

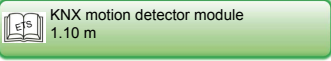
Manufacturer

Hager Elektro

KNX motion detector module



Application description

KNX motion detector module 1.10 m








| | Order number | Product designation | Application programme | TP product  |
|--|--------------|-----------------------------------|---|--|
|  | WST502 | KNX motion detector module 1.10 m | SWST502 V1.0  |  |

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1. General

1.1 General information about this application description

This document describes the operation and parameterisation of KNX devices with the aid of the Engineering Tool Software ETS.

The devices are parameterised by the ETS and the required settings for operation are made during the first installation.

1.2 ETS Programming software

The application programmes are compatible with ETS5 or ETS4 and are always available in their latest version on our Internet website.

| ETS version | File extension of compatible products | File extension of compatible projects |
|---------------------------|---------------------------------------|---------------------------------------|
| ETS 4 (v 4.2.0 or higher) | *.knxprod | *.knxproj |
| ETS 5 (v 5.0.6 or higher) | *.knxprod | *.knxproj |

Table 1: ETS Software version

1.2.1 ETS Application designation

| Application | Article order number |
|--------------|----------------------------|
| SWST502 V1.0 | KNX motion detector WST502 |
| | |

Table 2: ETS Application designations



1.3 Commissioning

The commissioning of the motion detector modules primarily refers to the programming of the physical address and the application data by the ETS Engineering Tool Software.

1.3.1 Physical address

The ETS assigns the physical address. The motion detector module is designed as a mono-block device and thus features an integrated bus coupling unit. Programming mode is activated using the potentiometer for adjusting the delay time in the address position; the red programming LED behind the lens lights up permanently as an additional means of notification.

Example:

- Set potentiometer delay time to **adr**.
The status LED lights up red permanently.
- Load the physical address into the device.
- Label the device with the physical address.
- Load the application software into the device.
- After completion of the loading process or to cancel, adjust potentiometer delay time.
The status LED goes out.
-  To check whether the bus voltage is present, set the potentiometer (delay time) to **adr** briefly; the red LED lights up. Resetting the potentiometer exits programming mode.
-  If a device in an existing system is to be programmed, only one device can be in programming mode.

1.3.2 Application programme

The application software can be loaded on to the module directly when assigning the physical address, for example. If this has not taken place, it can also be programmed at a later date.

2. Functional and device description

2.1 Device overview

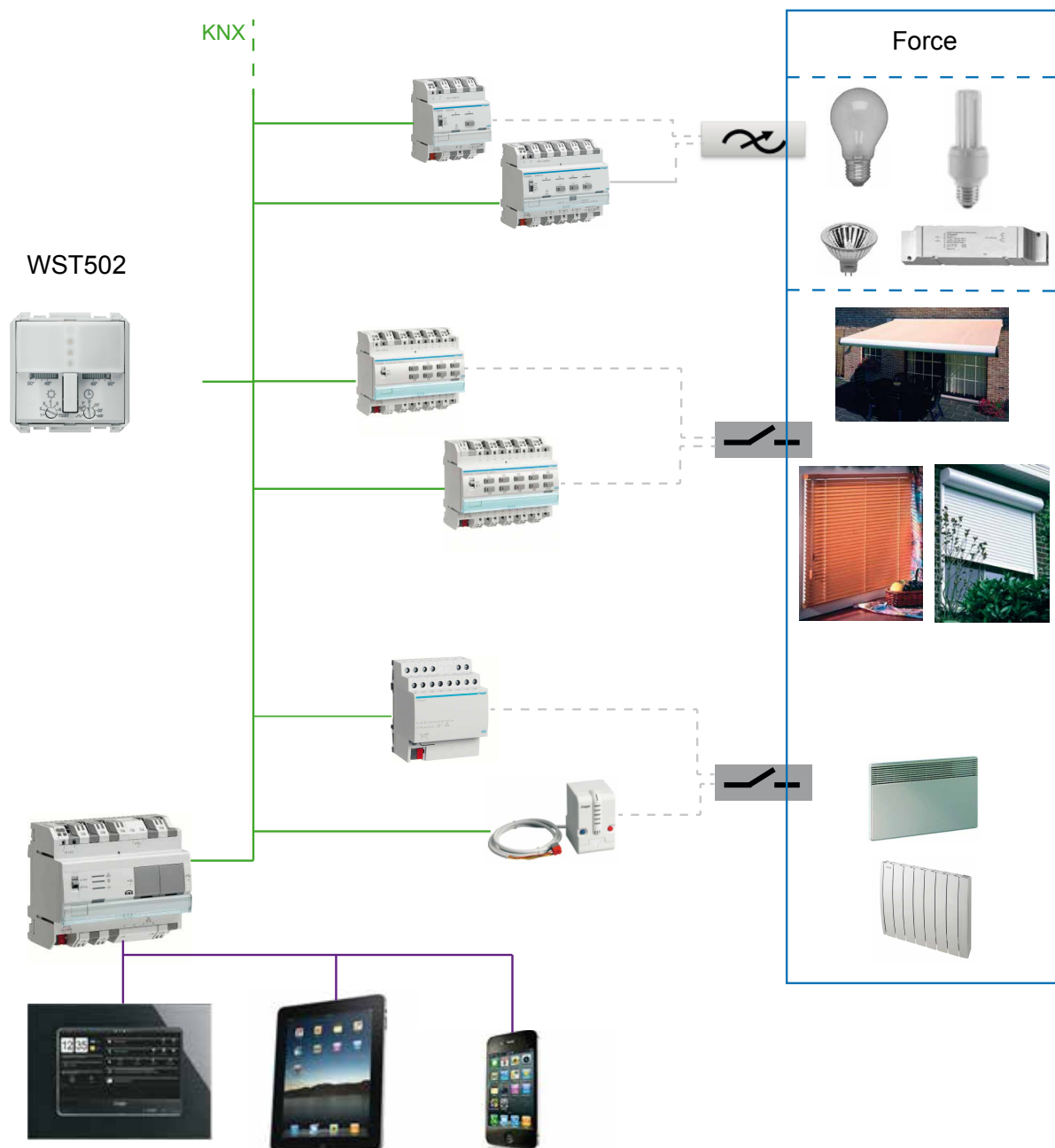


Figure 1: Device overview

2.2 Functional description

The motion detector module works with a passive infrared sensor (PIR) and responds to heat motions caused by persons, animals or objects. Motion detectors are primarily used in hallways or staircases as a means of switching functions on and off based on brightness levels and motion.

Based on the set operating mode, the device transmits telegrams for directing the building functions into the KNX bus system. The operating mode options are automatic control mode or signalling mode. Each has different detection parameters:

- In automatic control mode, the device is able to transfer switching, value transmitter, light scene call-up, or UP/DOWN telegrams to the bus. Two independent automatic control channels are available.
- In signalling mode, the device transfers a signalling telegram – to an alarm central unit, for example – only once a defined, adjustable number of motion pulses has taken place.

Multiple detectors may work together in a main/extension unit configuration (master/slave) if detection needs to be carried out in applications that are larger than the detection field (such as long hallways and staircases).

The operation button on the device can be configured for manual change-over of the comfort controller (see Chapter 2.2.1.) or for independent operation as a stand-alone KNX button.

It is also possible to configure the response brightness, delay time and, where necessary, the detection sensitivity manually using the potentiometer under the design cover.

2.2.1 Operating concept

The operation button of the motion detector can perform the following functions (see operating instructions also) Selections are made using the corresponding parameters.

Local operation

- Press and release the button to change over the operating mode. The operating mode is displayed via the status LED behind the cover of the motion detector.
- Press and hold down the button to select special functions. Selection is supported by the LED display.

KNX button:

- For launching parameterised functions via the bus.

Operating instructions

During KNX button use, the device differentiates between short and long touches.

- Short touch:
Switch lighting, step operation of roller shutters/blinds, operating mode change-over, etc.; operate channel A in 2-channel mode
- Long touch:
Dim lighting, move command for roller shutters/blinds, store a scene, operate channel B in 2-channel mode

2.2.2 Range of functions

- Motion detectors can be configured as an individual detector, a main unit or an extension unit.
- Two motion detection channels can be configured independently for automatic control purposes, using ON/OFF, timer, value transmitter, scene call-up and roller shutter/blind control functions
- Signalling channel for monitoring and generating alarm or switching telegrams, such as those used for alarm/signalling systems.
- The button function can be configured for local operation of motion detector functions or as a KNX button.
- Local operation functions can be independently selected and deselected: ON, OFF, automatic control (motion-dependent), presence simulation, brightness Teach-In, party function, and button blocking.
- The button can be used as a KNX button for the following functions: ON/OFF, timer, dimming, roller shutter/blind control, 1-byte value transmitter, 2-byte value transmitter, scene extension unit, 2-channel operation, room temperature measurement and room thermostat extension unit.
- 2-channel operation: The operation can be set for the button by two independent channels. Thus, a maximum of only telegrams can be transmitted to the bus by one operating procedure. The channels can be parameterised independently to the functions switching, value transmitter (1-byte, 2-byte), brightness value transmitter (2-byte) or temperature value transmitter (2-byte).
- ON/OFF function: the following settings are possible for each button: response when the button is pressed and/or released, switching on, switching off, not active.
- The following adjustments are possible when dimming: times for short and long touches, dimming in different steps, transmitting a stop telegram at the end of the touch, transmitting dimming values.
- The following adjustments are possible during blind control: up/down, position (slat position / shutter/blind position), safety run
- The following settings are possible in the 1-byte and 2-byte value transmitter function: selection of the value range (0-100 %, 0-255, 0-65535, 0-1500 Lux, 0-40°C), value when pressed.
- The following setting are possible in the scene function: call-up of a scene number (1–64), saving upon long key-press and emission time delay.
- When the button is being used as a control extension, the following adjustments are possible: defined selection of an operating mode, presence state change-over, heating/cooling change-over.
- There is an RGB status LED under the lens cover.
- The following settings are available for the activation of the status LED: permanently ON/OFF, actuation display regarding button function, separate communication object (permanent/flashing and inverted), display of controller operating mode, comparison values for signed and unsigned 1-byte and 2-byte values.
- The direction LED can be activated by a communication object so that it is either on or off permanently, or blinking.
- Lock-up must be configured in the general parameter settings.
- Room temperature measurement and brightness measurement using integrated sensors
- Temperature measuring, processing and transmission to the bus can be configured.
- Brightness measuring, processing and transmission to the bus can be configured.

2.3 Functional overview

The functions described in the following section enable the individual configuration of the device inputs or outputs.

2.3.1 Motion detection channel

The following functions can be triggered automatically in relation to motion detection and ambient brightness.

Not active

The "Not active" function disables the channel.

Switching

The "ON/OFF" function enables the motion detector (lighting circuits, for example) to be switched on or off (ON, OFF, ON/OFF, for example).

Value 1 bytes

The "Value transmitter (1 byte)" function allows values from 0 to 255 or 0 to 100 % to be parameterised individually at the start and end of motion detection and transmitted to a dim actuator, for example.

Scene

Using the "Scene extension unit" function, a light scene can be called up in a KNX device at the start and end of motion detection.

Timer

The "Timer" function enables the actuator output to be switched on for an adjustable duration.

Shutter/blind

The "Shutter/blind" function allows blinds, shutters, awnings or similar hangings to be opened and closed.

Using other appropriate parameters, it is possible to set the position (height) and/or the slat angle at the start and end of detection.

Thermostat extension

During control extension unit use, the operating mode can be switched between predefined modes.

2.3.2 Signalling channel

Monitoring

The "Monitoring" function enables a signalling telegram to be transmitted to the bus when motion is detected in the detection area. The telegram can be evaluated or displayed using a signalling system or visualisation, for example. In monitoring mode, the device operation is independent of brightness.

Additionally, it is possible to switch on and off using a dedicated switching object such as a signal generator (siren) or lighting circuits.

2.3.3 Push-button channel

Not active

The "Not active" function means that no function is assigned to the button; it is disabled.

Toggle switch

The "Toggle switch" function switches on the lighting upon the first key-press and switches it off again upon the second.

Switching

The "ON/OFF" function enables the push-button (lighting circuits, for example) to be switched on or off (ON, OFF, ON/OFF, for example).

Dimming

The "Dimming" function enables the button to set the dimming brighter and darker in lighting circuits.

The function is controlled using the button in toggle mode: for example, setting the first press of the button to make the dimming brighter and the next press to make it darker.

Shutter/blind

The "Shutter/blind" function allows blinds, shutters, awnings or similar hangings to be opened and closed.

The function is controlled using the button in toggle mode: for example, setting the first press of the button to open the blind and the next press to close it.

Timer

The "Timer" function enables the actuator output to be switched on or off for an adjustable duration. The switching time can be interrupted before the delay time elapses. An adjustable switch-off warning signals the end of the delay time by inverting the output state for 1 s.

Value 1 byte/2 bytes

The value transmitter (1 byte) function allows values from 0 to 255 or 0 to 100 % to be transmitted to a dim actuator, for example.

The "Value transmitter (2 bytes)" function allows values from 0 to 65535, brightness values from 0 to 1000 lx or temperature values from 0 to 40°C to be transmitted to the bus.

Thermostat extension

When being used as a control extension unit, the following parameter settings can be set/selected for the button: change-over to a defined operating mode, setpoint change, heating/cooling change-over and presence detection.

Mandatory control

The "Priority" function enables a precisely defined state (2 bits) to be specified or enables a function to impose a defined state.

Scene

When functioning as a scene extension, a light scene can be called up in a KNX device.

2-channel mode


The "**2-channel mode**" function allows different functions to be configured for two different communication objects (channel A, channel B) using the same button in a time-dependent manner.

Step switch

The "Stepping switch" function (1 byte) allows step values from 0 to 255, percentage values from 0 to 100 % and scenes 1 to 64 to be selected and switched for up to 7 levels.

Deactivate automatic

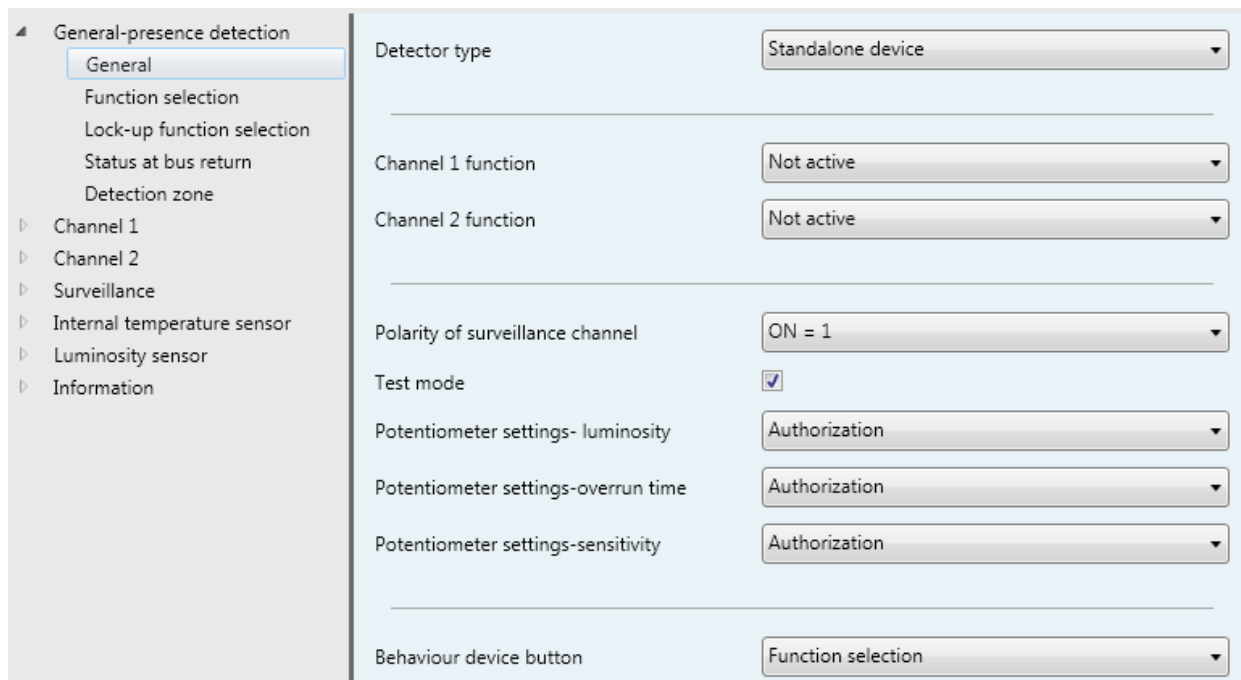
This function can be used to interrupt and deactivate ongoing operations (time-controlled lighting).

 This function must only be configured for actuators from the TXA... and TYA... ranges.

3. General-Presence detection

General-Presence detection is where global parameter settings for the entire device are made; i.e. for motion detection, button actuation, LED display and potentiometer setting functions.

3.1 General



| Parameter | Value |
|-------------------------------------|-------------------------------------|
| Detector type | Standalone device |
| Channel 1 function | Not active |
| Channel 2 function | Not active |
| Polarity of surveillance channel | ON = 1 |
| Test mode | <input checked="" type="checkbox"/> |
| Potentiometer settings- luminosity | Authorization |
| Potentiometer settings-overrun time | Authorization |
| Potentiometer settings-sensitivity | Authorization |
| Behaviour device button | Function selection |

Figure 2: "General" parameters

Parameterisation as an individual device, master or slave (main or extension unit)

When acting as an individual device, the motion detector operates independently of other devices and controls automatic functions exclusively on the basis of motion and brightness in its detection area.

To extend the detection area, it is possible to form a motion detector system by configuring a master device and slave devices accordingly.

When acting as a main unit (master), the device controls automatic functions on the basis of motion and brightness in its detection area as well as in the detection area of other motion detectors configured as slaves. The "Brightness information" parameter can be used to select whether the brightness limit value is also used at the extension units, or if only the main unit brightness limit value determines how automatic control should act.

When acting as an extension unit (slave), the device detects motion in its detection field and provides the main unit with this information so that automatic functions can be controlled. It is not possible to configure automatic functions (channel 1/2 operating mode) when the device is parameterised as an extension unit.

