








- ▲  Manufacturer
- ▲  Hager Elektro
- ▲  Systo
 - ▲  Multifunctional push-button
 -  **Push-button**
 -  **Push-button with status LED**
 -  **Push-button with status LED + IR interface**

Application description

Systo push-button 2gang
 Systo push-button 4gang
 Systo push-button 6gang
 Systo push-button 2gang with status LED
 Systo push-button 4gang with status LED
 Systo push-button 6gang with status LED
 Systo Push-button 2gang with status LED + IR interface
 Systo Push-button 4gang with status LED + IR interface































	Order number	Product designation	Application programmeme	TP product  Radio product 
	WHT402	Push-button 2gang	SWHT4xx V1.1.9 	
	WHT404	Push-button 4gang	SWHT4xx V1.1.9 	
	WHT406	Push-button 6gang	SWHT4xx V1.1.9 	
	WHT412	Push-button 2gang with status LED	SWHT4xx V1.1.9 	
	WHT414	Push-button 4gang with status LED	SWHT4xx V1.1.9 	
	WHT416	Push-button 6gang with status LED	SWHT4xx V1.1.9 	
	WHT422	Push-button 2gang with status LED + IR interface	SWHT42x V1.1.9 	 
	WHT424	Push-button 4gang with status LED + IR interface	SWHT42x V1.1.9 	 

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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.

1.2 General information about the programming software

1.2.1 ETS compatibility

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 4.18 or higher)	*.knxprod or *.vd5	*.knxproj
ETS 5 (v 5.04 or higher)	*.knxprod	*.knxproj

Table 1: ETS software version

1.2.2 Application designation

Application	Article order number
SWHT4xx V1.1.9	Push-button 2gang
SWHT4xx V1.1.9	Push-button 4gang
SWHT4xx V1.1.9	Push-button 6gang
SWHT4xx V1.1.9	Push-button 2gang with status LED
SWHT4xx V1.1.9	Push-button 4gang with status LED
SWHT4xx V1.1.9	Push-button 6gang with status LED
SWHT42x V1.1.9	Push-button 2gang with status LED + IR interface
SWHT42x V1.1.9	Push-button 4gang with status LED + IR interface

