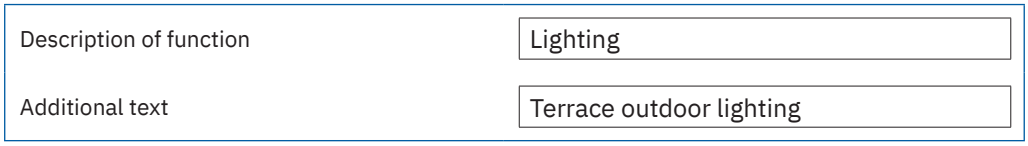


Figure 11: Logic – Text fields: Description and additional text

Texts with up to 40 characters can be stored for both fields.

The text entered for the "**Description of function"** appears in the menu behind the corresponding logic as well as with the communication objects of the logic.

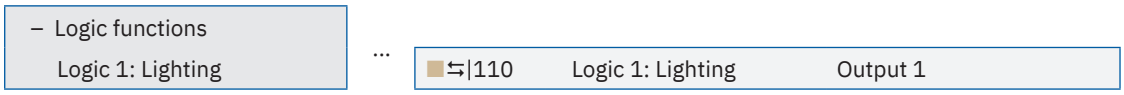


Figure 12: Logic – Presentation of the description

The “**Additional text"** is merely additional information for the logic. It is not visible anywhere else.

Up to 4 different logic functions can be implemented. Each logic function can link and evaluate up to 2 internal objects and up to 4 external objects. The sending condition can be used to adjust the output's sending behaviour.

The following table shows the available settings:

ETS text	Dynamic range **[Default value]**	Comment
Function	■ **AND** ■ OR ■ XOR	Setting of the logic function.
Output object	■ **Switch** ■ Scene ■ Value ■ Forced guidance 2 Bit	Setting the output object for the logic.
Setting for output object “Switch”		
Sending condition	■ on input telegram ■ **on change of output** ■ send only "0" on change of output ■ send only "1" on change of output ■ send only "0" on input telegram ■ send only "1" on input telegram	Setting the condition under which the output sends.
Output	■ **normal** ■ inverted	Setting how the output object is sent.
Setting for output object “Scene”		
Sending condition	■ on input telegram ■ **on change of output** ■ send only scene for "False" on change of output ■ send only scene for "True" on change of output ■ send only scene for "False" on input telegram ■ send only scene for "True" on input telegram	Setting the condition under which the output sends.
Scene number for output value "False" / "True"	not active, 1 – 64 **[1]**	Setting the scene to be sent.

ETS text	Dynamic range **[Default value]**	Comment
Setting for output object "Value"		
Sending condition	■ on input telegram ■ **on change of output** ■ send only value for "False" on change of output ■ send only value for "True" on change of output ■ send only value for "False" on input telegram ■ send only value for "True" on input telegram	Setting the condition under which the output sends.
Datapoint type	■ **1 Byte DPT 5.005 Decimal factor (0...255)** ■ 1 Byte DPT 5.001 Percent value (0...100%)	Setting the datapoint type for the value to be sent.
Value for output value "False" / "True"	0 ... 255 **[0]**	Setting the value to be sent. **For DPT "1 Byte Decimal factor".**
Value for output value "False" / "True"	0 % – 100 % **[0 %]**	Setting the value to be sent. **For DPT "1 Byte Percentage value".**
Setting for output object "Forced guidance 2 Bit"		
Sending condition	■ on input telegram ■ **on change of output** ■ send only value for "False" on change of output ■ send only value for "True" on change of output ■ send only value for "False" on input telegram ■ send only value for "True" on input telegram	Setting the condition under which the output sends.
Forced guidance for output value "False" / "True"	■ **00 - no priority, Off** ■ 01 - no priority, On ■ 10 - priority, Off ■ 11 - priority, On	Setting the value to be sent.
Settings: Inputs		
Internal input A/B	■ **not active** ■ normal ■ inverted	Activation of an internal object as input and setting whether it is used normally or inverted.

ETS text	Dynamic range **[Default value]**	Comment
Object number	0 ... 255 **[0]**	Selection of the internal object that is active as input for the logic.
External input C-F	■ **not active** ■ normal ■ inverted	Activation of an external object as input and setting whether it is used normally or inverted.
Preset logic input after reset with	■ **Value "0"** ■ Value "1"	Setting the value with which the input is preset after bus voltage returns.

Table 42: Settings – Logic

The **"Sending conditions"** are explained as follows (the texts vary depending on the output object):

- **On input telegram:** The output value is sent with every input telegram, regardless of whether the output value has changed or not.
- **On change of output:** The output value is only sent if the output has changed.
- **Send only "0"/"1" / value/scene for "False"/"True" on change of output:** The output value is only sent if the output changes and the logic has the corresponding value (0/1).
- **Send only "0"/"1" / value/scene for "False"/"True" on input telegram:** The output value is sent with each incoming telegram and when the logic has the corresponding value (0/1).

Internal inputs can be connected to all available objects of the device.

Important: Only Bit values are evaluated correctly.

External inputs can only be linked to 1 Bit objects.

Note: In the event of a reset (bus voltage failure/return), the external inputs are in an undefined state. In this case, the inputs can be preset with values (1/0) to maintain the function of the logic. These values apply until valid values follow from the external objects (e.g. status messages).

The following table shows the associated communication objects:

No.	Name/Object function	Length	Usage
53	Logic 1: – Input C	1 Bit	External input for the logic function.
+1	**Logic 1: – Input (D - F)**		
57	Logic 1: – Output 1		Output of the logic function. DPT according to parameter setting.
+5	**next Logic**		

Table 43: Communication objects – Logic

5 Index

5.1 Register of illustrations

5.2 List of tables

6 Appendix

6.1 Statutory requirements

The devices described above must not be used in conjunction with devices which directly or indirectly serve human, health, or life-safety purposes. Furthermore, the devices described must not be used if their use may cause danger to people, animals, or property. Do not leave the packaging material carelessly lying around. Plastic foils/ bags etc. can become a dangerous toy for children.

6.2 Disposal

Do not dispose of old devices in household waste. The device contains electrical components that must be disposed of as electronic waste. The housing is made of recyclable plastic.

6.3 Assembly

Danger to life from electric current!

All work on the device may only be carried out by qualified electricians. Country-specific regulations as well as the applicable KNX guidelines must be observed.

The devices are approved for operation in the European Union and the United Kingdom. The products are respectively marked with the CE and UKCA symbols.

Use in the USA and Canada is prohibited!

6.4 History

V 1.0	First version of the technical manual	DB V 1.0	01/2026