Signalling mode is always available on every device, regardless of whether it is being used as an individual device, a main unit or an extension unit.


| Parameters | Description | Value |
|--------------------------------------|--|---|
| Detector type | Defines the device application type | Individual device * Master Slave |
| Function channel 1 | Activation/deactivation of the channel for automatic control mode, plus function setting. | Not active * Switching Value 1 bytes Scene Timer Up/down Roller shutter position Slat position Position/Slat angle (0-100%) Operating mode changeover |
| Function channel 2 | | |
| Monitoring channel polarity | Defines the input value at which the monitoring channel is activated. | ON = 1* ON = 0 |
| Test mode | Defines whether test mode can be activated locally using the response brightness potentiometer. (For information on test mode, see the operating instructions) | <i>Tick box:</i> <i>Ticked = active</i> |
| Device brightness setting | Defines whether the response brightness can be set and changed locally using the potentiometer. | Approval Disabled * |
| Device delay time setting | Defines whether the delay time can be set and changed locally using the potentiometer. | Approval Disabled * |
| Device sensitivity setting | Defines whether the detection sensitivity can be set and changed locally using the potentiometer. | Approval Disabled * |
| Brightness information ¹⁾ | Defines whether the brightness limit value on the extension units is to be taken into account during motion detection in the main/extension unit, or whether only the main unit brightness limit value is to be used during motion detection. | <i>Tick box:</i> <i>Ticked = the brightness limit value of the extension units is also taken into account.</i> |
| Operation button behaviour | Button function setting on the device (see Chapter 2.2.1, "Operating concept")  It is not possible to use the button for local operation and as a KNX button simultaneously. | Not active * Multifunctional push-button Functional release |

Table 3: "General" parameters

¹⁾ Only visible if the "Detector type" has been parameterised as "Main unit".

"Master" application type communication objects

| No. | Name | Object function | Length | Data type |
|-----|----------------------------|-------------------------------|--------|-----------------|
| 6 | General-Presence detection | Master | 1 bits | 1.001 Switching |
| 8 | General-Presence detection | Master brightness information | 1 bits | 1.001 Switching |

"Slave" application type communication objects

| No. | Name | Object function | Length | Data type |
|-----|----------------------------|------------------------------|--------|-----------------|
| 7 | General-Presence detection | Slave | 1 bits | 1.001 Switching |
| 9 | General-Presence detection | Slave brightness information | 1 bits | 1.001 Switching |

* Default value

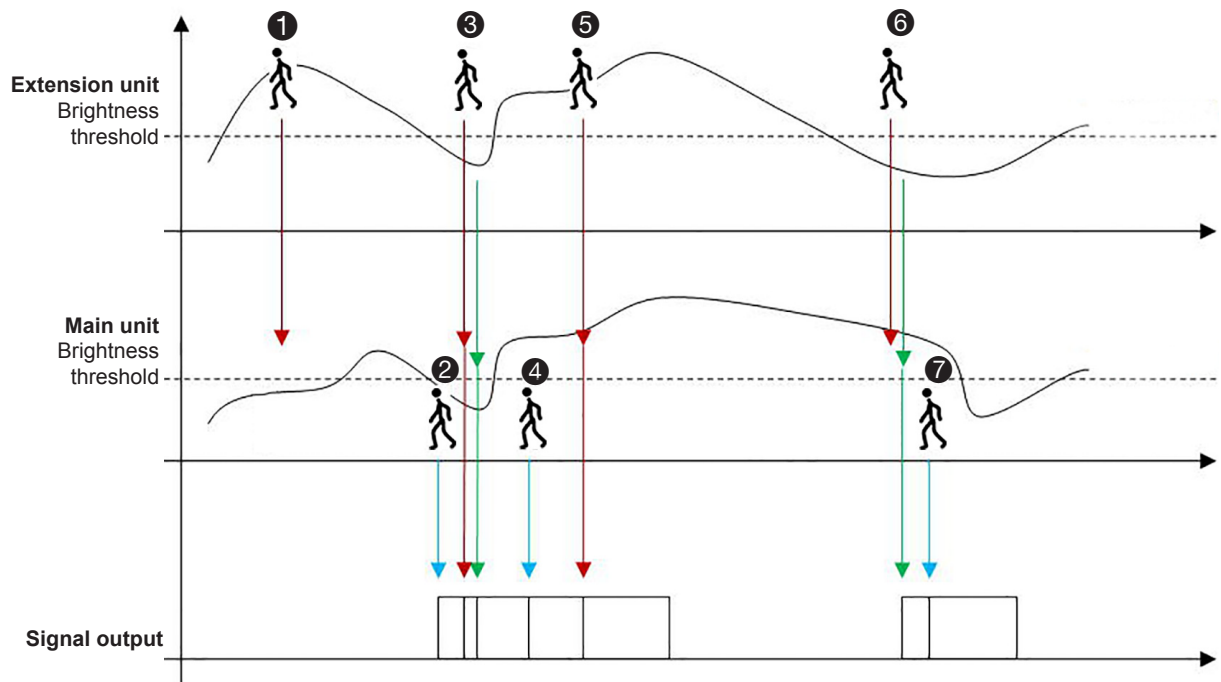
Signal evaluation in main and extension unit mode

The information below outlines examples of main/extension unit mode both with and without brightness evaluation at the extension unit.

- i** To ensure the function is executed correctly, group addresses must be used to connect object 6, "Main unit input", to 7, "Extension unit output", and – where brightness evaluation is required at the extension units – object 8, "Main unit brightness input", to 9, "Extension unit brightness output".
- i** If a motion channel function is active, retriggering is always independent of brightness.

Application case 1:

Brightness evaluation at main and extension unit parameter "Brightness information" has been activated.

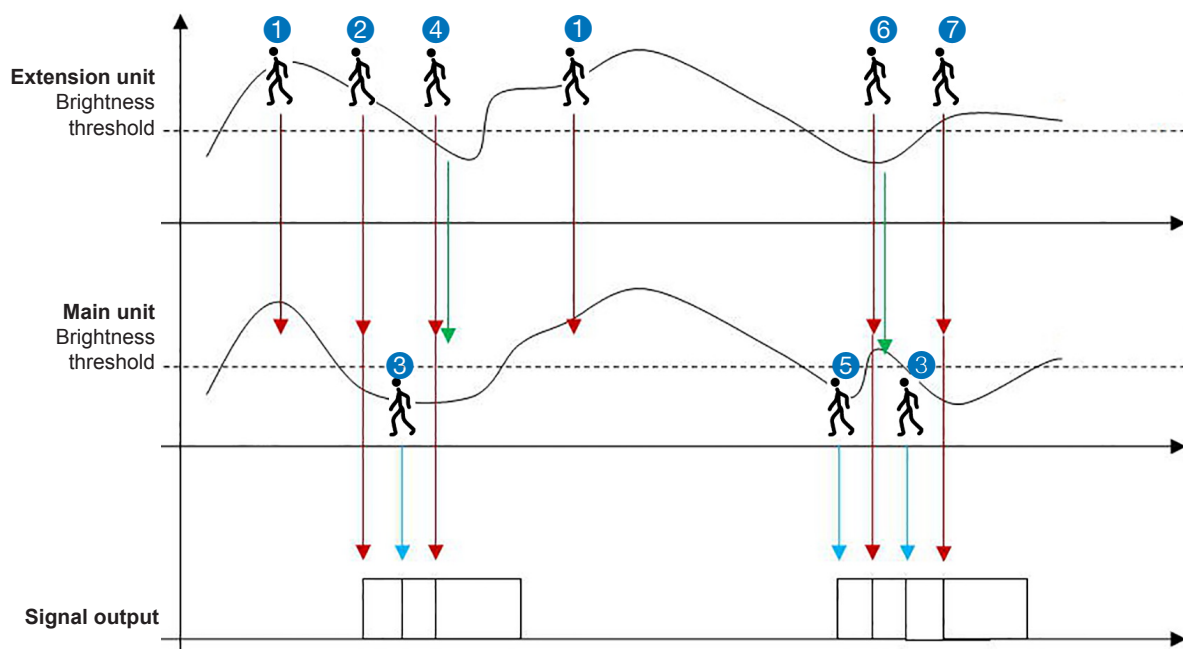


- Motion in detection field
- Detection extension unit
- Extension unit detection where brightness < threshold value
- Main unit detection signal

- 1** Motion at extension unit – value is **not** below brightness threshold value.
 - Signal is transmitted to object 6 via object 7
 - No signal output to the main unit motion detection channels
- 2** Motion at main unit – value is below brightness threshold value.
 - Signal output to the motion detection channels → execution of parameterised functions (main unit)
- 3** Motion at extension unit – value is below brightness threshold value – function delay time active (main unit)
 - Signal is transmitted to object 6 via object 7 Retriggering of parameterised functions to motion detection channels (main unit)
 - Signal transmitted to object 8 via object 9 → signal output to motion detection channels → retriggering of parameterised functions (main unit)
- 4** Motion at main unit – value is **not** below brightness threshold value – function delay time active.
 - Signal output to the motion detection channels → retriggering of parameterised functions

- ⑤ *Motion at extension unit – value is **not** below brightness threshold value – function delay time at main unit active.*
 - Signal is transmitted to object 6 via object 7
 - Signal output to the motion detection channels → retriggering of parameterised functions (main unit)
- ⑥ *Motion at extension unit – value is below brightness threshold value.*
 - Signal is transmitted to object 6 via object 7 No signal output to the motion detection channels of the main unit
 - Signal is transmitted to object 8 via object 9 → signal output to motion detection channels → execution of parameterised functions
- ⑦ *Motion at main unit – value is **not** below brightness threshold value – function delay time active.*
 - Signal output to the motion detection channels → retriggering of parameterised functions

Application case 2: Brightness evaluation exclusively at the main unit – "Brightness information" parameter has not been activated. The motion detection channel functions are only triggered if the brightness value has dropped below the threshold at the main unit.



- Motion in detection field
- Detection extension unit
- Extension unit detection where brightness < threshold value
- Main unit detection signal

- ① *Motion at extension unit – value is **not** below brightness threshold value at the main unit.*
 - Signal is transmitted to object 6 via object 7
 - No signal output to the main unit motion detection channels
- ② *Motion at extension unit – value is above brightness threshold value – value is below brightness threshold value at the main unit.*
 - Signal is transmitted to object 6 via object 7
 - Signal output to the motion detection channels → execution of parameterised functions
- ③ *Motion at main unit – value is below brightness threshold value – function delay time active.*
 - Signal output to the motion detection channels → retriggering of parameterised functions
- ④ *Motion at extension unit – value is below brightness threshold value – function delay time*

active

- Signal is transmitted to object 8 via object 9
- Signal output to the motion detection channels → retriggering of parameterised functions

5 *Motion at main unit – value is below brightness threshold value.*

- Signal output to the motion detection channels → execution of parameterised functions

6 *Motion at extension unit – value is below brightness threshold value – value is above brightness threshold at main unit – function delay time active*

- Signal is transmitted to object 6 via object 7 Retriggering of parameterised functions to motion detection channels
- Signal transmitted to object 8 via object 9 → signal output to motion detection channels → retriggering of parameterised functions in motion detection channels

7 *Motion at extension unit – value is above brightness threshold value – function delay time active*

- Signal is transmitted to object 6 via object 7
- Signal output to the motion detection channels → retriggering of parameterised functions

Application case 3: Extension unit is in signalling mode, but main unit not

Motion at extension unit

- Signal is output via object 21, "Signalling mode" (extension unit)

Application case 4: Only main unit in signalling mode (extension unit not)

Motion at extension unit

- Signal is transmitted to object 6 via object 7 (extension unit)
- Signal is transmitted to object 8 via object 9 (extension unit, value is below brightness threshold value)
- Signal is output via object 21, "Signalling mode" (main unit)

Application case 5: Both units (main und extension unit) in signalling mode:

Motion at extension unit

- Signal is output via object 21, "Signalling mode" (extension unit)

Motion at main unit

- Signal is output via object 21, "Signalling mode" (main unit)

3.2 Functional release – Function of the button

This parameter group is only visible if local operation has been parameterised under "Behaviour".

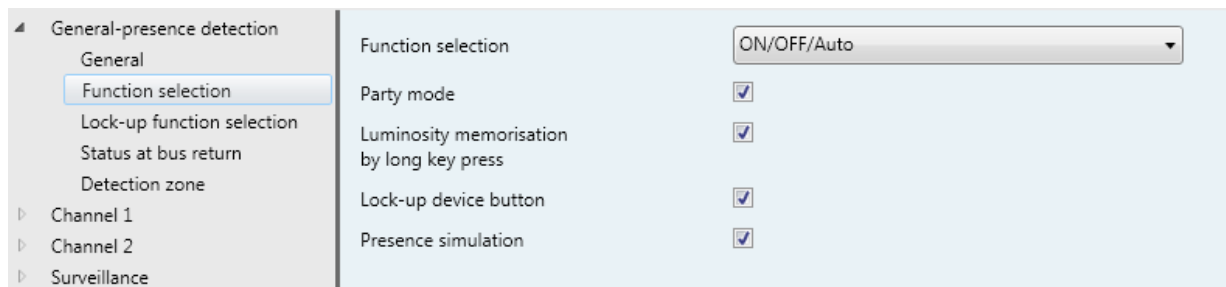


Figure 3: "Functional release" parameters

The operation button can perform the following functions for local operation.

- Press and release the button to change over the operating mode. The operating mode is displayed via the status LED behind the cover of the motion detector.

| LED display | green | orange | red |
|----------------|-------------------|------------------|---------------------|
| Operating mode | Permanent On (ON= | Automatic (AUTO) | Permanent Off (OFF) |

- Select special functions (party, Teach-In, keylock, presence simulation) by pressing and holding the button. Selection is supported by the LED display (see operating instructions of the device).


| Parameters | Description | Value |
|--|--|--|
| Functional release | Setting for operating modes, which are called up one after another using a short press of the operation button. | ON / OFF / AUTO * ON / AUTO * OFF / AUTO * |
| Party mode | Here it is possible to make individual specifications concerning which function is selected when the function button is held down for a particular length of time. | <i>Tick box:</i> <i>Ticked = function can be executed</i> |
| Store brightness with a long press of the button | | |
| Blocking function operation button | | |
| Presence simulation | | |

Table 4: "Functional release" parameters

* Default value

3.3 Blocking function functional release

Parameters for configuring the blocking function. Blocking executed on this level affects the operation button function if local operation is available. This parameter group is only visible if functional release has been parameterised under "Operation button behaviour".

 Individual blockings – such as those affecting motion detection channels – take place in the corresponding parameter views.

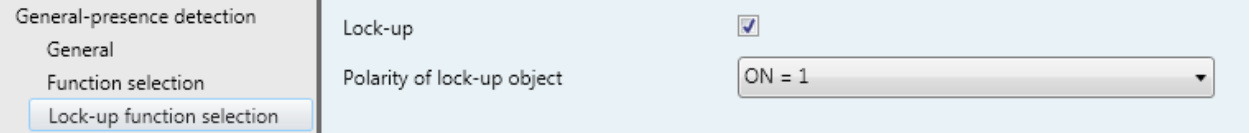


Figure 4: General "Lock-up"

| Parameters | Description | Value |
|----------------------------|--|--|
| Lock-up | Blocking object activation for blocking via telegram. | <i>Tick box:</i> <i>Ticked = blocking object is activated</i> |
| Polarity of lock-up object | Defines the blocking object value at which the blocking function is activated. | ON = 1* ON = 0 |

Table 5: General "Lock-up"

| No. | Name | Object function | Length | Data type |
|-----|----------------------------|-------------------|--------|--------------|
| 2 | General-Presence detection | Blocking function | 1 bits | 1.003 Enable |

After bus voltage recovery, a lock-up remains active if it was activated before the bus voltage failed. The lock-up is always deactivated after a programming process by the ETS.

The polarity of the lock-up object can be parameterised. If the polarity of the lock-up object is set to "Inverted (ON = 0)", the device is not immediately locked in the event of bus voltage recovery or after a download if no lock-up was switched on before the bus voltage failed. In such cases, the lock-up is only activated in the event of an object update (value = "0") for the lock-up object!

* Default value

3.4 State after bus return

Parameter for configuring the behaviour after "Bus voltage failure" and "Return" in the case of the motion detection channels.

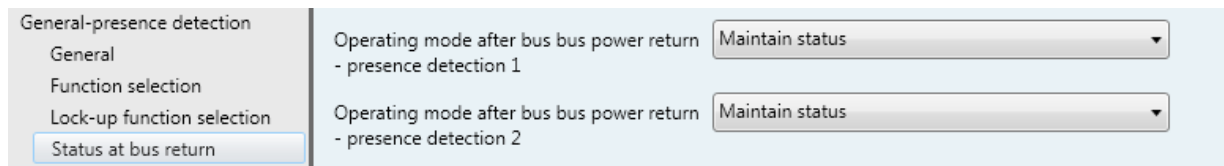


Figure 5: General, "State after bus return"

| Parameters | Description | Value |
|--|---|---|
| Operating mode after bus return – presence detection 1 | Setting for device behaviour after bus voltage return for channel 1 | Keep status* Start of presence detection End of presence detection |
| Operating mode after bus return – presence detection 2 | Setting for device behaviour after bus voltage return for channel 2 | Keep status* Start of presence detection End of presence detection |

Table 6: General, "State after bus return"

* Default value

3.5 Detection zone

Configuration parameter for using detection sensors to restrict the detection field.

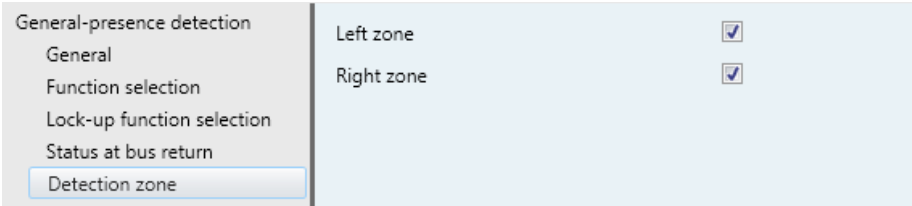


Figure 6: General "Detection zone"

The device not only permits independent adjustment of the detection zones at the left and right sides of the device, but also enables detection to be deactivated individually for the left (blue) and right (yellow) side. The size of the detection area reduces accordingly.