Table 2: Application designations

2 Functional and device description

2.1 Device overview

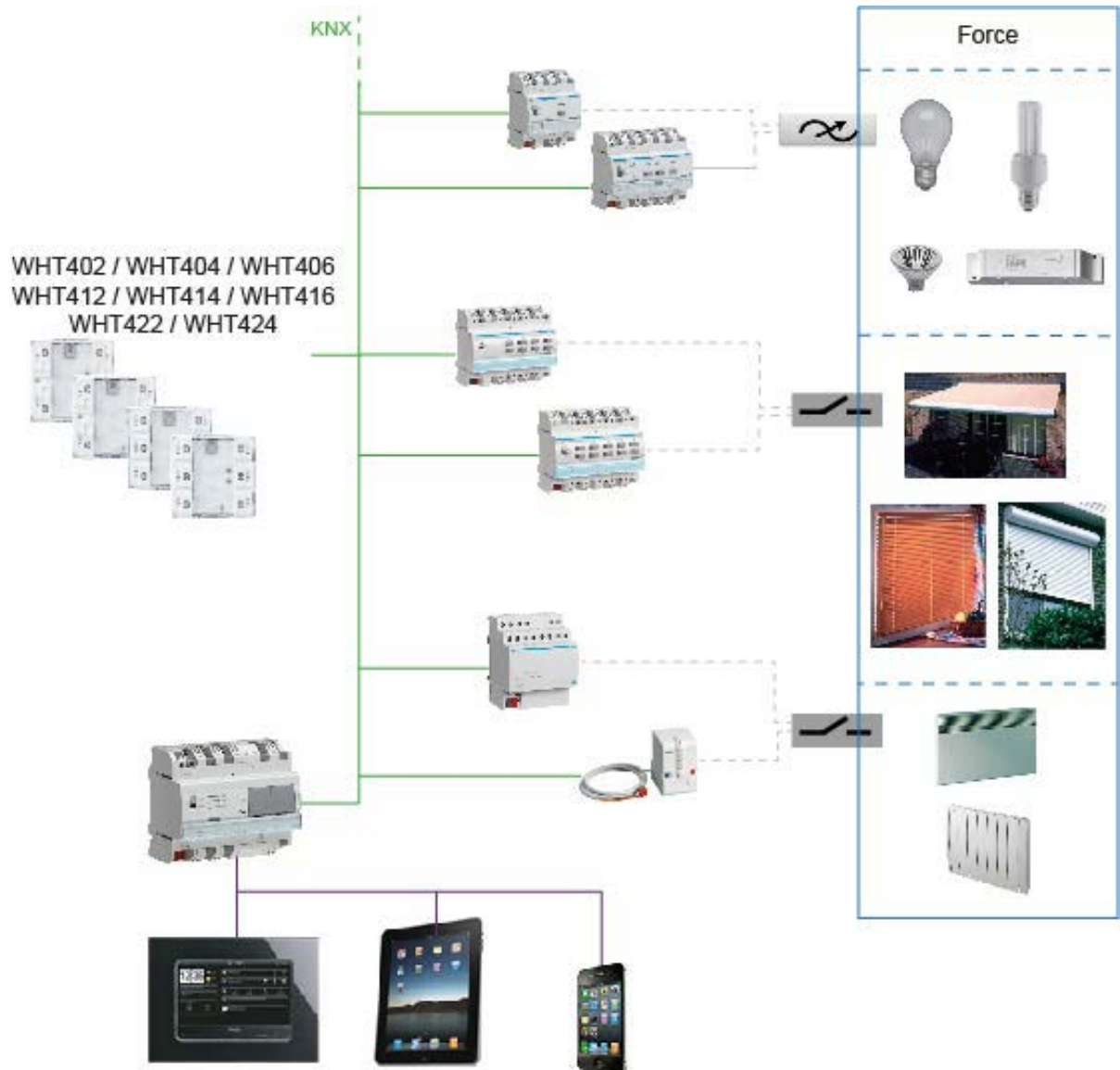


Figure 1: Device overview

2.2 Functional description

The devices are monoblock modules with an integrated bus coupling unit. The push-buttons can be assigned the following respective functions: switching, dimming, timer, roller shutter/blind, value transmitter 1-byte/2-byte, setpoint Setpoint selection for RTR, forced control, scene extension unit, 2-channel mode, step switch and automatic function.

The assignment of the individual functions is freely selectable for each button and defined by the setting in the ETS. Depending on the setting functions, telegrams that trigger the corresponding switching, dimming, blind/roller shutter functions, open or save light scenes and set dimming, brightness or temperature values are transmitted to the KNX system bus by a touch operation.

2.2.1 Operating concept

The function of the individual buttons is dependent upon the programming of the device. Depending on settings, the individual buttons switch the appropriate settings consumers in their own separate function or switch together in the function as a button pair, upper and lower button. The difference between a button pair and button is presented and described below.

Button pair (rocker)

The opposite buttons, in which both button pair sides, lower button (1/3/5) and upper button (2/4/6) work together in one function (e.g. roller shutter function: lower button UP, upper button DOWN) are depicted as a button pair.

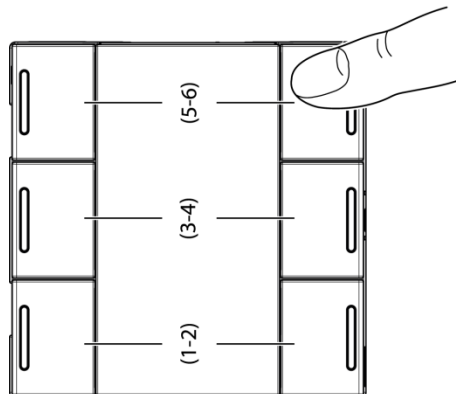


Figure 2 : Operation as button pair

Button

The respective button (1/3/5)/(2/4/6) is depicted as a button. The respective buttons either work independently (e.g. lower button → Roller roller shutter No.1 UP/DOWN and upper button → Light ON/OFF) or can also work together in a common function as described under button pair.

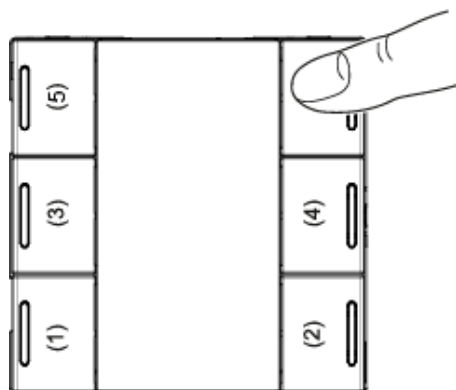


Figure 3: Operation as button

Each button has a status LED (without status LED – WHT302, WHT304, WHT306) that can be connected internally to the operating function depending on the function of the button pair or button. Each status LED can also indicate full independent display information, operating states of room thermostats or the results of logical value comparison operations, flash or be switched on or off permanently.

The illuminated labelling field can serve optionally as an orientation light or can be controlled by a separate communication object. If the devices are in programming mode, the LED of the labelling field flashes at a frequency of approx. 8 Hz. If no application is loaded, the labelling

field LED flashes as an error display at a frequency of approx. 0.75 Hz. If an application was loaded incorrectly, the status LEDs flash in red. The devices are then functionless.

Operating guide

The device differentiates between short and long touch operations.

- Short press operation
 - Switch lighting
 - Step operation (step) roller shutter/blind
 - Setpoint selection, etc.
 - Operating channel A under 2-channel mode
 - Long press operation
 - Dimming the lighting
 - Move command (move) roller shutter/blind
 - Saving of a scene
 - Operating channel B under 2-channel mode
- i** The selected time for which a long touch of a button is detected should be twice as long as the time for a short touch of a button.

2.2.2 Physical addressing

The physical address, group address and setting of the parameters is assigned by the ETS.

The device is fitted with an integrated bus application unit and has a programming button for assigning the physical address and a red programming LED for display. The application software can be loaded directly into the bus application unit with the assignment of the physical address. If this has not taken place, it is also possible to programme later.

The red programming LED lights up by pressing the programming button. After the assignment of the physical address by the ETS, the programming LED goes out.

To check whether the bus voltage is present, press the programming button briefly, the red LED lights up. Press the button once again to exit the programming mode.

- i** If a device in an existing system is to be programmed, only one device can be in programming mode.