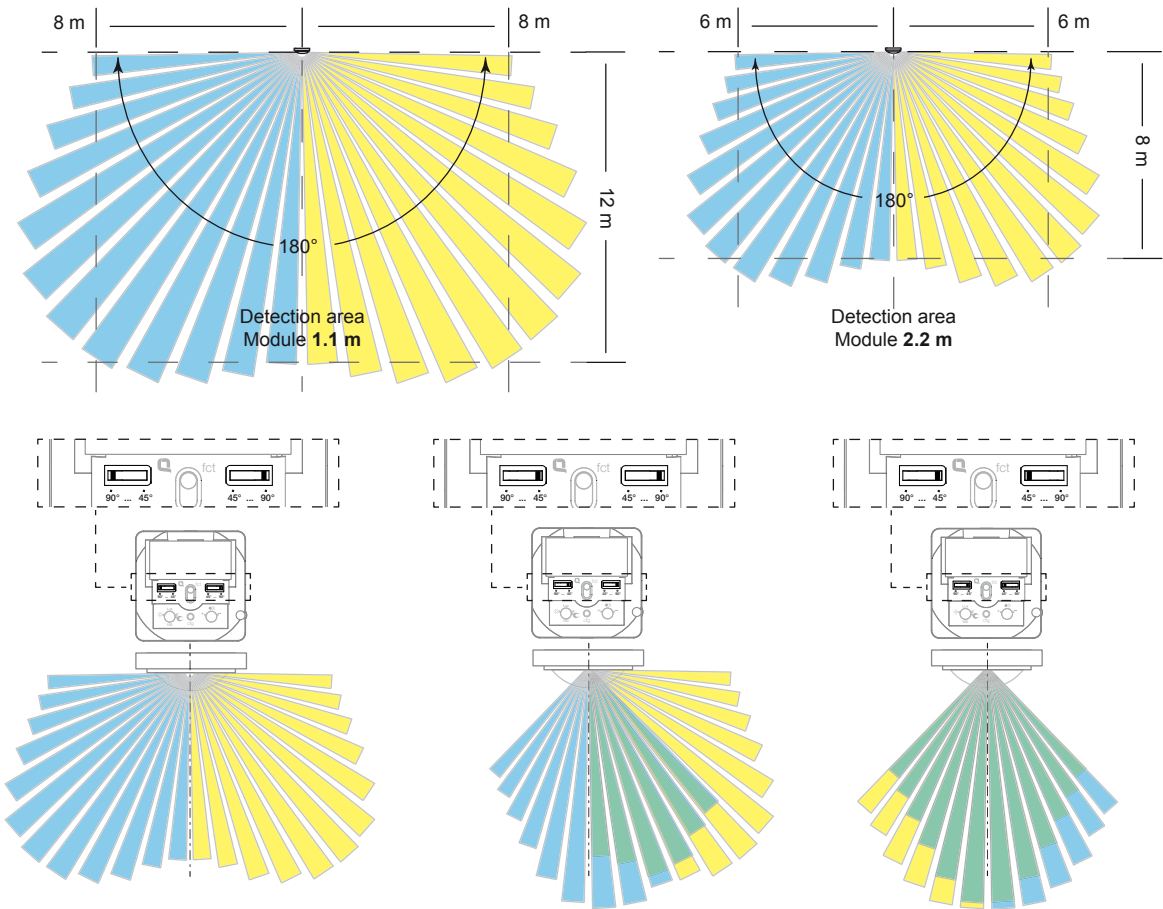


Figure 7: Detection areas

| Parameters | Description | Value |
|----------------------|---|---|
| Sensor on left side | The parameter is used to activate/deactivate evaluation of the motions for the motion sensor independently at the left and right sides of the device. | Tick box: Ticked = sensor is activated |
| Sensor on right side | | |

Table 7: General "Detection zone"

* Default value

4. Parameter channel 1/2

The information below describes the process of configuring a motion detection channel.

- i** Channel 1/2 is only available if the "Detector type" parameter has been set to "Individual device" or "Master".

The configuration description uses the example of channel 1; channel 2 is configured in the same way.

When motion is detected, the presence command is transmitted to the bus, with ambient brightness taken into account. When motion is no longer detected, the absence command is transmitted to the bus following the switch-off delay (if this has been parameterised). The function parameter (telegram at the start or end of detection) can be used to make individual selections concerning which commands or values are transmitted to the bus in the event of presence and absence.

If motion is detected and the response brightness value is below the set value, the "Telegram for start of presence detection" is transmitted to the bus. When motion is no longer detected, the "Telegram for end of presence detection" is transmitted to the bus following the switch-off delay.

The type of command and the values for the start and end of detection can be selected independently for each motion detection channel using the parameters for the selected function.

4.1 Recurring function parameters (motion detection channel)

- i** The parameters described below are visible in both motion detection channels as soon as a function for the relevant channel is parameterised, regardless of which function is selected.

The screenshot shows the configuration interface for Channel 1. On the left, a sidebar lists the configuration options: General-presence detection, Channel 1, Channel 2, Surveillance, Internal temperature sensor, Luminosity sensor, and Information. Under Channel 1, 'Function' is selected, and 'Lock-up' is also visible. The main area displays various parameters for Channel 1:

- Telegram by start of presence detection: ON
- Luminosity threshold through: Control through separately object
- Periodical emission: ☒
- Periodical emission delay: 30 min
- Emission by new detection: ☐
- Telegram by end of presence detection: Not active
- Emission time delay: Not active
- Selection overrun time: Fixed parameter
- Overrun time: 3 min
- Lock-up duration after end of detection: 1 s

Figure 8: Channel 1 - On/Off

| Parameters | Description | Value |
|--|---|---|
| Brightness limit value above | Selection of source that is used to determine the brightness threshold for detection. | Setting on device * Fixed value Brightness measurement inactive Activation via separate object |
| Brightness value ¹⁾ | Field for entering the brightness threshold value in lux. | <i>Can be entered freely:</i> <i>valid values = 1 ... 1000</i> |
| Periodical emission | Defines whether a telegram with the function variable (value, switching value, etc.) is to be emitted periodically. | <i>Tick box:</i> <i>Ticked = periodical emission is activated</i> |
| Time for periodical emission ²⁾ | Selection of time for periodical emission of function variable. | 5s, 15s, 30s 1min, 2min, 3min, 4min, 5min, 10min, 15min, 30min* , 1h, 2h, 3h, 4h, 8h |
| Emission at new detection | Defines whether a telegram with the function variable (value, switching value, etc.) is to be emitted at a new instance of motion detection (retriggering). | <i>Tick box:</i> <i>Ticked = retriggering is activated</i> |
| Transmission delay | Defines whether and with how much delay a telegram with the function variable (value, switching value, etc.) is to be transmitted at the end of detection. | Not active * 100ms, 500ms, 1s, 5s, 15s, 30s 1min, 2min, 3min, 4min, 5min, 10min, 15min, 30min, 1h, 2h, 3h, 4h, 8h |
| Delay time selection | Selection of source that is used to determine the delay time. | Fixed value * |
| Delay time ³⁾ | Field for selecting the length of the delay time | Impulse 5s, 15s, 30s 1min, 2min, 3min* , 4min, 5min, 10min, 15min, 30min, 1h, 2h, 3h, 4h, 8h |
| Blocking time after end of detection | Defines the interlock time after a telegram is transmitted at the end of detection. | 100ms, 500ms, 1s* , 5s, 15s, 30s 1min, 2min, 3min, 4min, 5min, 10min |

¹⁾ Only visible if "Brightness value" has been parameterised as the "Fixed value".

²⁾ Only visible if "Periodical emission" has been ticked.

³⁾ Only visible if "Delay time selection" has been parameterised as the "Fixed value".

Table 8: Recurring parameters for functions in the motion detection channel

Brightness limit value above

To evaluate the brightness threshold, it is possible to choose from the following parameters:

- Potentiometer at device (see also operating instructions):
The brightness threshold is specified by setting the potentiometer; i.e. the setting can be changed without ETS.
- Fixed value:
The value is set using an input field; the potentiometer setting is not taken into account. Unauthorised persons must not change the setting.
- Brightness measurement inactive:
Motion detection and function execution are independent of brightness.
- Activation via separate object:
Object 4 ... is shown. The brightness threshold value in lux can be specified using the object. It can be made dependent on the time of day or events, for example, as a means of providing intelligent control.

* Default value

Brightness limit value communication object via "Activation via separate object"

| No. | Name | Object function | Length | Data type |
|-----|----------------------------|-----------------|--------|-----------|
| 4 | General presence detection | Brightness | 2 byte | 9,004 Lux |

Transmission delay

In the case of this parameter, it is possible to set an additional telegram delay at the end of detection. The function at the end of detection is executed with the corresponding delay. In contrast to the delay time, retriggering does not take place during this additional delay.

4.2 "ON/OFF" function (motion detection channel)

Parameter for configuring the behaviour of the "ON/OFF" function in the case of the motion detection channels (Figure 8).

| Parameters | Description | Value |
|---|--|----------------------------------|
| Telegram at start of presence detection On/Off | Selection concerning whether a switching telegram is transmitted in the case of motion detection, and which one. | Not active * On Off |
| Telegram at end of presence detection On/Off | Selection concerning whether a switching telegram is transmitted at the end of motion detection (after delay time and additional delay, if applicable), and which one. | Not active * On Off |

Table 9: "ON/OFF" function parameters

Lighting channel 1/2 communication object, "Switching automatic control"

| No. | Name | Object function | Length | Data type |
|-----|--------------------|-----------------------------|--------|-----------------|
| 10 | Lighting channel 1 | Switching automatic control | 1 bits | 1.001 Switching |
| 14 | Lighting channel 2 | | | |

* Default value

4.3 "Value 1 byte" function (motion detection channel)

Parameter for configuring the "Value 1 byte" function for motion detection channels (Figure 8).

| Parameters | Description | Value |
|---|---|---|
| Value 1 bytes | Selection of value type that is transmitted. | Value (0-255)* Percentage |
| Telegram at start of presence detection | Defines whether a value is transmitted in the case of motion detection. | <i>Tick box:</i> <i>Ticked = transmit value</i> |
| Value (0-255)* | Value transmitted in the case of motion detection. | <i>Can be entered freely:</i> <i>valid values = 0 ... 255*</i> |
| Dimming value 1 ²⁾ | | <i>Sliding controller:</i> <i>Value range = 0 ... 100 %*</i> |
| Telegram at end of presence detection | Defines whether a value is transmitted at the end of motion detection (after delay time and additional delay, if applicable). | <i>Tick box:</i> <i>Ticked = transmit value</i> |
| Value (0-255) ³⁾ | Value transmitted at end of motion detection | <i>Can be entered freely:</i> <i>valid values = 0* ... 255</i> |
| Dimming value 1 ⁴⁾ | | <i>Sliding controller:</i> <i>Value range = 0* ... 100 %</i> |

¹⁾ Only visible if "Telegram at start of presence detection" is ticked and "Value 1 byte" has been parameterised as "Value (0-255)".

²⁾ Only visible if "Telegram at start of presence detection" is ticked and "Value 1 byte" has been parameterised as "Percent (0-100 %)".

³⁾ Only visible if "Telegram at end of presence detection" is ticked and "Value 1 byte" has been parameterised as "Value (0-255)".

⁴⁾ Only visible if "Telegram at end of presence detection" is ticked and "Value 1 byte" has been parameterised as "Percent (0-100 %)".

Table 10: "Value transmitter" function parameters

Lighting channel 1/2 communication object, "Value in % / Value (0-255)"

| No. | Name | Object function | Length | Data type |
|-----|--------------------|-----------------|--------|-----------------------------|
| 11 | Lighting channel 1 | Value (0-255) | 1 byte | 5.010 Counting pulses |
| 15 | Lighting channel 2 | | | |
| 11 | Lighting channel 1 | Value in % | 1 byte | 5.001 Percentage (0...100%) |
| 15 | Lighting channel 2 | | | |

* Default value

4.4 "Scene extension unit" function (motion detection channel)

Parameters for configuring the "Scene" function in the case of the motion detection channels (Figure 8).

The motion detector can use the "Scene" function as a scene extension unit. The function is used to call up configured light scenes that are stored in other KNX devices. The device can call up a maximum of 64 scenes. In the case of motion detection and/or at the end of motion detection, the device transmits a value between 0 and 63 (where value 0 corresponds to scene 1 and value 63 corresponds to scene 64) to the bus via the corresponding communication object.

| Parameters | Description | Value |
|---|--|---|
| Telegram at start of presence detection | Defines whether a scene number is transmitted in the case of motion detection. | <i>Tick box:</i> <i>Ticked = transmit scene number</i> |
| Scene number ¹⁾ | Scene number that is transmitted in the case of motion detection. | <i>Can be entered freely:</i> <i>Value range = 1* ... 64</i> |
| Telegram at end of presence detection | Defines whether a scene number is transmitted at the end of motion detection (after delay time and additional delay, if applicable). | <i>Tick box:</i> <i>Ticked = transmit scene number</i> |
| Scene number ²⁾ | Scene number that is transmitted at the end of motion detection | <i>Can be entered freely:</i> <i>Value range = 1* ... 64</i> |

¹⁾ Only visible if "Telegram at start of presence detection" has been ticked.

²⁾ Only visible if "Telegram at end of presence detection" has been ticked.

Table 11: "Scene" function parameters

Lighting channel 1/2 communication object, "Scene"

| No. | Name | Object function | Length | Data type |
|-----|--------------------|-----------------|--------|----------------------|
| 11 | Lighting channel 1 | Scene | 1 byte | 18.001 Scene control |
| 15 | Lighting channel 2 | | | |

* Default value

4.5 "Timer" function (motion detection channel)

Parameters for configuring the timer function in the case of the motion detection channels (Figure 8).

i The "Timer" function can only be configured in conjunction with suitable actuators that have the corresponding timer communication object (such as TYM/TXM).

When the function is used in the motion detection channel, a start command is transmitted to the bus via the timer object of the motion detector each time motion is detected. Each time motion is detected after this, another start command is transmitted. When a start command is transmitted to the "Timer" object for the actuator, the corresponding output switches on for the time set in the actuator. The switch-on time and the behaviour for retriggering are parameterised in the actuator. Stop commands cannot be triggered by the motion detection channel.

| Parameters | Description | Value |
|---|--|---|
| Telegram at start of presence detection | Defines whether a start telegram is transmitted in the case of motion detection. | <i>Tick box:</i> <i>Ticked =</i> <i>transmit start telegram</i> |

Table 12: "Timer" function parameters

Lighting channel 1/2 communication object, "Timer"

| No. | Name | Object function | Length | Data type |
|-----|--------------------|-----------------|--------|------------------|
| 10 | Lighting channel 1 | Timer | 1 bits | 1.010 Start/Stop |
| 14 | Lighting channel 2 | | | |

4.6 "Roller shutter/blind" function (motion detection channel)

4.6.1 Function Up/Down

Parameters for configuring the "Up/Down" functions in the case of the motion detection channels.

Up/down telegrams can be transmitted for blinds/roller shutters in relation to motions that take place. The telegrams for detection/end of detection start the blinds/roller shutters moving up/down; the duration for which they are moved up/down is defined in the actuator.

i For most actuators, this duration is set to 2 minutes by default.

| Parameters | Description | Value |
|------------|---|-----------------------------------|
| Function | Selection concerning whether a motion telegram is transmitted in the case of motion detection, and which one. | Not active * UP DOWN |
| Function | Selection concerning whether a motion telegram is transmitted at the end of motion detection (after delay time and additional delay, if applicable), and which one. | Not active * UP DOWN |

Table 13: "Up/Down" function parameters

Lighting channel 1/2 communication object, "Up/Down"

| No. | Name | Object function | Length | Data type |
|-----|--------------------|-----------------|--------|---------------|
| 10 | Lighting channel 1 | Up/Down | 1 bits | 1.008 Up/Down |
| 14 | Lighting channel 2 | | | |

* Default value

4.6.2 "Roller shutter position" function

Parameters for configuring the "Roller shutter position" functions for motion detection channels. It is possible to move blinds/roller shutters to freely parameterisable positions in relation to motions that take place.

| Parameters | Description | Value |
|---|---|---|
| Telegram at start of presence detection | Defines whether a position telegram is transmitted in the case of motion detection. | <i>Tick box:</i> <i>Ticked =</i> <i>transmit position value</i> |
| Position (0-100%) ¹⁾ | Value for position that is transmitted in the case of motion detection. | <i>Sliding controller:</i> <i>Value range = 0* ... 100 %</i> |
| Telegram at end of presence detection | Defines whether a position telegram is transmitted at the end of motion detection (after delay time and additional delay, if applicable). | <i>Tick box:</i> <i>Ticked =</i> <i>transmit position value</i> |
| Position (0-100%) ²⁾ | Value for position that is transmitted at the end of motion detection | <i>Sliding controller:</i> <i>Value range = 0* ... 100 %</i> |

¹⁾ Only visible if "Telegram at start of presence detection" has been ticked.

²⁾ Only visible if "Telegram at end of presence detection" has been ticked.

Table 14: Parameter Roller shutter position function

Lighting channel 1/2 communication object, "Roller shutter position"

| No. | Name | Object function | Length | Data type |
|-----|--------------------|---------------------------------|--------|----------------------------|
| 11 | Lighting channel 1 | Position in % automatic control | 1 byte | 5.001 Percentage (0..100%) |
| 15 | Lighting channel 2 | | | |

* Default value

4.6.3 "Slat position" function

Parameters for configuring the "Slat position" functions for motion detection channels.

It is possible to set the slat angles of blinds to freely parameterisable positions in relation to motions that take place.

| Parameters | Description | Value |
|---|---|---|
| Telegram at start of presence detection | Defines whether a position telegram is transmitted in the case of motion detection. | <i>Tick box:</i> <i>Ticked =</i> <i>transmit position value</i> |
| Slat angle (0-100%) ¹⁾ | Value for slat position that is transmitted in the case of motion detection. | <i>Sliding controller:</i> <i>Value range = 0* ... 100 %</i> |
| Telegram at end of presence detection | Defines whether a position telegram is transmitted at the end of motion detection (after delay time and additional delay, if applicable). | <i>Tick box:</i> <i>Ticked =</i> <i>transmit position value</i> |
| Slat angle (0-100%) ²⁾ | Value for slat position that is transmitted at the end of motion detection | <i>Sliding controller:</i> <i>Value range = 0* ... 100 %</i> |

¹⁾ Only visible if "Telegram at start of presence detection" has been ticked.

²⁾ Only visible if "Telegram at end of presence detection" has been ticked.

Table 15: "Slat position" function parameters

Lighting channel 1/2 communication object, "Slat position"

| No. | Name | Object function | Length | Data type |
|-----|--------------------|-----------------------------------|--------|----------------------------|
| 12 | Lighting channel 1 | Slat angle in % automatic control | 1 byte | 5.001 Percentage (0..100%) |
| 16 | Lighting channel 2 | | | |

* Default value

4.6.4 "Position/Slat angle (0-100 %)" function

Parameters for configuring the "Position/Slat angle (0-100 %)" functions in the case of the motion detection channels.

It is possible to move blinds to freely parameterisable positions and set slat angles in relation to motions that take place.

| Parameters | Description | Value |
|---|---|---|
| Telegram at start of presence detection | Defines whether a position telegram is transmitted in the case of motion detection. | <i>Tick box:</i> <i>Ticked =</i> <i>transmit position value</i> |
| Position (0-100%) ¹⁾ | Value for position that is transmitted in the case of motion detection. | <i>Sliding controller:</i> <i>Value range = 0* ... 100 %</i> |
| Slat angle (0-100%) ¹⁾ | Value for slat position that is transmitted in the case of motion detection. | <i>Sliding controller:</i> <i>Value range = 0* ... 100 %</i> |
| Telegram at end of presence detection | Defines whether a position telegram is transmitted at the end of motion detection (after delay time and additional delay, if applicable). | <i>Tick box:</i> <i>Ticked =</i> <i>transmit position value</i> |
| Position (0-100%) ²⁾ | Value for position that is transmitted at the end of motion detection | <i>Sliding controller:</i> <i>Value range = 0* ... 100 %</i> |
| Slat angle (0-100%) ¹⁾²⁾ | Value for slat position that is transmitted at the end of motion detection | <i>Sliding controller:</i> <i>Value range = 0* ... 100 %</i> |

¹⁾ Only visible if "Telegram at start of presence detection" has been ticked.

²⁾ Only visible if "Telegram at end of presence detection" has been ticked.

Table 16: "Position/Slat angle (0-100 %)" function parameters

Lighting channel 1/2 communication object, "Position/Slat angle (0-100 %)"


| No. | Name | Object function | Length | Data type |
|-----|--------------------|-----------------------------------|--------|----------------------------|
| 11 | Lighting channel 1 | Position in % automatic control | 1 byte | 5.001 Percentage (0..100%) |
| 15 | Lighting channel 2 | | | |
| 12 | Lighting channel 1 | Slat angle in % automatic control | 1 byte | 5.001 Percentage (0..100%) |
| 16 | Lighting channel 2 | | | |

* Default value

4.7 Operating mode changeover (motion detection channel)

Parameters for configuring the operating mode change-over functions in the case of the motion detection channels.

The heating operating mode (comfort, night, etc.) can be specified in relation to motions that take place.

 Due to the inertia demonstrated by heating systems, we recommend only using this function under certain circumstances.

| Parameters | Description | Value |
|---|---|---|
| Telegram at start of presence detection | Defines whether an operating mode is transmitted in the case of motion detection. | <i>Tick box:</i> <i>Ticked =</i> <i>transmit operating mode</i> |
| Current operating mode ¹⁾ | Operating mode that is transmitted in the case of motion detection. | Auto * Comfort Standby Night lowering Frost protection |
| Telegram at end of presence detection | Defines whether an operating mode is transmitted at the end of motion detection (after delay time and additional delay, if applicable). | <i>Tick box:</i> <i>Ticked =</i> <i>transmit operating mode</i> |
| Current operating mode ²⁾ | Value for position that is transmitted at the end of motion detection | Auto Comfort* Standby Night lowering Frost protection |

¹⁾ Only visible if "Telegram at start of presence detection" has been ticked.

²⁾ Only visible if "Telegram at end of presence detection" has been ticked.

Table 17: "Operating mode change-over" function parameters

Lighting channel 1/2 communication object, "Operating mode change-over"

| No. | Name | Object function | Length | Data type |
|-----|--------------------|--|--------|----------------------------|
| 11 | Lighting channel 1 | Operating mode change-over automatic control | 1 byte | 5.001 Percentage (0..100%) |
| 15 | Lighting channel 2 | | | |

* Default value

5. Push-button parameters

The next sections describe how to configure a button when it is being used as a KNX button.
To display the parameters, the **Multifunctional push-button** setting must be selected for the button operating mode.

5.1 General

Global parameter settings for the behaviour when the button is operated are made under "General".

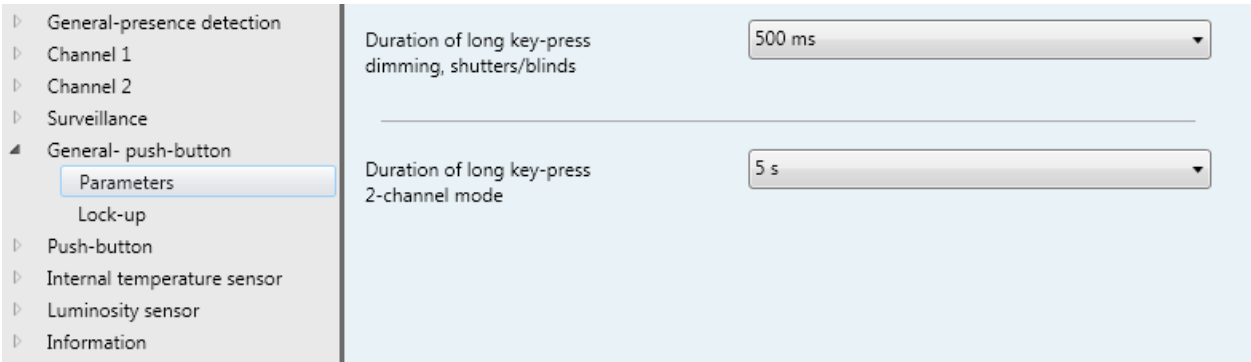


Figure 9: "General" parameters

| Parameters | Description | Value |
|---|---|--------------------------------|
| Time for long key-press (TD) (dimming, shutter/blind) | Definition of the moment from when a long push-button action is detected. This distinction is required in the "Dimming" function, for example, to switch on (short TD) or dim (long TD) the lighting. | 400 ms - 500 ms * - 1 s |
| Time for long key-press (TD) (2-channel mode) | Definition of the moment from when a long push-button action is detected for the 2 channel mode. | 500 ms - 5 s * - 10 s |

Table 18: General-Push-button "Parameter"

* Default value

5.2 General-Push-button blocking function

In the following parameter window, the function and selection options of the "Blocking function" for the operation button are configured.

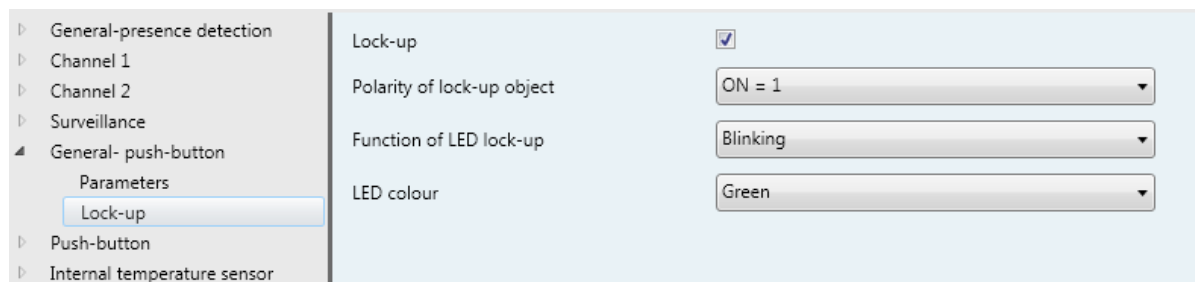


Figure 10: General-Push-button "Blocking function"

| Parameters | Description | Value |
|---|---|---|
| Blocking function | Defines whether the blocking function is executed. | <i>Tick box:</i> <i>Ticked =</i> <i>blocking parameterisable</i> |
| Polarity of blocking object ¹⁾ | This parameter defines at which value the blocking function is activated. | ON = 1* ON = 0 |
| LED lock-up ¹⁾ | This parameter sets the function of the LED when lock-up is active. | Off * On Blinking |
| Colour of LED ¹⁾ | This parameter sets the colour of the LED when lock-up is active. | Off Red * Green Blue Red + green Red + blue Blue + green |

¹⁾ Only visible if "Blocking function" has been ticked.

Table 19: General "Lock-up"

| No. | Name | Object function | Length | Data type |
|-----|---------|-------------------|--------|------------------|
| 4 | General | Blocking function | 1 bits | 1.003 DPT_Enable |

To activate the blocking function, the "Blocking function" must be explicitly activated (i.e. ticked) in the "General-Push-button" parameter branch.

After bus voltage recovery, a lock-up remains active if it was activated before the bus voltage failed. The lock-up is always deactivated after a programming process by the ETS.

The polarity of the lock-up object can be parameterised.

If the polarity of the lock-up object is set to "Inverted (ON = 0)", the push-button is not immediately locked in the event of bus voltage recovery or after a download if no lock-up was switched on before the bus voltage failed. In such cases, the lock-up is only activated in the event of an object update (value = "0") for the lock-up object!

* Default value

6. "Button" function parameters

6.1 General information

This paragraph describes the configuration of the operation button. For this purpose, the "Multifunctional push-button" must be selected beforehand under "General-Presence detection --> Operation button behaviour". This function enables independent operation as a push-button, in a way that is completely separate from the motion detector function.

6.1.1 Function of the button and the status LED

The status LED can be assigned a function to represent each button function.

Figure 11: Function type of the independent push-button(s)

| Parameters | Description | Value |
|---|---|---|
| Function of the button | Function selection for the button. | Not active * Toggle switch ON/OFF Dimming Shutter/blind Timer 1 Value 1 byte Value 2 bytes Thermostat extension Priority Scene 2-channel mode Automatic control deactivation |
| LED status | Defines the display functions for the status LED The adjustable values vary according to the set function. | Always OFF * Always ON 2 Acknowledgement 3 Status indication 4 Control through separately object Comparator unsigned Comparator signed |
| The parameters below vary according to the function selected for the status LED | | |
| LED colour for ON | Colour setting of status LED for displaying the "ON" state | Off Red Green * Blue Red + green Red + blue Green + blue |

| | | |
|---|--|---|
| LED colour for OFF | Colour setting of status LED for displaying the "OFF" state | Off Red * Green Blue Red + green Red + blue Green + blue |
| LED behaviour | Behaviour setting of status LED when "Status display" is selected. | Status display (ON = 1) * Status display (ON = 0) Status display blinking (ON = 1) Status display blinking (ON = 0) |
| LED colour (via setpoint) | Colour setting of status LED for "Comparison value above setpoint". | Off Red * Green Blue Red + green Red + blue Green + blue |
| LED colour (equal to setpoint) | Colour setting of status LED for "Comparison value equal to setpoint". | Off Red Green * Blue Red + green Red + blue Green + blue |
| LED colour (below setpoint) | Colour setting of status LED for "Comparison value under setpoint". | Off Red Green Blue * Red + green Red + blue Green + blue |
| Comparison function (unsigned) | Setting concerning which value, 1 byte or 2 bytes, is to be compared in the comparison function. | Comparison of 2 bytes unsigned * Comparison of 1 byte unsigned |
| Comparison setpoint of 2 bytes unsigned | This parameter sets the 2-byte comparison setpoint. | 0 * ... 65535 |
| Comparison setpoint of 1 byte unsigned | This parameter sets the 1-byte comparison setpoint. | 0 * ... 255 |
| Comparison function (signed) | Setting concerning whether the 1 byte or 2 bytes value is to be compared in the comparison function. | Comparison of 2 bytes signed * Comparison of 1 byte signed |
| Comparison setpoint of 2 bytes signed | Setting for the 2 bytes comparison setpoint. | -32768 ... 0 * ... 32767 |
| Comparison setpoint of 1 byte signed | Setting for the 1 byte comparison setpoint. | -128 ... 0 * ... 127 |

Table 20: "Button function type" parameters

¹ Not visible if the "Inactive", "Value 1/2 bytes", "Room thermostat extension unit", "Scene" or "Step switch" function is selected.

* Default value

6.2 "Toggle switch" function

The toggle switch function is used for changing over. When the function is active, repeatedly pressing the same button triggers an alternating switching command.

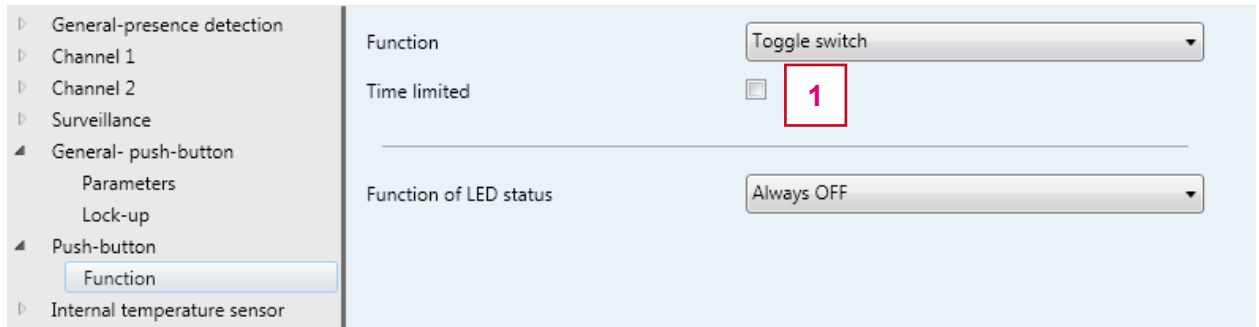


Figure 12: "Toggle switch" function of the push-button(s)

"Toggle switch" function communication objects (button)

| No. | Name | Object function | Length | Data type |
|-----|--------|--------------------------|--------|------------------|
| 28 | Button | ON/OFF status indication | 1 bits | 1.001 DPT_ON/OFF |
| 33 | Button | Switching | 1 bits | 1.001 DPT_ON/OFF |

"Toggle switch" function – time limited

This function is only available in the "independent push-button" operating mode.

Pressing the button quickly changes the output state. The state changes each time a short key-press occurs. If the button is not pressed, the output is switched off after the time set in the output. Pressing the button for a long time retriggers the switch-off time.

Details: when a short key-press occurs, the push-button transmits the reversal of the last command received on the status object via the on pulse object. When the button is pressed for a long time, the push-button transmits an ON command via the on pulse object.

An ON command on the on pulse object of the Hager TXA products switches on the output for the time set.

An OFF command on the on pulse object switches off the output. If an ON command follows even though the output is still switched on, the switch-on time is restarted (retriggered).

6.3 "ON/OFF" function

The different function variants of the "ON/OFF" function are presented and described in the parameter window below.

Figure 13: "Function by press/on release" parameters

The independent button can trigger different responses for the two actuation functions PRESS/RELEASE.

| Parameters | Description | Value |
|---|---|--|
| Function by press/on release (individual push-button configuration) | This parameter defines the function of the button. | Not active * ON OFF |
| Emission time delay by press/on release | This parameter defines when the button command is to be transmitted to the bus. | Immediate emission * 1 s - 5 min |

Table 21: "Function by press/on release" ON/OFF parameters

"ON/OFF" function communication objects

| No. | Name | Object function | Length | Data type |
|-----------------|--------|--------------------------|--------|------------------|
| 28 ¹ | Button | ON/OFF status indication | 1 bits | 1.001 DPT_ON/OFF |
| 33 | Button | Switching | 1 bits | 1.001 DPT_ON/OFF |

¹ Only available with the "Status display" LED function.

* Default value

6.4 "Dimming" Function

The "Dimming" function is described below. The lighting can be switched on/off (short press of button) and dimmed brighter/darker (long press of button) with the "Dimming" function.

The "One push-button" function is preset. Each time a short press of the respective button occurs, the push-button transmits alternate switch-on and switch-off telegrams ("Toggle switch"). A long press causes the push-button to transmit "Brighter" and "Darker" telegrams alternately. In principle, any setting can be made for the command button function that applies when the button is pressed.

Figure 14: "Dimming" Function

| Parameters | Description | Value |
|----------------------------------|---|--|
| Function of the "Dimming" button | Function setting when the button is pressed in the "Dimming" function. The value in brackets specifies the function that applies with a short press of the button. | Increase (ON) * Decrease (OFF) Increase (toggle switch) Decrease (toggle switch) Increase/Decrease (toggle switch) Dimming value |
| Dimming value | Setting for the dimming value to be transmitted | <i>Sliding controller:</i> Value range = 0 ... 100 % |

¹ Only visible if the "Dimming value" button function has been selected.

Table 22: Rocker/button "Dimming" function

In addition to the dimming communication objects, the ON/OFF communication objects are also visible. Two separate group addresses for ON/OFF and dimming must be created and connected with the corresponding communication objects.

If the "Dimming – dimming value" function is selected, the dimming value is to be set by means of the sliderbar (0 % ... 100 %). Only one communication object can be selected in this function. The "Dimming – dimming value" function assigns a specific brightness value to the lamp via the connected actuator.

"Dimming" function communication objects

| No. | Name | Object function | Length | Data type |
|-----|--------|--------------------------|--------|-----------------------|
| 28 | Button | ON/OFF status indication | 1 bits | 1.001 DPT_ON/OFF |
| 33 | Button | Switching | 1 bits | 1.001 DPT_ON/OFF |
| 36 | Button | Dimming | 4 bits | 3.007 DPT_Dimmer step |

"Dimming value" function communication objects (button)

| No. | Name | Object function | Length | Data type |
|-----|----------|--------------------------|--------|--------------------------------|
| 28 | Button | ON/OFF status indication | 1 bits | 1.001 DPT_ON/OFF |
| 37 | Button x | Dimming value | 1 byte | 5.001 DPT_Percentage (0-100 %) |

* Default value

6.5 "Shutter/blind" function

The "Roller shutter/blind" function for the button is configured in the parameter windows below. This function is used for activating roller shutters, blinds, awnings and other hangings. In the "Shutter/blind" function, a distinction is made between long and short key-presses.

→ Short button press: the device transmits a step or stop command to the bus via the Slat Step/Stop (step) communication object.

→ Long button press: The device transmits a motion command (Up/Down) to the bus via the Up/Down (move) communication object.

The function is controlled using the button in toggle mode: for example, setting the first press of the button to open the blind and the next press to close it.

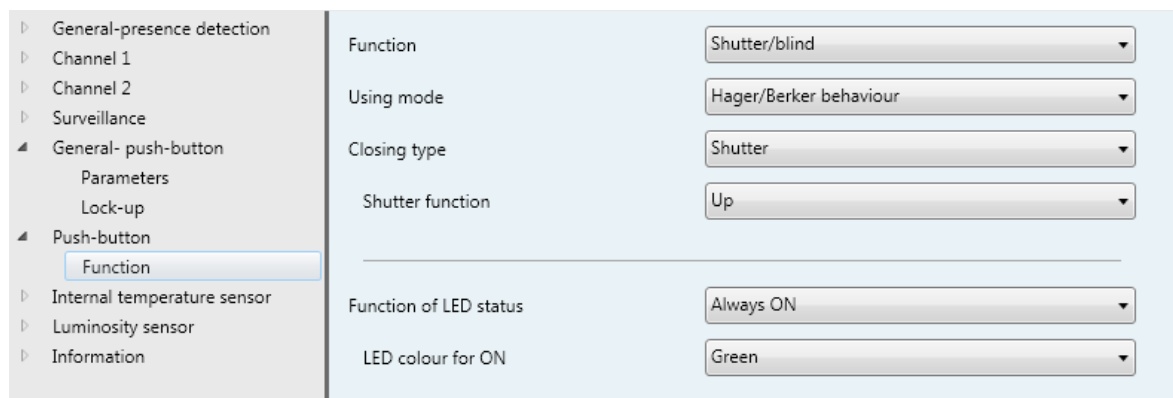


Figure 15: "Shutter/blind" function

Operating concepts for the roller shutter / blind function

Five different operating concepts are available in the application for activating roller shutters, blinds or similar hangings. In these operating concepts, the telegrams are transmitted to the bus with a different time sequence. This allows the widest range of drive concepts to be set and operated.

| Parameters | Description | Value |
|-------------------|---|--|
| Operating concept | This parameter selects the operating concept of the "Roller shutter/blind" function | Hager/Berker behaviour * Short – Long – Short Long – Short Short – Long Long – Short or Short |
| Operating mode | This parameter selects the type of the hanging | Roller shutter * Roller shutter and blind |

Table 23: "Roller shutter/blind" operating concept

* Default value

6.5.1 HAGER operating concept

i The "Hager/Berker behaviour" has been specially adapted to the new Hager/Berker switching/blind actuators as well as the blind and roller shutter actuators.

| Parameters | Description | Value |
|-----------------------------------|--|---|
| Shutter function | Selection of button function for operating the hanging (when sun protection type = roller shutter is selected) | Up Down Up/Down/Stop Position (0-100 %) Secured up Secured down Secured up/down/stop |
| Function blind | Selection of button function for operating the hanging (when sun protection type = blind is selected) | Up Down Up/Down/Stop Position (0-100 %) Position/Slat angle (0-100 %) Slat angle (0-100 %) Secured up Secured down Secured up/down/stop |
| Position (0..100%) ¹ | Setting for roller shutter/blind position that is approached when the button is pressed | <i>Sliding controller:</i> <i>Value range = 0 % * ... 100 %</i> |
| Slat angle (0..100%) ² | Slat angle setting for blind that is applied when the button is pressed. | <i>Sliding controller:</i> <i>Value range = 0 % * ... 100 %</i> |

Table 24: Parameters in the Hager using mode

¹ This parameter is not visible until the value "Position (0-100 %)" or "Position/Slat angle (0-100 %)" is selected for "Roller shutter/blind" function.