2.2.3 Range of functions

- The operating concept of the push buttons can optionally be configured as a button pair or single button.
- Each button pair or single button can be used for the functions switching, dimming, roller shutter/blind control, value transmitter 1-byte, value transmitter 2-byte, scene extension unit, 2-channel operation, room temperature control and room thermostat extension unit.
- 2-channel operation: The operation can be set for each button by two independent channels. Thus, a maximum of one to two 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).
- Buzzer settings: The buzzer in the device can be used for different signalization, for example: physical localisation when the programming mode is getting activated through ETS (for the local physical addressing button no buzzer feedback); acknowledgement for short and/or long key-press and alarm. Furthermore it is possible to change the melody for the buzzer feedbacks.
- Monitoring function: periodical emission of a 1-bit telegram on the bus. The telegram could be send either with the value of "0"(OFF) or "1"(ON). The periodical emission could be set up with the following time-values: 10min, 30min, 1h; 3h; 6h; 12h; 24h.
- Switching function: The following settings are possible for each button: Reaction when pressing and / or releasing the button pair, switching on, switching off, changing over.
- The following adjustments are possible when dimming: Reaction for short and long touch operation, dimming value.
- The following adjustments are possible for the blind control: five different operating concepts with times for short and long touch operations and slat adjustment.
- The following settings are possible for 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 on pressing, value adjustment after long press of button with different increments, times for optional overflow after reaching the end of the value range.
- The following settings are possible for the scene extension unit: internal storage of eight scenes with eight output channels, opening of internal scenes by means of an adjustable scene number, selection of object types of the output channels, the storage of the individual output values and transmission of the output values can be enabled or disabled, the individual output channels can be delayed when opening the scene, 64 scenes can be opened and saved as scene extension units.
- When using the room temperature measurement function, the device can measure, process and transmit the room temperature to the bus by means of an external temperature sensor.
- When used as a control extension unit, the following adjustments are possible: Operating mode change-over with normal and higher priority, defined selection of an operating mode, switching between different operating modes, changing over the presence state, setpoint adjustment.
- A status LED is available for each push button.
- If a status LED is connected internally with the button, it can display an operation or the current state of a communication object. The status can also be displayed inverted.
- When a status LED is used independently of the button, it can be switched on or off permanently, display the status of a separate communication object, the operating state of a room thermostat or the result of a comparison of 1-byte values with and without a sign.
- The labelling field illumination can be switched on or off permanently or it can be controlled by a communication object.
- The blocking function must be carried out in the general parameter settings at the start. Afterwards, the blocking function must be activated for each button in the operating concept as a single button or as a button pair.

- Code lock function can be activated for the 6gang push-buttons. Detailed explanation for the detailed chapter: Use case: This feature can be activated to limit the access of a programmed function to persons which know the configured code. By entering a code sequence (successive press on button(s)), as defined in the ETS, a person who knows this code shall enter it on the product in order to allow the function, configured in ETS. A more detailed description can be found in the extra chapter.
If a timeout is defined by a setting in ETS, this code remains active, allowing the user to process eventual actions by pressing any user button (which retriggers this timeout), depending on the configured lock function.
If not, none additional action can be done. Code feedback (for sequence and timeout) by buzzer is selectable (or not).
Code feedback (for sequence and timeout) on status leds is fixed (if product has status leds).

2.3 Functional overview

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

- ❗ The function is only described generally in this section. You can find a detailed description of these individual functions starting in chapter 3 Parameter setting.

Status indication/LED indication

- ❗ The configuration of the status LEDs and illuminated labelling field is only possible in the variant push-button xgang with status LED and push-button xgang with status LED + IR interface.

Each button has an LED for status and actuation display. The display type such as brightness or flashing, and the display functions, always on, always off, state, can be parameterised for LEDs the same or individually. The colour of the status LED can be set for each LED individually.

The devices have an illuminated labelling field in white. The LED can be configured independent of the status LEDs.

Switching/Toggling

The **switching/toggling** function allows the device to control e.g. lighting circuits (e.g. ON, OFF, TOGGLE).

Dimming

The **dimming** function allows the device to dim or switch lighting circuits brighter (ON) darker (OFF) or brighter/darker (TOGGLE).

Blind/roller shutter

The **blind/roller shutter** function allows blinds, roller shutters, awnings or similar hangings to be opened and closed. In addition, the slat alignment in % and the position of the roller shutter/blind can be configured. A total of five operating concepts are available for this purpose.

Value transmitter 1-byte / 2-byte

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

The **value transmitter (2-byte)** function allows values from 0 ... 65535, brightness values from 0 ... 1000 Lux or temperature values from 0 ... 40°C to be configured.

Setpoint selection for thermostat (RTR)

The **Setpoint selection for room thermostat (RTR)** function allows automatic changeover between the heating operating modes Comfort, Standby, Night selection, Frost/heat protection. The following operating modes must first be created and configured in a room thermostat.

- Comfort
 - The **Comfort** operating mode sets the room temperature to a temperature value predefined in the thermostat e.g. comfort temperature 21°C for comfort (presence).
- Frost/heat protection
 - The **Frost/heat protection** operating mode, depending on the circumstances, reduces the heat supply or activation of cooling appliances in automatic mode in order to protect the building from heating or cooling damage.
- Economy
 - The **Economy** operating mode turns down the room temperature during long absence (e. g. holiday) to a value of 17°C defined in the thermostat.
- Auto
 - The **Auto** operating mode resets the operating mode automatically to the current operating mode (e. g. after forced position).

- i** With underfloor heating the changeover from comfort to standby first becomes noticeable after a certain length of time due to the sluggishness of the underfloor heating system.

Mandatory control

The **Mandatory control** function makes it possible to specify a defined state for forcing a defined state of the function.