² This parameter is not visible until the value "Position/Slat angle (0-100 %)" is selected for "Roller shutter/blind" function.

* Default value

6.5.2 "Short – Long – Short" operating concept

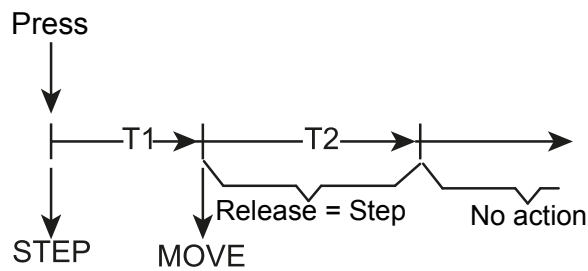


Figure 16: "Short – Long – Short" operating concept

As soon as the button is pressed, the device transmits a step telegram to the bus. As a result, a moving drive is stopped and the time T1 ("the time between a step and move command") is started. If the button is released again within T1, no further telegram is transmitted. This step stops an ongoing continuous move.

i The "time between a step and move command" in the device should be set shorter than the step operation of the actuator so that no disturbing buckling of the blind occurs.

If the button is kept pressed for longer than T1, the push-button transmits a move telegram for extending the drive after T1 has expired and the time T2 ("slat adjusting time") is started.

If the button is released within the slat adjusting time, the device transmits another short-time telegram. This function is used for the slat adjustment of a blind. As a result, the slats can be stopped at any position within their rotation. The length of the "slat adjusting time" selected should be as long as the time required by the drive to turn the slats completely. If the "slat adjusting time" selected is longer than the complete operation time of the drive, a touch function is also possible. The driver only moves if the button is pressed down.

If the button is pressed down longer than T2, the device does not transmit any further telegram. The drive continues moving until the end position is reached.

Times T1 ("time between a step and move command") and T2 ("slat adjusting time") must first be adjusted.

| Parameters | Description | Value |
|--|--|--|
| Duration between short and long button press | Setting of T1. T1 is the time between a step and move command | 1 ... 4 * ... 3000 (x100 ms) |
| Duration of the slat angle setting T2 | Setting of T2 T2 is the slat adjusting time. | 1 ... 5 * ... 3000 (x100 ms) |
| Operating mode | This parameter selects the type of the hanging | Roller shutter * roller shutter and blind |
| Roller shutter function 2 | Selection of button function for operating the hanging (when sun protection type = roller shutter is selected) | Up * Down Up/Down/Stop Position (0..100%) |
| Function blind | Selection of button function for operating the hanging (when sun protection type = blind is selected) | Up * Down Up/Down/Stop Position (0-100 %) Position/slat angle (0-100 %) Slat angle (0-100 %) |
| Position (0..100%) ¹ | Setting for roller shutter/blind position that is approached when the button is pressed | <i>Sliding controller:</i> <i>Value range = 0 % * ... 100 %</i> |
| Slat angle (0..100%) ² | Slat angle setting for blind that is applied when the button is pressed. | <i>Sliding controller:</i> <i>Value range = 0 % * ... 100 %</i> |

¹ This parameter is not visible until the value "Position (0-100 %)" or "Position/Slat angle (0-100 %)" is selected for "Roller shutter/blind" function.

² This parameter is not visible until the value "Position/Slat angle (0-100 %)" is selected for "Roller shutter/blind" function.

Table 25: Parameter in the "Short - long - short" operating concept

* Default value

6.5.3 "Long – Short" operating concept

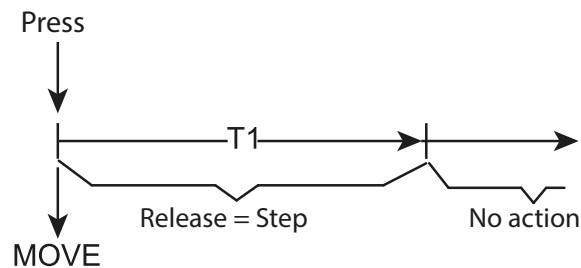


Figure 17: "Long – Short" operating concept

Immediately upon pressing the button, the device transmits a long-time telegram (Move). As a result, the drive starts moving and time T1 ("slat adjusting time") is started.

If the button is released during the slat adjusting time, the device transmits a step telegram. This function is used for the slat adjustment of a blind. As a result, the slats can be stopped at any position within their rotation. The length of the "slat adjusting time" selected should be as long as the time required by the drive to turn the slats completely. If the "slat adjusting time" selected is longer than the complete operation time of the drive, a touch function is also possible. The driver only moves if the button is pressed down.

If the button is pressed down longer than T1, the device does not transmit any further telegram. The drive continues moving until the end position is reached.

Time T1 ("time between a step and move command") must first be adjusted.

| Parameters | Description | Value |
|--|--|--|
| Duration between short and long button press | Setting of T1. T1 is the time between a step and move command | 1 ... 4 * ... 3000 (x100 ms) |
| Operating mode | This parameter selects the type of the hanging | Roller shutter * roller shutter and blind |
| Roller shutter function 2 | Selection of button function for operating the hanging (when sun protection type = roller shutter is selected) | Up * Down Up/Down/Stop Position (0..100%) |
| Function blind | Selection of button function for operating the hanging (when sun protection type = blind is selected) | Up * Down Up/Down/Stop Position (0-100 %) Position/slat angle (0-100 %) Slat angle (0-100 %) |
| Position (0..100%) ¹ | Setting for roller shutter/blind position that is approached when the button is pressed | <i>Sliding controller:</i> Value range = 0 % * ... 100 % |
| Slat angle (0..100%) ² | Slat angle setting for blind that is applied when the button is pressed. | <i>Sliding controller:</i> Value range = 0 % * ... 100 % |

¹ This parameter is not visible until the value "Position (0-100 %)" or "Position/Slat angle (0-100 %)" is selected for "Roller shutter/blind" function.

² This parameter is not visible until the value "Position/Slat angle (0-100 %)" is selected for "Roller shutter/blind" function.

Table 26: Parameter in the "Short - Long" operating concept

* Default value

6.5.4 "Short – Long" operating concept

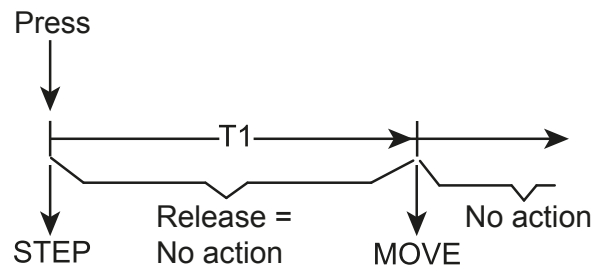


Figure 18: "Short – Long" using mode

Immediately upon pressing the button, the device transmits a short-time telegram. As a result, a moving drive is stopped and the time T1 ("the time between a step and move command") is started. If the button is released again within T1, no further telegram is transmitted. This step stops an ongoing continuous move. The "time between a step and move command" in the push-button should be set shorter than the step operation of the actuator so that no disturbing buckling of the blind occurs.

If the button is kept pressed longer than T1, the push-button transmits a long-time telegram for extending the driver after T1 has expired.

When the button is released, the push-button does not transmit any further telegram. The drive continues moving until the end position is reached.

Times T1 ("time between a step and move command") and T2 ("slat adjusting time") must first be adjusted.

| Parameters | Description | Value |
|--|--|--|
| Duration between short-long key-press T1 | Setting of T1. T1 is the time between a step and move command | 1 ... 4 * ... 3000 (x100 ms) |
| Operating mode | This parameter selects the type of the hanging | Roller shutter * roller shutter and blind |
| Roller shutter function 2 | Selection of button function for operating the hanging (when sun protection type = roller shutter is selected) | Up * Down Up/Down/Stop Position (0..100%) |
| Function blind | Selection of button function for operating the hanging (when sun protection type = blind is selected) | Up * Down Up/Down/Stop Position (0-100 %) Position/slat angle (0-100 %) Slat angle (0-100 %) |
| Position (0..100%) ¹ | Setting for roller shutter/blind position that is approached when the button is pressed | <i>Sliding controller:</i> <i>Value range = 0 % * ... 100 %</i> |
| Slat angle (0..100%) ² | Slat angle setting for blind that is applied when the button is pressed. | <i>Sliding controller:</i> <i>Value range = 0 % * ... 100 %</i> |

¹ This parameter is not visible until the value "Position (0-100 %)" or "Position/Slat angle (0-100 %)" is selected for "Roller shutter/blind" function.

² This parameter is not visible until the value "Position/Slat angle (0-100 %)" is selected for "Roller shutter/blind" function.

Table 27: Parameter in the "Short-long-short" operating concept

* Default value

6.5.5 "Long – Short or Short" operating concept

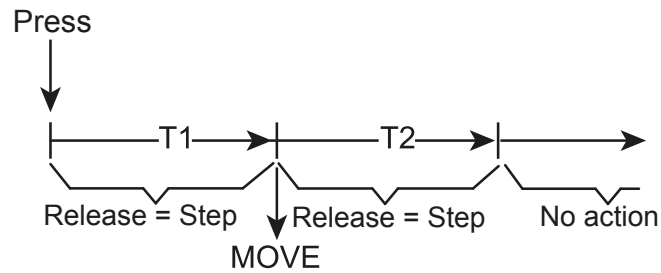


Figure 19: "Long – Short or Short" operating concept

As soon as the button is pressed, the device starts the time T1 ("time between a step and move command") and waits. If the button is released again before T1 expires, the device transmits a step telegram. In this way, a moving drive can be stopped. A stationary drive turns the slats by one step. If the button remains pressed after T1 has expired, the device transmits a move telegram and starts the time T2 ("slat adjusting time").

If the button is released within T2, the device transmits a short-time telegram. This function is used for the slat adjustment of a blind. As a result, the slats can be stopped at any position within their rotation. The length of the "slat adjusting time" selected should be as long as the time required by the drive to turn the slats completely. If the "slat adjusting time" selected is longer than the complete operation time of the drive, a touch function is also possible. The driver only moves if the button is pressed down.

If the button is pressed down longer than T2, the device does not transmit any further telegram. The drive continues moving until the end position is reached.

Times T1 ("time between a step and move command") and T2 ("slat adjusting time") must first be adjusted.

| Parameters | Description | Value |
|--|--|--|
| Duration between short-long key-press T1 | Setting of T1. T1 is the time between a step and move command | 1 ... 4 * ... 3000 (x100 ms) |
| Duration of the slat angle setting T2 | T2 is the slat adjusting time | 1 ... 5 * ... 3000 (x100 ms) |
| Operating mode | This parameter selects the type of the hanging | Roller shutter * roller shutter and blind |
| Roller shutter function 2 | Selection of button function for operating the hanging (when sun protection type = roller shutter is selected) | Up * Down Up/Down/Stop Position (0..100%) |
| Function blind | Selection of button function for operating the hanging (when sun protection type = blind is selected) | Up * Down Up/Down/Stop Position (0-100 %) Position/slat angle (0-100 %) Slat angle (0-100 %) |
| Position (0..100%) ¹ | Setting for roller shutter/blind position that is approached when the button is pressed | <i>Sliding controller:</i> Value range = 0 % * ... 100 % |
| Slat angle (0..100%) ² | Slat angle setting for blind that is applied when the button is pressed. | <i>Sliding controller:</i> Value range = 0 % * ... 100 % |

* Default value

¹ This parameter is not visible until the value "Position (0-100 %)" or "Position/Slat angle (0-100 %)" is selected for "Roller shutter/blind" function.

² This parameter is not visible until the value "Position/Slat angle (0-100 %)" is selected for "Roller shutter/blind" function.

Table 28: Parameter in the "Short - long or short" operating concept

6.5.6 Communication objects for "Roller shutter/blind" function

"Up/Down" communication objects for shutter/blind operation

| No. | Name | Object function | Length | Data type |
|-----|--------|-----------------------|--------|-------------------|
| 33 | Button | Up/Down | 1 bits | 1.008 DPT_Up/Down |
| 34 | Button | Slat Step/Stop (step) | 1 bits | 1.007 DPT_Step |

"Position (0-100 %)" communication objects for shutter/blind operation

| No. | Name | Object function | Length | Data type |
|-----|--------|-----------------|--------|--------------------------------|
| 37 | Button | Position in % | 1 byte | 5.001 DPT_Percentage (0-100 %) |

"Position/Slat angle (0-100 %)" communication objects for shutter/blind operation

| No. | Name | Object function | Length | Data type |
|-----|----------|-----------------|--------|--------------------------------|
| 37 | Button x | Position in % | 1 byte | 5.001 DPT_Percentage (0-100 %) |
| 38 | Button x | Slat angle in % | 1 byte | 5.001 DPT_Percentage (0-100 %) |

"Slat angle (0-100 %)" communication objects for shutter/blind operation

| No. | Name | Object function | Length | Data type |
|-----|----------|-----------------|--------|--------------------------------|
| 38 | Button x | Slat angle in % | 1 byte | 5.001 DPT_Percentage (0-100 %) |

6.6 "Timer" function

In the "Timer" function, when a short key-press occurs, the parameterised switch output is switched for the time set in the switch actuator. When a long key-press occurs, the ongoing timer operation is interrupted and the switch output is switched off.

When a short key-press occurs, a 1-bit switch command is transmitted to the bus and the respective output is switched on. When a long key-press occurs, an OFF command is transmitted by the same 1-bit object.



Figure 20: "Timer" function

An ON command on the "Timer" object in the TXA output products switches on the output for the set time.

If additional ON commands are transmitted to the "Timer" object within 10 s, the switch-on time adds up to. The switch-on time of the output (for the TXA products) is calculated as follows:

$$\text{Switch-on time} = (1 + \text{number of actuations}) \times \text{set time in switch actuator}$$

The set time begins to count down when the last key-press occurs. Pressing the button again after 10 s restarts (retriggers) the time set in the switch actuator. An OFF command switches off the output immediately.

"Timer" communication objects (button)

| No. | Name | Object function | Length | Data type |
|-----|--------|-----------------|--------|----------------------|
| 33 | Button | Timer | 1 bits | 1.010 DPT_Start/Stop |

6.7 "Value 1 byte" function

The "Value 1 bytes" function is parameterised and set in the following parameter window.
A 1 bytes communication object is available for this purpose. Pressing a button transmits the set value to the bus.

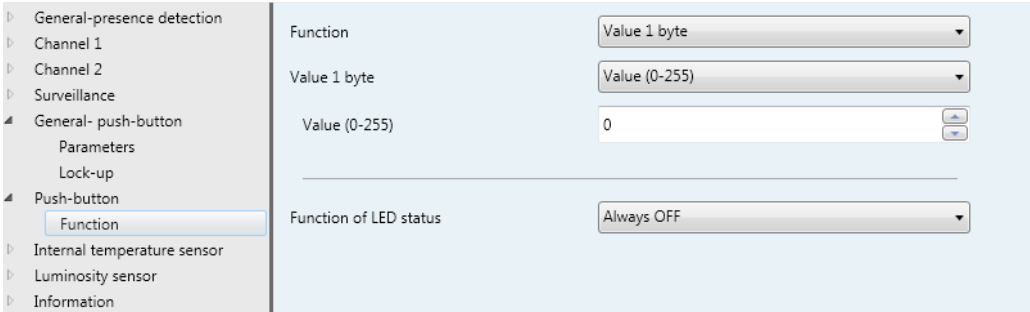


Figure 21: Function of the "Value 1 byte" independent push-button

| Parameters | Description | Value |
|----------------------------|--|--|
| "Value 1 byte" function | Selection of 1 byte value type that is transmitted when the button is pressed. | Value (0-255) * Percent (0-100 %) |
| Value (0-255) ¹ | Setting of value | <i>Can be entered freely: valid values = 0 ... 255</i> |
| Value (%) ² | | <i>Sliding controller: Value range = 0 % * ... 100 %</i> |

Figure 22: Function of "Value 1 byte" button

- ¹ Only visible if "Value (0-255)" has been selected for "Value 1 byte".
² Only visible if "Percent (0-100 %)" has been selected for "Value 1 byte".

"Value 1 byte" communication objects (0-100 %)

| No. | Name | Object function | Length | Data type |
|-----|--------|-----------------|--------|--------------------------|
| 37 | Button | Value in % | 1 byte | 5.001 DPT_Percentage |
| 37 | Button | Value (0-255) | 1 byte | 5.010 DPT_Counting pulse |

The "Value 1 byte" parameter defines which value range the push-button should use. Relative values ranging from 0 to 100 % can be transmitted to the bus for the "Value 1 byte" function by means of a slide control.

* Default value

6.8 "Value 2 bytes" function

The "Value 2 bytes" function is parameterised and set in the following parameter window. A 2 bytes communication object is available for this purpose. Pressing a button transmits the set value to the bus.

Figure 23: Function of the "Value 2 byte" independent push-button

| Parameters | Description | Value |
|-------------------------------------|---|---|
| "Value 2 byte" function | Selection of 2 bytes value type that is transmitted when the button is pressed. | Value (0-65535) * temperature brightness |
| Value (0-65535) ¹ | Setting of value | <i>Can be entered freely: valid values = 0 ... 65535</i> |
| Temperature (°C) ² | | <i>Can be entered freely: valid values = 0 ... 40 °C</i> |
| Brightness value (Lux) ³ | | <i>Can be entered freely: valid values = 0 ... 1000 Lux</i> |

Table 29: Function of "Value 2 bytes" button

¹ Only visible if "Value (0-65535)" has been selected for "Value 2 bytes".

² Only visible if "Temperature" has been selected for "Value 2 bytes".

³ Only visible if "Brightness" has been selected for "Value 2 bytes".



"Value 2 bytes" communication objects (button)

| No. | Name | Object function | Length | Data type |
|-----|--------|-----------------|--------|----------------------------|
| 39 | Button | Value (0-65535) | 2 byte | 7.001 DPT_Pulse |
| 39 | Button | Temperature | 2 byte | 9.001 DPT_Temperature (°C) |
| 39 | Button | Brightness | 2 byte | 9.004 DPT_Lux (Lux) |

* Default value

6.9 Function "Room thermostat extension unit"

This function allows an external KNX room thermostat (KNX thermostat or KNX room controller, for example) to be activated using the push-button operation buttons. This allows the user to set basic controller functions (such as override setpoint, setpoint selection, heating/cooling change-over, presence detection) from different places in the room.

-  The room thermostat extension unit specifies control parameters, but is not involved in actually controlling the temperature.
-  The thermostat extension only works properly when all communication objects are connected to the appropriate objects in the associated KNX thermostat via a group address.

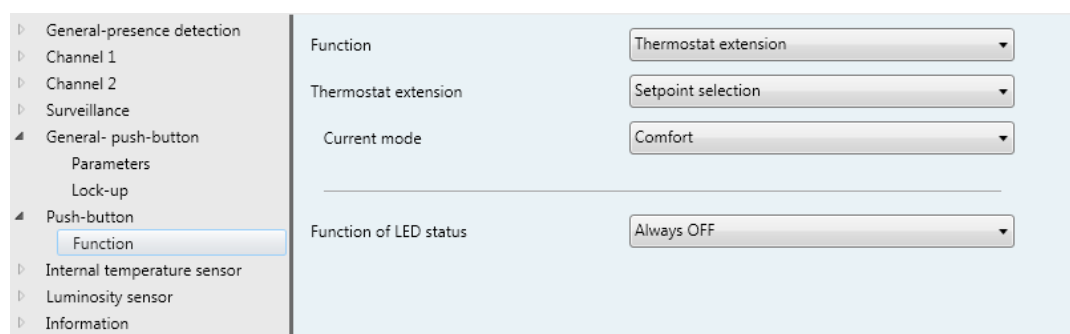


Figure 24: Function of "Room thermostat extension unit" button

| Parameters | Description | Value |
|--|--|--|
| Room thermostat extension unit ¹ | Assignment of "Room thermostat extension unit" function when button is pressed. | Override setpoint * Setpoint selection Heating/cooling-changeover Presence |
| Current operating mode ¹ | Specification concerning which operating mode is transmitted to the thermostat when a button is pressed (on the thermostat extension unit). | Comfort * Standby Night setpoint Frost protection Auto |
| "Setpoint change" ² | With this parameter, pressing the button in the "Setpoint selection" function changes the setpoint temperature in a thermostat. When a button is pressed, a new set temperature – including the defined increase (+0.5°C or +1.0°C) or decrease (-0.5°C or -1.0°C) – is transmitted to the KNX or KNX thermostat. Two 2-byte objects are available for communication here. | -1.0°C ... +1.0°C * |
| "Heating/Cooling – change-over" ³ | With this parameter, the function of the heating system (heating/cooling) is changed over each time the button is pressed. Two 1-bit objects are available for communication here (changeover and status indication). | — |
| "Presence" ⁴ | Function selection: In this function, a presence specification is activated or deactivated when the button is pressed (e.g. as a means of triggering a comfort extension). | Presence ON Presence OFF * Presence toggle switch |

Table 30: Function "Room thermostat extension unit" button

* Default value

¹ Only visible if "Operating mode change-over" has been selected for the room thermostat extension unit.

² Only visible if "Setpoint change" has been selected for the room thermostat extension unit.

³ Only visible if "Heating/cooling change-over" has been selected for the room thermostat extension unit.

⁴ Only visible if "Presence" has been selected for the room thermostat extension unit.

The "Override setpoint" function allows the "Comfort", "Standby", "Frost protection", "Night setpoint" or "Auto" operating modes to be transmitted to the bus.

Example:

- Comfort

The **Comfort** operating mode sets the room temperature to a temperature value predefined in the thermostat (comfort temperature 21°C, for example) for comfort (presence).

- Standby

The **Standby** operating mode reduces the room temperature after leaving the room (brief absence) to a value predefined in the thermostat (19°C, for example).

- Frost protection

The **Frost protection** operating mode reduces the heating circuit temperature to a minimum temperature of 7°C defined in the controller to protect against frost damage over night or during periods of extended absence.

- Night lowering

The **Night setpoint** operating mode turns down the room temperature during a long absence (holiday, for example) to a value of 17°C, for example, defined in the thermostat.

- Auto

The **Auto** operating mode automatically resets the operating mode to the current operating mode (after forced position, for example).

i With underfloor heating, the change-over from "Comfort" to "Standby" is only noticeable after a certain period of time due to the sluggishness of the underfloor heating system.

"Operating mode change-over" communication objects

| No. | Name | Object function | Length | Data type |
|-----|--------|---------------------------|--------|----------------------|
| 37 | Button | Operating mode changeover | 1 byte | 20.102 DPT_HVAC mode |

"Heating/cooling change-over" communication objects

| No. | Name | Object function | Length | Data type |
|-----|--------|-------------------------------------|--------|---------------------------|
| 28 | Button | Heating/cooling - status indication | 1 bits | 1.100 DPT_heating/cooling |
| 33 | Button | Heating/cooling-changeover | 1 bits | 1.100 DPT_heating/cooling |

"Setpoint change" communication objects

| No. | Name | Object function | Length | Data type |
|-----|--------|---------------------------|--------|---------------------------------------|
| 39 | Button | Setpoint selection | 2 byte | 9.002 DPT_Temperature difference (°C) |
| 44 | Button | Setpoint selection status | 2 byte | 20.102 DPT_HVAC mode |

"Presence" communication objects

| No. | Name | Object function | Length | Data type |
|-----|--------|-----------------|--------|------------------|
| 33 | Button | Presence | 1 bits | 1.001 DPT_ON/OFF |

6.10 "Priority" function

This function allows a switch output to be forced to a switch position by a 2-bit telegram regardless of the ON/OFF object (higher priority).

The value of the 2-bit telegram is defined as follows:

When "Priority" is active, incoming switch telegrams are still evaluated internally and when "Priority" is no longer active, the current internal switch condition is set to the ON/OFF object value accordingly.

A "Priority" function activated before a bus voltage failure is always deactivated after a bus voltage recovery. The effect of the "Priority" function depends on the actuator channel connected (lighting, shutter/blind, heating).

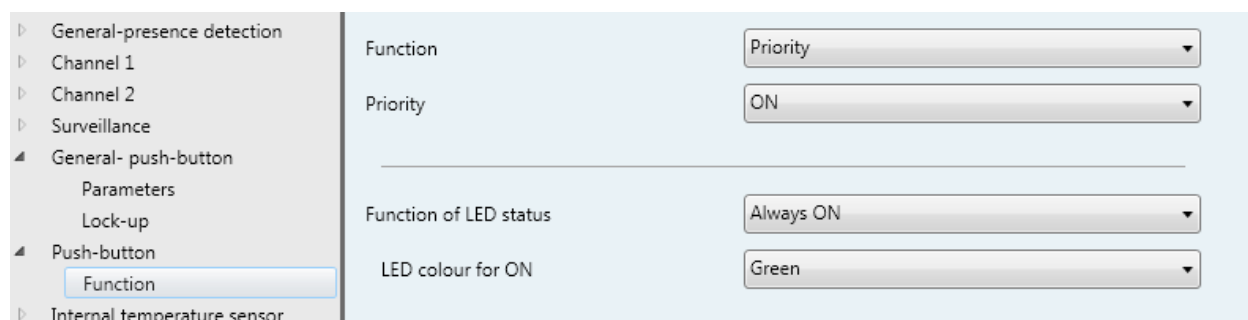


Figure 25: "Priority" function

| Value | | Output behaviour |
|-------|-------|-------------------|
| Bit 1 | Bit 0 | |
| 0 | 0/1 | End of "Priority" |
| 1 | 0 | "Priority" OFF |
| 1 | 1 | "Priority" ON |

Table 31: "Priority" 2-bit communication object

| Parameters | Description | Value |
|------------|--|-------------|
| "Priority" | Function assignment when the button is pressed in the "Priority" function. | ON * Off |

Table 32: Function of the "Priority" button

"Priority" communication objects (independent push-button)

| No. | Name | Object function | Length | Data type |
|-----|----------|----------------------------|--------|----------------------------|
| 28 | Button x | Priority status indication | 1 bits | 1.011 DPT_Status |
| 35 | Button x | Mandatory control | 2 bits | 2.002 DPT_Boolean control) |

Example of priority: "Window cleaner" function

The window cleaner function is an application that prevents a manual operation of the blind/roller shutter from being executed during the window cleaning. As a result, the blind/roller shutter operation is disabled from a central point. Blinds that have already been lowered are moved to the upper stop position. The manual blind/roller shutter function is also enabled from a central point.

* Default value

6.11 "Scene" function

Figure 26: "Scene" function

When the "Scene" function is selected, the device is used as a scene extension unit and calls up or changes configured light scenes that are stored in other KNX devices. The device can call up a maximum of 64 scenes and store changes. Through a short key-press, the device transmits a value between 0 and 63 (where value 0 corresponds to scene 1 and value 63 corresponds to scene 64) to the bus via the scene control communication object. The scene is called up when the button is released.

| Bit number | | | | | | | |
|------------|---|---|---|---|---|---|---|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| Save | X | Scene number (0 = scene 1 ---- bit no. +1 = scene number) | | | | | |

Table 33: Structure of 1-byte scene communication object

X = not relevant.

If the scene storing function is activated with a long button press, the scene parameter values can be changed using the device and stored with a long button press. Scene storing can also be deactivated with a long button press (untick box Bild 26, 1).

| Parameters | Description | Value |
|--|--|--|
| Store scene by long key-press ¹ | Activating this function makes it possible to store a scene again if it has been changed (due to new dimming values, shutter positions, etc.). | <i>Tick box:</i> <i>Ticked =</i> <i>changed values can be stored</i> |
| "Transmission delay" | Transmission delay setting for scene number. | Immediate emission * 1 s ... 5 min |
| "Scene number" | Assignment of a scene number. If the button is pressed during operation, the scene with the corresponding number is called up. | Scene number (1*-64) |

Table 34: Function of the "Scene" rocker/independent push-button

¹ Scene storage is confirmed by the flashing of the status LED (1 second).

"Scene" communication objects (independent push-button)

| No. | Name | Object function | Length | Data type |
|-----|--------|-----------------|--------|--------------------------|
| 37 | Button | Scene | 1 byte | 18.001 DPT_Scene control |

* Default value

Example: scene memorisation procedure

- Switch on scene (in this example "Scene TV") by briefly pressing the button (Bild 27, A-1)
Scene is activated e.g., lighting dimmed to 30%, blind closed to 85%)

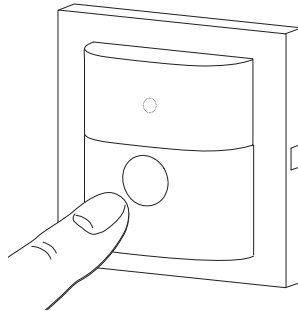


Figure 27: Scene call-up

Set and store new scene parameters, e.g. on a push-button:

- Change lighting intensity, dim brighter or darker (Bild 28, 1)
- Change, open or close blind position (Bild 28,-2)

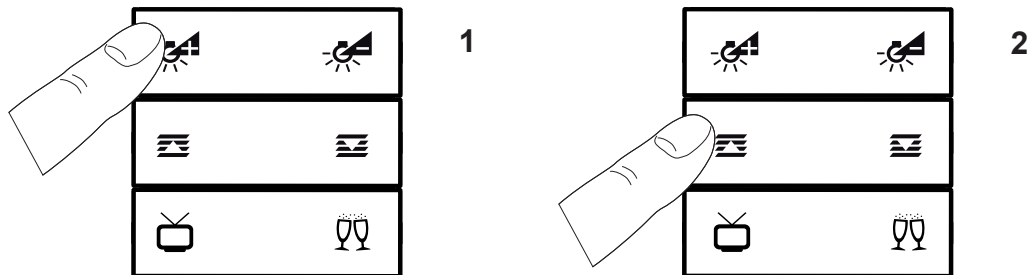


Figure 28: Setting new scene parameters

- Hold the button for "Scene TV" for longer than 5 s (Bild 29)
New scene parameters have been saved. Pressing the "Scene TV" button again activates the new scene settings.

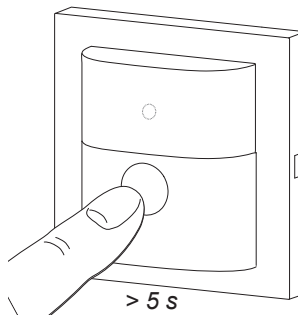
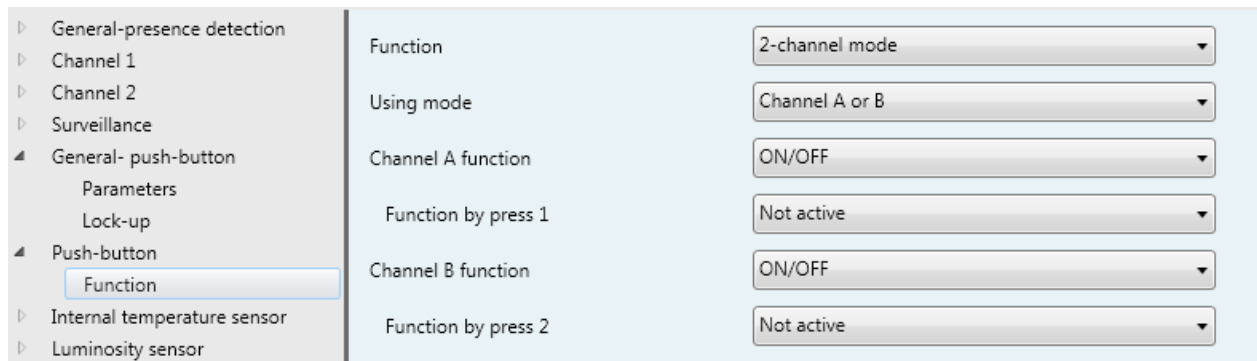


Figure 29: Saving new scene parameters

-  The "Save scene by a long key-press" function is switched on by default.

6.12 "2-channel mode" function

The different function variants of the "2-channel mode function" for the button are presented and described in the parameter window below.



| | | |
|-----------------------------|---------------------|----------------|
| General-presence detection | Function | 2-channel mode |
| Channel 1 | Using mode | Channel A or B |
| Channel 2 | Channel A function | ON/OFF |
| Surveillance | Function by press 1 | Not active |
| General- push-button | Channel B function | ON/OFF |
| Parameters | Function by press 2 | Not active |
| Lock-up | | |
| Push-button | | |
| Function | | |
| Internal temperature sensor | | |
| Luminosity sensor | | |

Figure 30: "2-channel mode" function parameters

The "2-channel mode" (2-channel operation) enables two functions to be executed and transmitted to the KNX via different communication objects using the same independent button.

As a result, the selected independent button is assigned an additional second channel. This means, for example, that different light channels can be switched on or off, or set to a brightness value without needing to configure a scene.

Channel A or B using mode:

In this using mode, a key-press always only triggers one of the two set channel functions.

This means that the function stored for channel A (light ON, for example) is triggered by a short key-press and the function stored for channel B (temperature 21°C, for example) is triggered by a long key-press.

The press duration used to differentiate between a short and a long key-press can be defined in the setting "General-Push-button → Parameters" (from 500 ms to 10 s).

Channel A and B using mode:

In this operating concept, the press duration (time for a long button press) is not active, meaning that both telegrams (channel A and channel B) are transmitted to the bus immediately one after the other when a button is pressed. Releasing the button has no effect.

This means that the function stored for channel A (light ON, for example) and the function stored for channel B (temperature 21°C, for example) are transmitted to the KNX and triggered at the same time with the same button press.

i This function is used one or more functions are to be switched on one push-button (not enough operating sections on the device used).

Only the "ON/OFF", "Value 1 byte/2 bytes", "Temperature value", "Brightness value" and "Percentage value" functions are available in this operating mode.


| Parameters | Description | Value |
|--|--|---|
| Operating concept | Setting of operating concept (see above). | Channel A or B* Channel A and B |
| Channel A function Channel B function | Function setting for the channel A/channel B button. | ON/OFF * Value 1 byte Percentage (0-100 %) Temperature Brightness Value 2 bytes |
|  Depending on the function selection, the corresponding value must be set in an additional parameter. | | |
| Function upon press | When the "ON/OFF" function is selected, the following values are available. | Not active * OFF ON * Toggle switch |
| Value 1 bytes | When the "Value 1 byte" function is selected, a value of 0 ... 255 can be set. | 0 *... 255 |
| Percentage (0-100 %) | When the "Percentage (0-100 %)" function is selected, a percentage value of 0 ... 100 % can be set using the sidebar. | 0 *... 100% |
| Temperature | When the "Temperature" function is selected, a value of 0 ... 40°C can be set. | 0 *... 40°C |
| Brightness | When the "Brightness" function is selected, a value for the rocker side/independent push-button of 0- 1000 Lux can be set. | 0 *... 1000 Lux |
| Value 2 bytes | When the "Value 2 byte" function is selected, a value for the rocker side/independent push-button of 0- 65535 can be set. | 0 *... 65535 |

Table 35: "2-channel mode" function

"2-channel mode" communication objects

| No. | Name | Object function | Length | Data type |
|-----|--------|-------------------------------|--------|----------------------------|
| 33 | Button | Channel A ON/OFF | 1 bits | 1.001 DPT_ON/OFF |
| 41 | | Channel B ON/OFF | 1 bits | 1.001 DPT_ON/OFF |
| 28 | | Status Channel A | 1 bits | 1.001 DPT_ON/OFF |
| 40 | | Status Channel B | 1 bits | 1.001 DPT_ON/OFF |
| 37 | Button | Channel A value (0-255) | 1 byte | 5.010 DPT_Counting pulse |
| 42 | | Channel B value (0-255) | 1 byte | 5.010 DPT_Counting pulse |
| 37 | Button | Channel A value (%) | 1 byte | 5.001 DPT_Percentage (%) |
| 42 | | Channel B value (%) | 1 byte | 5.001 DPT_Percentage (%) |
| 39 | Button | Channel A value (temperature) | 2 byte | 9.001 DPT_Temperature (°C) |
| 43 | | Channel B value (temperature) | 2 byte | 9.001 DPT_Temperature (°C) |
| 39 | Button | Channel A value (brightness) | 2 byte | 9.004 DPT_Lux (Lux) |
| 43 | | Channel B value (brightness) | 2 byte | 9.004 DPT_Lux (Lux) |
| 39 | Button | Channel A value (0-65535) | 2 byte | 7.001 DPT_Pulse |
| 43 | | Channel B value (0-65535) | 2 byte | 7.001 DPT_Pulse |

* Default value

6.13 "Step switch" function¹

Figure 31: "Step switch" function¹

General:

This "Stepping switch" function allows for up to 7 different telegrams to be configured for a function (for example, value 0-255, value %, scene 1-64). Repeatedly pressing the same independent button also calls up the individual steps.