Scene extension unit

The **Scene extension unit** function allows a maximum of up to 64 scenes to be selected, switched and saved.

2-channel mode

The **2-channel mode** function allows different functions to be executed with one and the same button (channel A, channel B) as in "Normal mode".

Step switch

The **Step switch** function allows UP/DOWN commands, the number of steps 1...7, step values 0...100% / 0...255 or scenes 1...64 to be selected.

Theft / dismantling protection

The **Theft / dismantling protection** function allows the removal of the push-button unit to be indicated by a predefined alarm message.

IR interface

The IR interface allows functions to be transmitted to the bus and executed by means of a remote control. The same functions can be switched with the remote control as well as manually on the device itself.

- i** The IR interface is only available with status LED + IR interface in the devices of the button xgang.

3 Parameter setting

3.1 Note on Software

3.1.1 Function switching

- The objects of the associated buttons must be occupied with the same group address for double push button operation (2-channel mode).
- If the status LED is not parameterised to "Always ON" or "Always OFF", the cyclical transmission is indicated by flashing of the status LED 4 times within an interval of approx. 10s.

3.1.2 Function dimming

- The connected dim actuator must return its status to the switching object (set T flag) to ensure the correct function of the status LED on the status display.
- The connected dim actuator must also return its status to the switching object to ensure the correct function of the single push button operation (brighter/darker(TOGGLE)).
- During single button operation, only the switching object internal and external is tracked. The dimming object (dimming direction) is only tracked internally so that the dimming direction, when using extension units (2 or more push-button sensors dimming a lamp), is not always toggled when the button is pressed again.
- The objects of the associated buttons must be occupied with the same group address for the double button operation.

3.1.3 Function blind

- The short-time objects (step) and long-time objects (move) of the associated buttons must each be occupied with the same group addresses for the double button operation.

3.1.4 Bus voltage failure

- An active blocking function is preserved in the event of bus voltage failure and return.
- Value transmitter function: During value adjustment by a long press of the button, the new values set are only stored in RAM, i.e. these values are replaced again by the preset values that were parameterised in the ETS after a power failure or bus-reset.

3.2 General

The configuration of the general parameters for the devices is described in the following sections. The function of the different devices only differs in the number of channels/buttons. For this reason, only the first channel or first button/button pair will be described.

In the following parameter windows, the parameters for the entire device, i.e. for all channels/buttons, are set.

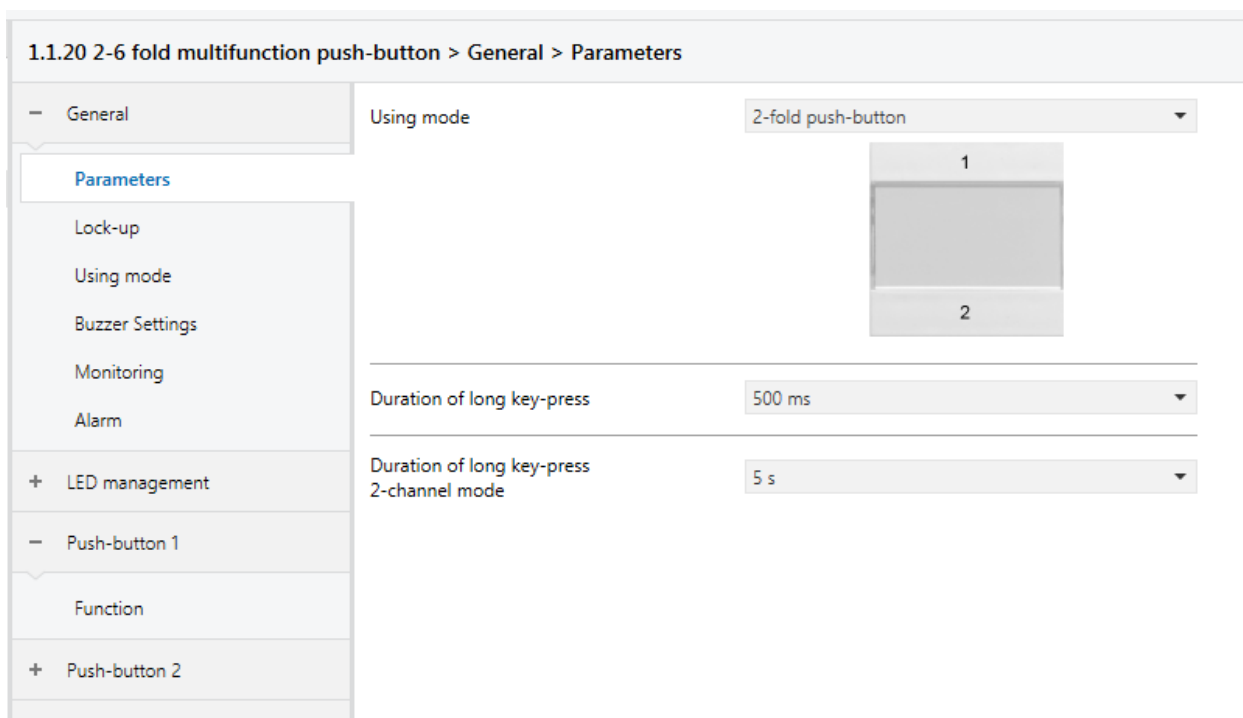


Figure 4: General "Parameter"

i The device used and choice of function type must match, i.e. if the selected function type is incorrect, the application software cannot be uploaded to the device.