A defined behaviour for button operation (pass through, flow and return, see Fig. 35 and 36) can also be generated for calling up the values.

| Parameters | Description | Value |
|-------------------------------------|--|--|
| Value type stepping switch | In this parameter, the "Stepping switch" function is assigned the corresponding value. | Value (0-255) * Value (%) Scene |
| Performance | This parameter defines the behaviour for the stepping switch when the button is pressed. | Pass through * Flow and return |
| Stepping number ⁴ | This parameter defines the number of steps for the button. | 1 * ... 7 |
| Step x (0-255) ^{1, 4} | This parameter sets the step value that is transmitted to the bus with each key-press. | 0 * ... 255 |
| Step x (0-100 %) ^{2, 4} | This parameter sets the step value that is transmitted to the bus with each key-press. | 0 * ... 100% |
| Step x (scene 1-64) ^{3, 4} | This parameter sets the step value that is transmitted to the bus with each key-press. | 1 * ... 64 |

Table 36: "Step switch" function¹

¹ This parameter is visible when "Value (0-255)" is selected.

² This parameter is visible when "Value (%)" is selected.

³ This parameter is visible when "Scene" is selected.

⁴ The individual steps 1-x are visible and adjustable depending on the amount of steps in the "Stepping number" parameter. There are a maximum of seven steps.

* Default value

"Step switch" communication objects

| No. | Name | Object function | Length | Data type |
|-----|----------|-----------------|--------|----------------------------------|
| 37 | Button x | Value (0-255) | 1 byte | 5.010 DPT_Counting pulse (0-255) |
| 37 | Button x | Value in % | 1 byte | 5.001 DPT_Percentage (0-100 %) |
| 37 | Button x | Scene | 1 byte | 18.001 DPT_Scene control |

| Data point type | Value type | Data point size | Value range limit |
|-----------------|------------------|-----------------|-------------------|
| DPT 5.001 | Percentage value | 1 byte | [0 ... 100%] |
| DPT 5.010 | Integer value | 1 byte | [0 ... 255] |
| DPT 18.001 | Scene | 1 byte | [1 ... 64] |

Table 37: Stepping switch value processing

Example: "pass through" step principle

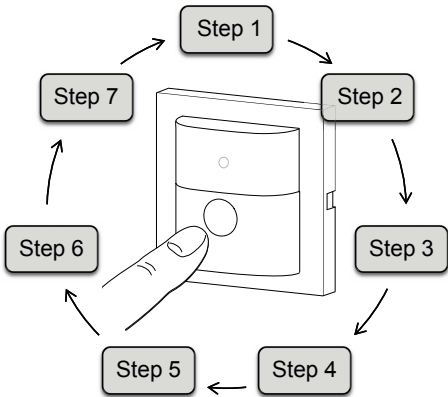


Figure 32: "Pass through" step switch function

Example: "Flow and return" step principle

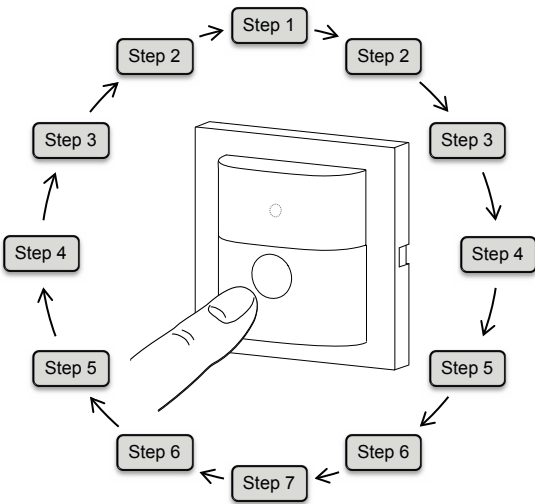


Figure 33: "Flow and return" stepping switch function

6.14 Deactivate automatic

The screenshot shows a web-based configuration interface for a Hager KNX motion detector module. On the left is a sidebar menu with the following items: 'General-presence detection', 'Channel 1', 'Channel 2', 'Surveillance', 'General- push-button', 'Push-button' (selected), 'Internal temperature sensor', 'Luminosity sensor', and 'Information'. Under the 'Push-button' selection, the 'Function' sub-item is highlighted. The main configuration area on the right has a light blue background and contains three settings, each with a label and a dropdown menu: 'Function' is set to 'Automatic control deactivation', 'Function of LED status' is set to 'Always ON', and 'LED colour for ON' is set to 'Green'.

Figure 34: "Automatic control deactivation" parameter

"Automatic control deactivation" communication objects (independent button)

| No. | Name | Object function | Length | Data type |
|-----|--------|---------------------------------------|--------|------------------|
| 28 | Button | Automatic control deactivation status | 1 bits | 1.003 DPT_Enable |
| 33 | Button | Deactivate automatic | 1 bits | 1.003 DPT_Enable |

With this 1-bit communication object, automatic control sequences already running in the actuators can be deactivated.

Example: time-dependent outside lighting ON/OFF



The outside lighting is switched on and off at a certain time every day of the week.

However, on certain occasions (garden parties) the outside lighting should stay on for longer. In such cases, the "Automatic control deactivation" function is used to deactivate/switch off the time-dependent switching on/off of the outside lighting. To do so, a 1-bit command is transmitted to the bus.

7. "Internal temperature sensor" function parameters

The device is directly fitted with a sensor for temperature measurement.

The temperature measured can therefore be transmitted to the bus depending on the parameters shown below (see Bild 35).

-  The measured room air can, for example, be transmitted directly to a KNX room thermostat as a second measuring point (measurement result) and can be used to synchronise the global actual temperature (synchronisation in larger rooms).
-  Room temperature recorded as a measurement result for a building visualisation

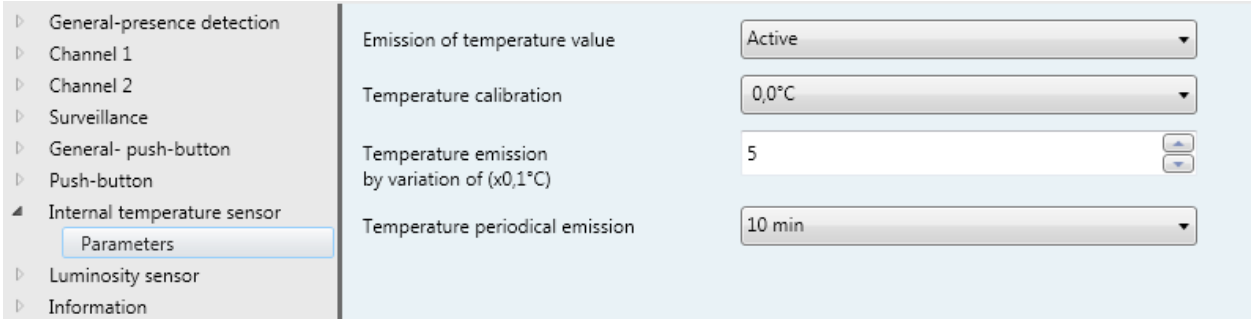


Figure 35: Internal temperature sensor function parameters

| Parameters | Description | Value |
|---|--|--------------------------------------|
| Temperature value transmission | Activation/deactivation of the temperature sensor. | Not active * Active |
| Temperature calibration ¹ | Setting for the difference between the measured temperature on the device and the temperature measured by a reference measuring device. "Calibration of the temperature sensor" | -5°C - 0°C * - 5°C |
| Temperature emission by variation of (x 0.1°C) ¹ | Defines the temperature difference at which a new value is automatically transmitted to the bus. (time-independently). | 0 ... 5 * ... 255 |
| Temperature periodical transmission ¹ | Defines the cycle in which the actual value is compared with the setpoint and should be transmitted to the bus. | Not active 10 s - 10 min * |

Table 38: "Internal temperature sensor" function parameters






¹ These parameters are only visible when the "Temperature transmission" parameter is set to "Active".

"External temperature sensor" communication objects

| No. | Name | Object function | Length | Data type |
|-----|-----------------------------|-----------------------------|--------|----------------------------|
| 47 | Internal temperature sensor | Internal temperature sensor | 2 byte | 9.001 DPT_Temperature (°C) |

* Default value


When selecting the installation site of the device, the following points should be taken into consideration:

-  Temperature sensors should be installed at least 30 cm away from doors and windows and at least 1.5 m above the floor.
-  Integrating the device into multiple combinations should be avoided especially when a flush-mounted dimmer is also installed.
-  The device/sensor should not be installed near to heaters or cooling systems.
-  The temperature sensor must be kept out of direct sunlight.
-  Installing sensors on the inside of external walls may negatively influence the temperature measurement.

The room temperature is only actually controlled using the thermostat.

8. "Brightness sensor" function parameters

The brightness sensor used for controlling the motion detector is also able to transmit the current brightness value to the bus using a corresponding object.

-  Brightness is recorded as a measurement result for a building visualisation

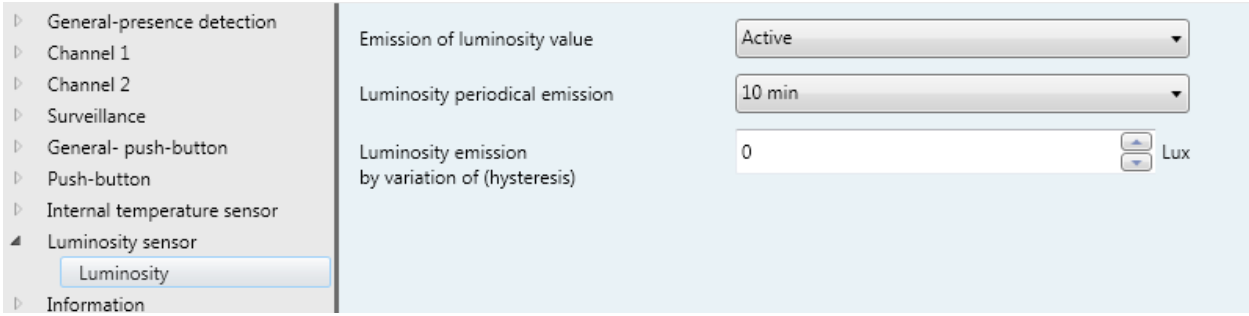


Figure 36: "Brightness sensor" function parameters

| Parameters | Description | Value |
|--|---|--------------------------------------|
| Brightness value transmission | Activate/deactivate brightness sensor | Not active * Active |
| Brightness value transmission, all ¹ | Defines the cycle in which the actual value is to be transmitted to the bus. | Not active 10 s - 10 min * |
| Brightness value transmission on change to (hysteresis) ¹ | Defines the brightness difference at which a new value is automatically transmitted to the bus. (time-independently). | 0 ... 100 Lux |

Table 39: "Internal temperature sensor" function parameters

¹ These parameters are only visible when the "Brightness value transmission" parameter is set to "Active".

"External temperature sensor" communication objects

| No. | Name | Object function | Length | Data type |
|-----|-------------------|-----------------|--------|---------------------|
| 44 | Brightness sensor | Brightness | 2 byte | 9.004 DPT_Lux (Lux) |

* Default value

9. Communication objects

9.1 Presence detection communication objects

| | | | | | | | | | | |
|---|----------------------------|---------------------------------------|--------|---|---|---|---|---|-----------|-----|
| 0 | General-presence detection | Automatic control deactivation | 1 bit | C | R | W | - | - | enable | Low |
| 1 | General-presence detection | Automatic control deactivation status | 1 bit | C | R | - | T | - | enable | Low |
| 2 | General-presence detection | Lock-up | 1 bit | C | R | W | - | - | enable | Low |
| 4 | General-presence detection | Luminosity | 2 Byte | C | R | W | - | - | lux (Lux) | Low |
| 5 | General-presence detection | Surveillance mode ON/OFF | 1 bit | C | R | W | - | - | switch | Low |

Figure 37: Presence detection-General communication objects

| | | | | | | | | | | |
|---|----------------------------|-----------------------------|-------|---|---|---|---|---|--------|-----|
| 6 | General-presence detection | Master | 1 bit | C | R | W | - | - | switch | Low |
| 8 | General-presence detection | Master with luminosity info | 1 bit | C | R | W | - | - | switch | Low |

Figure 38: Master presence detection communication objects

| | | | | | | | | | | |
|---|----------------------------|----------------------------|-------|---|---|---|---|---|--------|-----|
| 7 | General-presence detection | Slave | 1 bit | C | R | - | T | - | switch | Low |
| 9 | General-presence detection | Slave with luminosity info | 1 bit | C | R | - | T | - | switch | Low |

Figure 39: Slave presence detection communication objects

| No. | Name | Object function | Length | Data type | Flags |
|-----------------|----------------------------|---------------------------------------|--------|---------------|---------|
| 0 | General Presence detection | Deactivate automatic | 1 bits | DPT_Enable | C,R,W |
| 1 | General Presence detection | Automatic control deactivation status | 1 bits | DPT_Enable | C, R, T |
| 2 | General Presence detection | Blocking function | 1 bits | DPT_Enable | C,R,W |
| 4 | General Presence detection | Brightness | 2 byte | DPT_Lux (Lux) | C,R,W |
| 5 | General Presence detection | Monitoring mode Switching | 1 bits | DPT_Switching | C, R, T |
| 6 ¹⁾ | General Presence detection | Master | 1 bits | DPT_Switching | C,R,W |
| 7 ²⁾ | General Presence detection | Slave | 1 bits | DPT_Switching | C, R, T |
| 8 ¹⁾ | General Presence detection | Master brightness information | 1 bits | DPT_Switching | C,R,W |
| 9 ²⁾ | General Presence detection | Slave brightness information | 1 bits | DPT_Switching | C, R, T |

These objects are activated if the "Individual device" detector type is selected in the General parameters.

The object (0) switches on the connected load – lighting – when presence is detected.

This object (1) allows the return of the status value for the respective switching command when presence is detected.

The object (21) transmits a 1-bit command to the actuator channel and triggers a switching command when a button is pressed.

The following objects are not visible until the "Master or slave" detector type is selected in the General parameters.

The objects (6,7) and (8,9) are intended for master-slave operation, where the master objects trigger the actual switching operation and the slave objects first forward information to the master in the case of presence detection so that they can then trigger the switching operation via the master.

For further information see „3. General-Presence detection“ auf Seite 13.

1 These objects are not visible until the "Master" variant is selected under "Detector type".

2 These objects are not visible until the "Slave" variant is selected under "Detector type".

9.2 Channel 1/2 communication objects

| | | | | | | | | | | |
|----|--------------------|--------------------------------------|--------|---|---|---|---|---|-----------|-----|
| 11 | Lighting channel 1 | Setpoint selection automatic control | 1 Byte | C | R | - | T | - | HVAC mode | Low |
|----|--------------------|--------------------------------------|--------|---|---|---|---|---|-----------|-----|

Figure 40: Channel 1/2 communication objects

| No. | Name | Object function | Length | Data type | Flags |
|-------|----------------------|--|--------|--------------------|---------|
| 10/14 | Lighting channel 1/2 | Automatic control switching | 1 bits | DPT_Switching | C, R, T |
| | | Timer | 1 bits | DPT_Start/Stop | C, R, T |
| | | Up/down | 1 bits | DPT_Up/Down | C, R, T |
| 11/15 | Lighting channel 1/2 | Value in % | 1byte | DPT_Percentage | C, R, T |
| | | Value (0-255) | 1 byte | DTP_Counting pulse | C, R, T |
| | | Scene | 1byte | DPT_Scenes Control | C, R, T |
| | | Position in % automatic control | 1byte | DPT_Percentage | C, R, T |
| | | Operating mode change-over automatic control | 1byte | DPT_HVAC Mode | C, R, T |
| 12/16 | Lighting channel 1/2 | Slat angle in % automatic control | 1 bits | DPT_Percentage | C, R, T |

These objects are activated when the relevant "Channel 1/2" function is selected in the parameters for channel 1/2. Using the selected function, the objects (10, 11, 12) enable switching of a roller shutter Up/Down, for example. For further information see „4. Parameter channel 1/2“ auf Seite 22.

9.3 Monitoring communication object

| | | | | | | | | | | |
|----|--------------|--------------------------|-------|---|---|---|---|---|---------|-----|
| 18 | Surveillance | ON/OFF automatic control | 1 bit | C | R | - | T | - | switch | Low |
| 21 | Surveillance | Surveillance channel | 1 bit | C | R | - | T | - | boolean | Low |

Figure 41: Monitoring communication object

| No. | Name | Object function | Length | Data type | Flags |
|-----|------------|-----------------------------|--------|---------------|---------|
| 18 | Monitoring | Automatic control switching | 1 bits | DPT_Switching | C, R, T |
| 21 | Monitoring | Monitoring channel | 1 bits | DPT_Boolesch | C, R, T |

This object (18) allows the return of the status value for the respective switching command. The return of the status value is used for switching an actuator channel by two buttons in toggle mode.
The object (21) transmits a 1-bit command to the actuator channel and triggers a switching command when a button is pressed.
For further information see „6.2 „Toggle switch“ function“ auf Seite 36.

9.4 Toggle switch communication object

| | | | | | | | | | | |
|----|-------------|--------------------------|-------|---|---|---|---|---|--------|-----|
| 28 | Push-button | Status indication ON/OFF | 1 bit | C | R | W | - | - | switch | Low |
| 33 | Push-button | ON/OFF | 1 bit | C | R | - | T | - | switch | Low |

Figure 42: Toggle switch communication object

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|--------------------------|--------|---------------|---------|
| 28 | Button | ON/OFF status indication | 1 bits | DPT_Switching | C,R,W |
| 33 | Button | Switching | 1 bits | DPT_Switching | C, R, T |

These objects are activated if the "Toggle switch" function is selected in the parameters for the button.

This object (28) allows the return of the status value for the respective switching command. The return of the status value is used for switching an actuator channel by two buttons in toggle mode.

The object (33) transmits a 1-bit command to the actuator channel and triggers a switching command when a button is pressed.

For further information see „6.2 „Toggle switch“ function“ auf Seite 36.

9.5 ON/OFF communication object

| | | | | | | | | | | |
|----|-------------|--------|-------|---|---|---|---|---|--------|-----|
| 33 | Push-button | ON/OFF | 1 bit | C | R | - | T | - | switch | Low |
|----|-------------|--------|-------|---|---|---|---|---|--------|-----|

Figure 43: ON/OFF communication object

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|-----------------|--------|---------------|---------|
| 33 | Button | Switching | 1 bits | DPT_Switching | C, R, T |

These objects are activated if the "ON/OFF" function is selected in the parameters for the button.