Parameters	Description	Value
Using mode	The function type of the device is defined with this parameter.	2gang push-button * 4gang push-button 6gang push-button
Duration of long key-press	This parameter defines the moment from when a long push-button action is detected.	400 ms ... 500 ms *... 1s;
Duration of long key-press 2-channel mode	This parameter defines the moment from when a long push-button action for activating the 2-channel mode is detected.	500 ms ... 5 s* ... 10 s;

Table 3: General "Parameter"

3.2.1 CodeLock Activation

ⓘ This functionality is only used with the 6gang push button with/without status LED.

The goal is to limit the use of a product to the person(s) which know(s) its code. If wanted, it is possible to configure **only a 6PBs device** as a code lock device, instead of the “classical” 6 PBs use.

By a code sequence (successive press on button(s)) defined in ETS (figure 5), a person who knows this code shall enter it on the product in order to allow the function, configured in ETS.

If a timeout is defined by a setting in ETS, this code remains active, allowing the user to process eventual actions by pressing any user button (which retriggers this timeout), depending on the configured lock function.

If not, none additional action can be done. Code feedback (for sequence and timeout) by buzzer is selectable (or not). Code feedback (for sequence and timeout) on status LEDs is fixed (if product has status LEDs).

Parameters	Description	Value
CodeLock Timeout Validity	This parameter defines how long the time is to enter the code. Once this time has elapsed the device is locked and can be unlocked by entering the code again.	0 ... 10 s * ... 5 min
CodeLock Number of digits	This parameter defines how many keys will be used to enter the code (a maximum of 6 keys can be selected).	0 ... 6*
CodeLock Value 1 ... 6	This parameter defines which key is assigned to which code value.	Push-button 1* ... 6

Table 4: General "Parameter - CodeLock"

Example CodeLock:

Parameters	Value
CodeLock Value 1	Push-button 2
CodeLock Value 2	Push-button 4
CodeLock Value 3	Push-button 6
CodeLock Value 4	Push-button 1
CodeLock Value 5	Push-button 3
CodeLock Value 6	Push-button 5

Table 5: CodeLock values

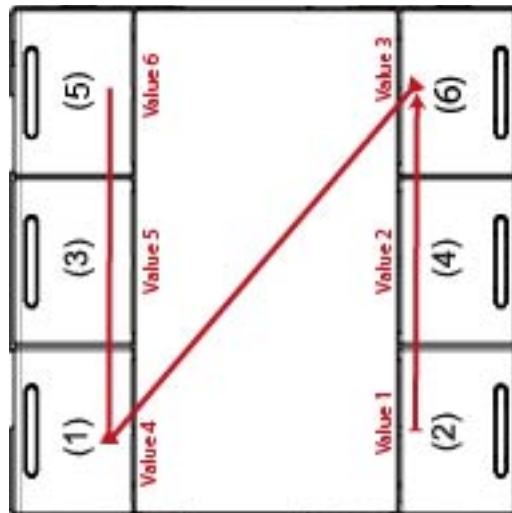


Figure 5: CodeLock values push button

If the function „CodeLock“ is selected the function selection for the 6 buttons is hidden. Figure x shows the settings of the parameters for the CodeLock function.

+ General	Function	ON/OFF
+ LED management	ON/OFF	<input checked="" type="radio"/> ON <input type="radio"/> OFF
- Codelock	Lock-up	<input type="checkbox"/>
Code Lock	Function of LED status	Always OFF
+ Internal temperature sensor	Buzzer Feedback By Digit Dialing	<input type="radio"/> Not active <input checked="" type="radio"/> Active
+ Information	Buzzer Feedback By Right Code	<input type="radio"/> Not active <input checked="" type="radio"/> Active
	Buzzer Feedback By Wrong Code	<input type="radio"/> Not active <input checked="" type="radio"/> Active
	Buzzer Feedback By Timeout Validity	<input type="radio"/> Not active <input checked="" type="radio"/> Active

Figure 6: CodeLock function

Parameters	Description	Value
Function	This parameter defines the function that will be executed when the access code is entered correctly.	Not active * Toggle switch Dimming Shutter/Blind Timer Value 1 byte Value 2 bytes Thermostat extension Priority Scene 2-channel mode Stepping switch Automatic control desactivation

ON/OFF	When selecting the corresponding function, the values must be selected opposite.	ON OFF
Dimming		Value 0...100%
Shutter		Up – Down – Up/down/stopp
Value 1 byte		Value (0...255) – Percent (0..100%)
Value 2 byte		0-65535 – Temperature – Luminosity
Thermostat extension		Setpoint selection – Heating/cooling changeover - Presence
Scene number		1 ... 64
Lock-up	This parameter defines at what value the blocking function is activated.	Push-button 1* ... 6
Function of LED status	This parameter defines how the status LEDs work when executing the CodeLock function.	Always OFF * Always ON Status indication Control through separately object
Buzzer Feedback by Digit Dialing	. With this parameter, the feedback can be set as a key tone when pressing the key / entering the code.	Not active* Active
Buzzer Feedback by Right Code	. Key tone feedback when entering the correct code.	Not active* Active
Buzzer Feedback by Wrong Code	. Key tone feedback when entering the wrong code.	Not active* Active
Buzzer Feedback by Timeout Validity	. Key tone feedback on exceeding the input time.	Not active* Active

Table 6: Parameter "Function - CodeLock"

3.3 Lock-up

In the following parameter window, the respective function and selection options of the "blocking function" are displayed and configured as "Button pair" and "Button" for the operating concept.

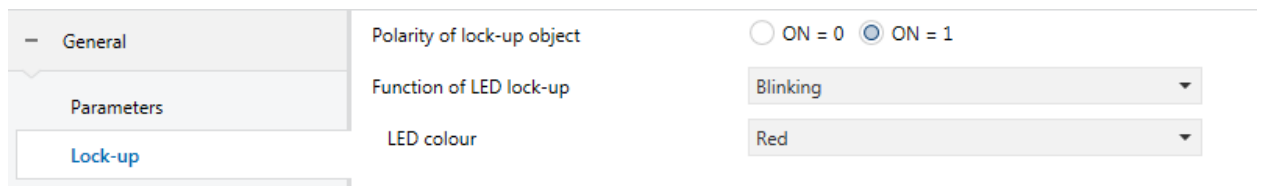


Figure 7: General "Lock-up"

Parameters	Description	Value
Lock-up function of the button/ button pair	This parameter defines at what value the blocking function is activated.	ON if 1 * ON if 0

Table 7: General "Lock-up function"

4 General - Lock-up (1 bit - 1.011 state)

3.3.1 Lock function "Reaction of the status LED"

Parameters	Description	Value
Function of LED lock-up	The function of the status LED for the respective button is set with this parameter.	OFF * ON ¹ Flashing 1*

Table 8: Lock function parameter "Reaction of the status LED for blocking"

¹ If the function values ON/Flashing are selected, another window opens for defining the status LED colour.

Parameters	Description	Value
Colour of the status LED ON for blocking	The colour of the status LED for the respective button is set with this parameter.	OFF Red * Green Blue Red + green Red + blue Green + blue
Colour of the status LED flashing for blocking	The colour of the status LED for the respective button is set with this parameter.	OFF Red * Green Blue Red + green Red + blue Green + blue

Table 9: Lock function parameter "Colour of the status LED for On/Flashing"

With the "Lock function" the function of the button or button pair is disabled with a received "1" and enabled again with a received "0" by means of a second push-button. During or at the end of a blocking function, a function e.g. switching, dimming, roller shutter/blind, etc. can be assigned individually to the button or button pair.

3.4 Parameter „Using-mode“

The buttons or button pairs of the devices can be assigned to different using modes by means of various functions.

The using mode provides two different using modes:

- Using mode as a cohesive button 1-2 (button pair):
The buttons work as a coherent unit, in which e.g. the lower button switches the light on and the upper button switches the light off.
- Using mode as a single button:
The button works as an autonomous unit, whereby e.g. the lower button switches light 1 on/off (toggling) and the upper button switches light 2 on/off (toggling)

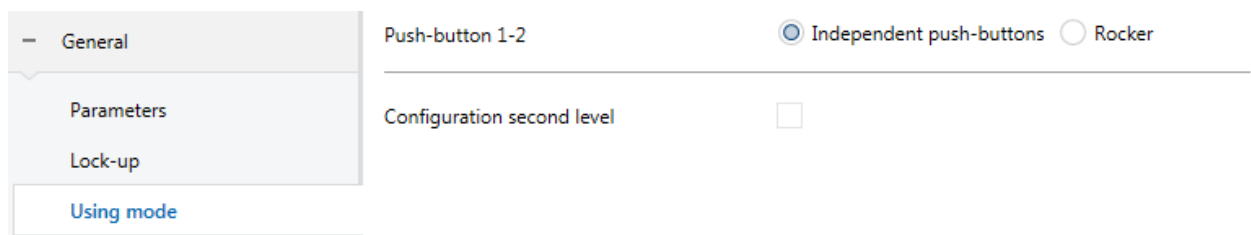


Figure 8: "Using-mode" parameter

Parameters	Description	Value
Using mode of push-button 1 - 2	This parameter defines the function of buttons 1 and 2.	Independent push-buttons * Rocker
Using mode of push-button 3 - 4	This parameter defines the function of buttons 3 and 4.	Independent push-buttons * Rocker
Using mode of push-button 5 - 6	This parameter defines the function of buttons x and y.	Independent push-buttons * Rocker

Table 10: General "Using mode"

3.4.1 Parameter Using mode " Configuration second level "

If the second operating level (1, set checkmark) is selected, additional setting windows (2) will open. With these parameters the function of the buttons for the second operating level can be defined.



Figure 9: Operating concept "Using mode"

Parameters	Description	Value
Behaviour button 1	This parameter defines the function of buttons 1 in the second operating level.	Not active* .. as push-button 1 .. as push-button 2 .. as push-button 3 .. as push-button 4 .. as push-button 5 .. as push-button 6
Behaviour button 2	This parameter defines the function of buttons 3 in the second operating level.	Not active* .. as push-button 1 .. as push-button 2 .. as push-button 3 .. as push-button 4 .. as push-button 5 .. as push-button 6
Behaviour button x	This parameter defines the function of buttons x in the second operating level.	Not active* .. as push-button 1 .. as push-button 2 .. as push-button 3 .. as push-button 4 .. as push-button 5 .. as push-button 6

Table 11: Operating concept " Configuration second level"

In operating level 2 only the function of button 1 or button 2 or inactive can be assigned to the individual buttons set.

The "Configuration second level" function, for example, can be used for only granting a certain group of persons limited access to the device (cleaning personnel). As a result, only the function such as switch on light and switch off light is then active.