The object (33) transmits a 1-bit command to the actuator channel and triggers a switching command when a button is pressed.

For further information see „6.3 „ON/OFF“ function“ auf Seite 37.

9.6 Dimming communication object

| | | | | | | | | | | |
|----|-------------|--------------------------|--------|---|---|---|---|---|-------------------------|-----|
| 33 | Push-button | ON/OFF | 1 bit | C | R | - | T | - | switch | Low |
| 36 | Push-button | Dimming | 4 bit | C | R | - | T | - | dimming control | Low |
| 37 | Push-button | Brightness value | 1 Byte | C | R | - | T | - | percentage (0..100% Low | |
| 28 | Push-button | Status indication ON/OFF | 1 bit | C | R | W | - | - | switch | Low |
| 33 | Push-button | ON/OFF | 1 bit | C | R | - | T | - | switch | Low |
| 36 | Push-button | Dimming | 4 bit | C | R | - | T | - | dimming control | Low |

Figure 44: Dimming communication objects

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|--------------------------|--------|--------------------------|---------|
| 33 | Button | Switching | 1 bits | DPT_Switching | C, R, T |
| 36 | Button | Dimming | 4 bits | DPT_Dimming_step | C, R, T |
| 28 | Button | ON/OFF status indication | 1 bits | DPT_Switching | C,R,W |
| 33 | Button | Switching | 1 bits | DPT_Switching | C, R, T |
| 36 | Button | Dimming | 4 bits | DPT_Switching | C, R, T |
| 37 | Button | Dimming value | 1 byte | DPT_Percentage (0-100 %) | K,LÜ |

These objects are activated if the "Dimming brighter (on)/darker (off)" function is selected in the parameters for the button.

The object (33) transmits a 1-bit command to the dimmer actuator channel and triggers a switching command, and the object (36) transmits a 4-bit command to the dimmer actuator channel and triggers a dimming command when the button is pressed.

These objects are activated if the "Dimming brighter (to)/darker (to)" function is selected in the parameters for the button.

The object (33) transmits a 1-bit command to the dimmer actuator channel and triggers a switching command, and the object (36) transmits a 4-bit command to the dimmer actuator channel and triggers a dimming command when the button is pressed. This object (28) allows the return of the status value for the respective switching command (e.g. for linking with a status LED).

These objects are activated if the "Dimming – dimming value" function is selected in the parameters for the button.

The objects (37) transmits a 1-byte command to the dimmer actuator channel and switches on the lighting at a fixed percentage value when the button is pressed.

For further information see „6.4 „Dimming“ Function“ auf Seite 38.

9.7 Roller shutter/blind communication object





| | | | | | | | | | | | |
|---|----|-------------|--------------------|--------|---|---|---|---|---|---------------------|-----|
|  | 33 | Push-button | Up/down | 1 bit | C | R | - | T | - | up/down | Low |
|  | 34 | Push-button | Stop (short press) | 1 bit | C | R | - | T | - | trigger | Low |
|  | 37 | Push-button | Position in % | 1 Byte | C | R | - | T | - | percentage (0..100% | Low |
|  | 38 | Push-button | Slat angle in % | 1 Byte | C | R | - | T | - | percentage (0..100% | Low |

Figure 45: Roller shutter/blind communication objects

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|-----------------------|--------|----------------|---------|
| 33 | Button | Up/down | 1 bits | DPT_Up/Down | C, R, T |
| 34 | Button | Slat Step/Stop (step) | 1 bits | DPT_Step | C, R, T |
| 37 | Button | Position in % | 1 byte | DPT_Percentage | C, R, T |
| 38 | Button | Slat angle in % | 1 byte | DPT_Percentage | C, R, T |

These objects are activated when the "Shutter/blind" function is selected in the parameters for each independent push-button/rocker.

The object (33) transmits a 1-bit command to the roller shutter/blind actuator channel and moves the hanging up/down when the button is pressed.

The object (34) transmits a 1-bit command to the roller shutter/blind actuator channel and stops the roller shutter/blind motion or gradually changes the position of the hanging.

The object (37) transmits a 1-byte command to the roller shutter/blind actuator channel and changes the position of the hanging.

The object (38) transmits a 1-byte command to the roller shutter/blind actuator channel and changes the position of the slat step by step.

For further information see „6.5 „Shutter/blind“ function“ auf Seite 39.

9.8 Timer communication object

| | | | | | | | | | | |
|----|-------------|-------|-------|---|---|---|---|---|------------|-----|
| 33 | Push-button | Timer | 1 bit | C | R | - | T | - | start/stop | Low |
|----|-------------|-------|-------|---|---|---|---|---|------------|-----|

Figure 46: Timer communication object

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|-----------------|--------|----------------|---------|
| 33 | Button | Timer | 1 bits | DPT_Start/Stop | C, R, T |

These objects are activated when the "Timer" function is selected in the parameters for each independent push-button/rocker.

The object (33) transmits a 1-bit command to the actuator channel and starts (1-command) or stops (0-command) the time set in the actuator channel when the button is pressed. This can be used, for example, to switch on the lighting in a staircase for a certain amount of time

For further information see „6.6 „Timer“ function“ auf Seite 47.

9.9 Value 1 bytes communication object

| | | | | | | | | | | |
|----|-------------|---------------|--------|---|---|---|---|---|-----------------------|-----|
| 37 | Push-button | Value in % | 1 Byte | C | R | - | T | - | percentage (0..100% | Low |
| 37 | Push-button | Value (0-255) | 1 Byte | C | R | - | T | - | counter pulses (0..25 | Low |

Figure 47: Value 1 byte communication object

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|-----------------------------|--------|--|---------|
| 37 | Button | Value in % Value (0-255) | 1 byte | DPT_Percentage (0-100 %) DPT_Counting pulse (0-255) | C, R, T |

These objects are activated if the "Value 1 byte" function is selected in the parameters for the button.

The object (37) transmits a 1-byte command to a switching actuator channel and switches the lighting on at a defined % value or (0-255) value when the button is pressed.

For further information see „6.7 „Value 1 byte“ function“ auf Seite 48.

9.10 Value 2 bytes communication object

| | | | | | | | | | | |
|----|-------------|-----------------|--------|---|---|---|---|---|------------------|-----|
| 39 | Push-button | Luminosity | 2 Byte | C | R | - | T | - | lux (Lux) | Low |
| 39 | Push-button | Temperature | 2 Byte | C | R | - | T | - | temperature (°C) | Low |
| 39 | Push-button | Value (0-65535) | 2 Byte | C | R | - | T | - | pulses | Low |

Figure 48: Value 2 bytes communication objects

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|-----------------|--------|----------------------|---------|
| 39 | Button | Value (0-65535) | 2 byte | DPT_Pulse | C, R, T |
| 39 | Button | Temperature | 2 byte | DPT_Temperature (°C) | C, R, T |
| 39 | Button | Brightness | 2 byte | DPT_Lux (Lux) | C, R, T |

These objects are activated if the "Value 2 bytes" function is selected in the parameters for the button.

The object (39 - value) transmits a 2-byte command to a switching actuator channel and switches the lighting on at a defined value when the button is pressed.

The object (39 - temperature) transmits a 2-byte command to a room thermostat and changes the set temperature, for example, when the button is pressed.

The object (39 - brightness) transmits a 2-byte command to a dimming actuator channel and switches the lighting on at a defined brightness value when the button is pressed.

For further information see „6.8 „Value 2 bytes“ function“ auf Seite 49

9.11 Room thermostat extension unit communication object

| | | | | | | | | | | |
|----|-------------|--------------------|--------|---|---|---|---|---|-----------|-----|
| 37 | Push-button | Setpoint selection | 1 Byte | C | R | - | T | - | HVAC mode | Low |
|----|-------------|--------------------|--------|---|---|---|---|---|-----------|-----|

Figure 49: Room thermostat extension unit communication object "operating mode change-over"

| | | | | | | | | | | |
|----|-------------|--------------------------|--------|---|---|---|---|---|----------------------|-----|
| 39 | Push-button | Override setpoint | 2 Byte | C | R | - | T | - | temperature differer | Low |
| 44 | Push-button | Override setpoint status | 1 Byte | C | R | W | - | - | HVAC mode | Low |

Figure 50: Room thermostat extension unit communication object "setpoint change"

| | | | | | | | | | | |
|----|-------------|-------------------------------------|-------|---|---|---|---|---|-----------------|-----|
| 28 | Push-button | Heating/Cooling - status indication | 1 bit | C | R | W | - | - | heating/cooling | Low |
| 33 | Push-button | Heating/Cooling - changeover | 1 bit | C | R | - | T | - | heating/cooling | Low |

Figure 51: Room thermostat extension unit communication object "heating/cooling - change-over"

| | | | | | | | | | | |
|----|-------------|----------|-------|---|---|---|---|---|--------|-----|
| 33 | Push-button | Presence | 1 bit | C | R | - | T | - | switch | Low |
|----|-------------|----------|-------|---|---|---|---|---|--------|-----|

Figure 52: Room thermostat extension unit communication object "presence"

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|-------------------------------------|--------|--------------------------------|---------|
| 37 | Button | Override setpoint | 1 byte | DPT_HVAC Mode | C, R, T |
| 28 | Button | Heating/cooling - status indication | 1 bits | DPT_heating/cooling | C,R,W |
| 33 | Button | Heating/cooling-changeover | 1 bits | DPT_heating/cooling | C, R, T |
| 39 | Button | Setpoint selection | 2 byte | DPT_Temperature difference (K) | C, R, T |
| 44 | Button | Setpoint selection status | 2 byte | DPT_Temperature difference (K) | C,R,W |
| 33 | Button | Presence | 1 bits | DPT_Switching | C, R, T |

These objects are activated when the "Room thermostat extension unit" function is selected in the parameters for the button.

The object (37) transmits a 1-byte command to a room thermostat and changes the operating mode there (comfort, standby, etc.) when the button is pressed.

The object (28) transmits a 1-bit command to the bus and shows the "Heating or cooling switched on" status, for example, on a display when the button is pressed.

The object (33) transmits a 1-bit command to a heating actuator when the button is pressed and can therefore switch back and forth between heating and cooling mode.

The object (39) transmits a 2-byte command to the bus and causes the temperature setpoint in a room thermostat to change when the button is pressed.

The object (44) transmits a 2-byte command to the bus and specifies the status of the setpoint change when the button is pressed.

The object (33) transmits a 1-bit command to a heating actuator when the button is pressed and can therefore extend "presence" mode.

 The heating system must be equipped for heating and cooling operation.

For further information see „6.9 Function „Room thermostat extension unit“ auf Seite 50.

9.12 Priority communication object

| | | | | | | | | | | |
|----|-------------|----------------------------|-------|---|---|---|---|---|-----------------|-----|
| 28 | Push-button | Status indication priority | 1 bit | C | R | W | - | - | state | Low |
| 35 | Push-button | Priority | 2 bit | C | R | - | T | - | boolean control | Low |

Figure 53: Priority communication object

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|-------------------------|--------|---------------------|---------|
| 28 | Button | Priority status display | 1 bits | DPT_Status | C,R,W |
| 35 | Button | Mandatory control | 2 bits | DPT_Boolean control | C, R, T |

These objects are activated if the "Priority" function is selected in the parameters for the button.

The object (28) transmits a 1-bit command to the bus and shows the "Priority" status, for example, on a display when the button is pressed.

The object (35) transmits a 2-bit command and switches an actuator channel (roller shutter/blind) into forced mode (motion operation of a roller shutter is blocked) when the button is pressed.

For further information see „6.10 „Priority“ function“ auf Seite 52.

9.13 Scene communication object

| | | | | | | | | | | |
|----|-------------|-------|--------|---|---|---|---|---|---------------|-----|
| 37 | Push-button | Scene | 1 Byte | C | R | - | T | - | scene control | Low |
|----|-------------|-------|--------|---|---|---|---|---|---------------|-----|

Figure 54: Scene communication object

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|-----------------|--------|--------------------|---------|
| 37 | Button | Scene | 1 byte | DPT_Scenes Control | C, R, T |

These objects are activated if the "Scene" function is selected in the parameters for the button.

The object (37) transmits a 1-byte command to the bus and switches on the respectively stored scene in the actuator channels (light TV 50 %, shutters closed to 75 %) when the button is pressed.

For further information see „6.11 „Scene“ function“ auf Seite 53

9.14 2-channel mode communication object

| | | | | | | | | | | |
|----|-------------|---------------------------|--------|---|---|---|---|---|-------------------------|-----|
| 39 | Push-button | Channel A value (0-65535) | 2 Byte | C | R | - | T | - | pulses | Low |
| 42 | Push-button | Channel B value (0-255) | 1 Byte | C | R | - | T | - | counter pulses (0..255) | Low |

Figure 55: 2-channel mode communication object

| No. | Name | Object function | Length | Data type | Flags |
|-----|------------------|--|--------|----------------------------|---------|
| 33 | Button channel A | Channel A ON/OFF | 1 bits | DPT_Switching | C, R, T |
| 40 | Button channel B | Channel B ON/OFF | | | |
| 37 | Button channel A | Channel A value (0-255) | 1 byte | DPT_Counting pulse (0-255) | C, R, T |
| 42 | Button channel B | Channel B value (0-255) | | | |
| 37 | Button channel A | Channel A value (%) | 1 byte | DPT_Percentage | C, R, T |
| 42 | Button channel B | Channel B value (%) | | | |
| 39 | Button channel A | Channel A value (temperature) | 2 byte | DPT_Temperature (°C) | C, R, T |
| 43 | Button channel B | Channel B value (temperature) | | | |
| 39 | Button channel A | Channel A value (brightness) | 2 byte | DPT_Lux (Lux) | C, R, T |
| 43 | Button channel B | Channel B value (brightness) | | | |
| 39 | Button channel A | Channel A value (0-65535) Channel B value (0-65535) | 2 byte | DPT_Pulse | C, R, T |
| 43 | Button channel B | | | | |
| 39 | Button channel A | | | | |
| 43 | Button channel B | | | | |

These objects are activated when the function "2-channel mode" is selected for the button/rocker.

The objects (33 and 40) transmit a 1-bit command to the bus and switch on the lighting, for example, via channel A and/or channel B when the button is pressed.

The objects (37 and 42) transmit a 1-byte command to the bus when the button is pressed.

The objects (39 and 43) transmit a 2-byte command to the bus when the button is pressed.

For further information see „6.12 „2-channel mode“ function“ auf Seite 55

9.15 Step switch communication object

37 Push-button Stepping switch (Scene) 1 Byte C R - T - scene control Low

Figure 56: Step switch communication object

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|--------------------------------------|--------|--|---------|
| 37 | Button | Value (0-255) Value in % Scene | 1 byte | DPT_Couting pulse (0-255) DPT_Percentage (0-100 %) DPT_Scene control | C, R, T |

These objects are activated if the "Step switch" function is selected in the parameters for the button.
The object (37) transmits a 1-byte command to the bus when the button is pressed and increases/decreases the dimming of the lighting by one step with each button press.
For further information see „6.13 „Step switch“ function“ auf Seite 57

9.16 Automatic control deactivation communication object

28 Push-button Automatic control deactivation status 1 bit C R W - - enable Low
33 Push-button Automatic control deactivation 1 bit C R - T - enable Low

Figure 57: Automatic control deactivation communication object

| No. | Name | Object function | Length | Data type | Flags |
|-----|--------|---------------------------------------|--------|------------|---------|
| 28 | Button | Automatic control deactivation status | 1 bits | DPT_Enable | C,R,W |
| 33 | Button | Deactivate automatic | 1 bits | DPT_Enable | C, R, T |

These objects are activated when the "Automatic mode deactivation" function is selected in the parameters for the button.
The object (33) transmits a 1-bit command to the bus and shows the "Automatic mode" status, for example, on a display when the button is pressed.
The object (28) transmits a 1-bit status command when the button is pressed and is able to show the current status on a display, for example.
For further information see „6.14 Deactivate automatic“ auf Seite 59

9.17 Internal temperature sensor communication object


| | | | | | | | | | | |
|--|-----------------------------|-----------------------------|--------|---|---|---|---|---|------------------|-----|
|  47 | Internal temperature sensor | Internal temperature sensor | 2 Byte | C | R | - | T | - | temperature (°C) | Low |
|--|-----------------------------|-----------------------------|--------|---|---|---|---|---|------------------|-----|

Figure 58: "Internal temperature sensor" communication object

| No. | Name | Object function | Length | Data type | Flags |
|---|-----------------------------|-----------------------------|--------|----------------------|---------|
| 47 | Internal temperature sensor | Internal temperature sensor | 2 byte | DPT_Temperature (°C) | C, R, T |
| <p>This object is activated when the "Temperature transmission" parameter is activated.</p> <p>The object (47) makes it possible to forward the internally measured temperature value to a room thermostat, for example.</p> <p>For further information see „7. „Internal temperature sensor“ function parameters“ auf Seite 60</p> | | | | | |

9.18 Internal brightness sensor communication objects


| | | | | | | | | | | |
|--|-------------------|------------|--------|---|---|---|---|---|-----------|-----|
|  48 | Luminosity sensor | Luminosity | 2 Byte | C | R | - | T | - | lux (Lux) | Low |
|--|-------------------|------------|--------|---|---|---|---|---|-----------|-----|

Figure 59: Communication object „external brightness sensor“

| No. | Name | Object function | Length | Data type | Flags |
|--|-------------------|-----------------|--------|---------------|---------|
| 48 | Brightness sensor | Brightness | 2 byte | DPT_Lux (Lux) | C, R, T |
| <p>This object is activated when the "Brightness value transmission" parameter is activated.</p> <p>The object (48) makes it possible to forward the measured brightness value to a visualisation, for example.</p> <p>For further information see „8. „Brightness sensor“ function parameters“ auf Seite 61</p> | | | | | |

10. Appendix

10.1 ETS software characteristics

| | |
|--------------------------------|-----|
| Max. number of group addresses | 254 |
| Max. number of assignments | 255 |
| Objects | 49 |

Table 40: ETS software characteristics

10.2 Technical data

| | |
|--|--------------------------------------|
| KNX medium | TP 1 |
| Configuration mode | system link |
| Rated voltage KNX | 21 ... 32 V _{SELV} |
| Current consumption KNX | max. 10 mA |
| Connection mode KNX | bus connection terminal |
| Response brightness | approx. 5 ... 1000 lux (∞) |
| Delay time | approx. 10 s ... 30 min |
| Detection angle | approx. 90 ... 180° |
| Detection area with installation height 1.1 m | approx. 12 x 16 m |
| Installation height 2,2 m | approx. 8 x 12 m |
| Degree of protection | IP 20 |
| Protection class | III |
| Operating temperature | -5 ... +45 °C |
| Storage/transport temperature | -20 ... +70 °C |
| Standards | EN 60669-2-1; EN 60669-1 EN 50428 |

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