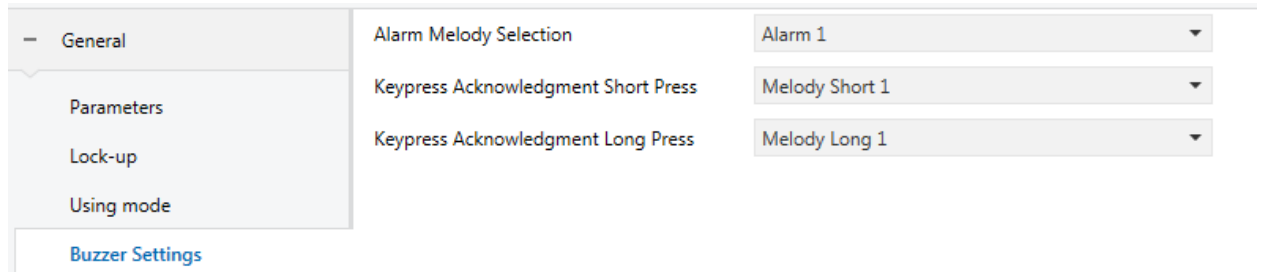
- i** It is advisable to only assign one function from operating level 1 to the buttons of the second operating level.

Example: "Service personnel" function

The reaction of button 1 from operating level 1 (e. g. light ON/OFF function) is assigned to all buttons from operating level 2 for a defined period of time. The advantage of this operating variant lies in the fact that the service personnel only need to switch one button, no matter which, in order to illuminate the room.

3.5 Buzzer Settings

The buzzer in the device can be used for different signalization: physical localisation when the programming mode is getting activated through ETS (for the local physical addressing button no buzzer feedback) and acknowledgement for short and/or long key-press and alarm. Further more it is possible to change the melody for the buzzer feedbacks.



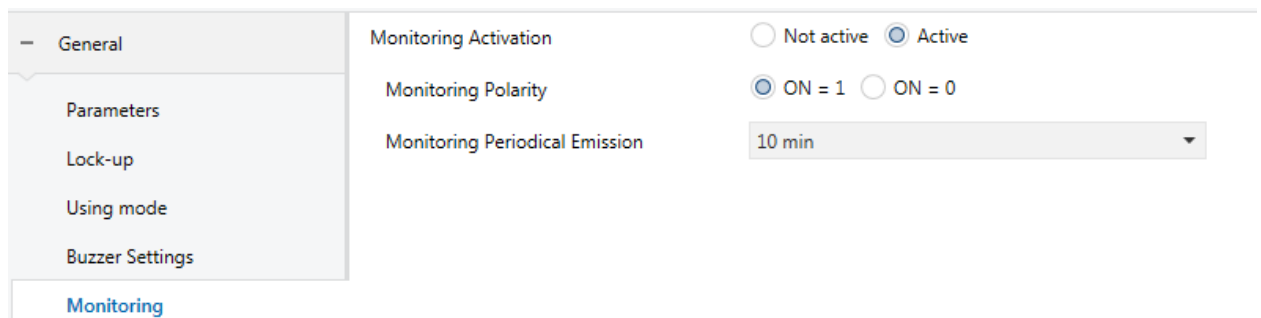
General	Alarm Melody Selection	Alarm 1
Parameters	Keypress Acknowledgment Short Press	Melody Short 1
Lock-up	Keypress Acknowledgment Long Press	Melody Long 1
Using mode		
Buzzer Settings		

Figure 10: General "Buzzer Settings"

3.6 Monitoring

Periodical emission of a 1-bit telegram on the bus. The telegram could be send either with the value of "0"(OFF) or "1"(ON). The periodical emission could be set up with the following time-values: 10min, 30min, 1h; 3h; 6h; 12h; 24h.

Could be used to detect if the device is connected to the bus (Logic function is required externaly).



General	Monitoring Activation	<input type="radio"/> Not active <input checked="" type="radio"/> Active
Parameters	Monitoring Polarity	<input checked="" type="radio"/> ON = 1 <input type="radio"/> ON = 0
Lock-up	Monitoring Periodical Emission	10 min
Using mode		
Buzzer Settings		
Monitoring		

Figure 11: General "Monitoring"

3.7 Alarm message

The function "Reaction during an alarm message" is set and described in the parameter window below.

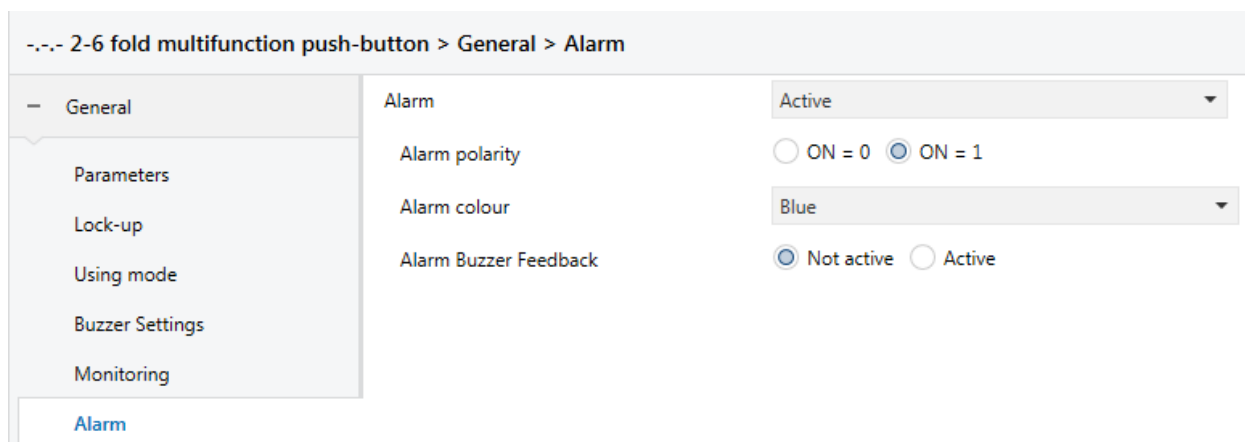


Figure 12: General "Alarm"

Parameters	Description	Value
Alarm	This parameter defines the operation of the "Alarm" function.	Not active * Active Active/reset by press
Alarm polarity ¹	This parameter defines which input value 0/1 triggers an alarm message for.	On if 1 * ON if 0
Colour of LED ¹	This parameter defines the colour of the status LED during an alarm message.	OFF * Red Green Blue Red/Green Red/Blue Green/Blue

Table 12: General "Alarm"

3 General – Alarm (1 bit – 1.005 alarm)

¹ These two selection parameters are only visible when the "Alarm" function is either set to Active or Active / Reset by pressing a button.


The device enables the signalling of an alarm, which can be, for example, a burglar alarm or fire alarm of a KNX alarm central unit. An alarm is signalled by a flashing all status LEDs and operation LEDs of the device. This indicator alarm can be activated separately by the "indicator alarm" parameter on the "alarm messages" parameter page. If the alarm message is activated, the ETS displays the "alarm message" communication object and other parameters for the alarm function. The alarm message object serves as an input for activating or deactivating the alarm signal. The polarity of this object is adjustable. If the object value corresponds to the "Alarm" state, all status LEDs and operation LEDs flash simultaneously at a frequency of approx. 2 Hz. The display reaction of the operation LEDs and status LEDs configured in the ETS is irrelevant for normal operation in the case of an alarm. The LEDs first display the originally parameterised reaction again after deactivation of the alarm signal. Changes of state of the LED during an alarm, if these are activated by separate LED objects or indicate button functions, for example, are saved internally and updated at the end of the alarm.

* Default value

In addition to deactivation via the object alarm, a alarm signal can also be deactivated directly on the device by pressing any button. The "Reset alarm message by pressing a button?" parameter defines the button reaction during an alarm message:

- If this parameter is set to "Yes, an active alarm signal can be deactivated by pressing any button on the device. In the course of this, the parameterised button function of the pressed button is not executed. The parameterisation of the button will first be evaluated and a telegram possibly transmitted to the bus after pressing the button once again.
- If "No", an alarm signal can only be deactivated by the alarm message object. The parameterised button function is always executed immediately by pressing a button.

If an alarm signal can be deactivated by pressing any button, the "confirm alarm message" parameter determines whether a telegram for confirming the alarm by pressing the button via the separate object "Confirmation of alarm message" should additionally be transmitted to the bus. Such a confirmation programmeme can, for instance, be transmitted to the "alarm message objects of other bus subscribers by means of a listening address in order to reset the alarm status there as well. At the same time, attention must be paid to the adjustable polarity of the confirmation object for resetting the alarm.

-  Polarity of the alarm object: In the "Alarm if OFF and reset alarm if ON" setting, the alarm object must first be actively written with "0" by the bus after a reset or after an ETS programming operation in order to activate the alarm.

An active alarm message is not saved, so that the alarm signal is always deactivated after a device reset or ETS programming operation.

3.8 LED configuration

The settings of the status LEDs and backlighting for the entire device are displayed and parameterised in the following parameter windows.

3.8.1 General settings

The colour selection and brightness of the status LEDs can be parameterised and adjusted for daytime and nighttime operation.

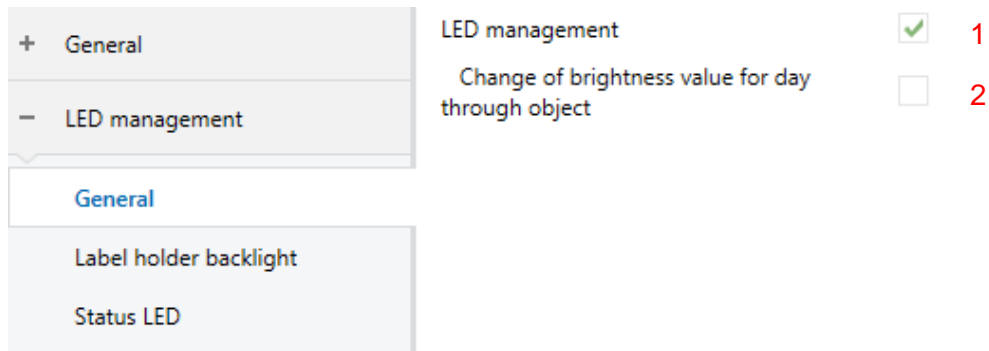


Figure 13: General parameters for the LED configuration

If the checkmark is removed, the setting of the brightness values and associated communication objects are no longer visible.

6 LED management - Day / Night (1 bit - 1.001 state)

7 LED management - Device LED ON/OFF (1 bit - 1.001 switch)

If the "Change of the brightness value by object" function is selected, two additional communication objects are visible.

3.8.2 Label holder backlight

The function of the backlighting is set and configured in the parameter window below.

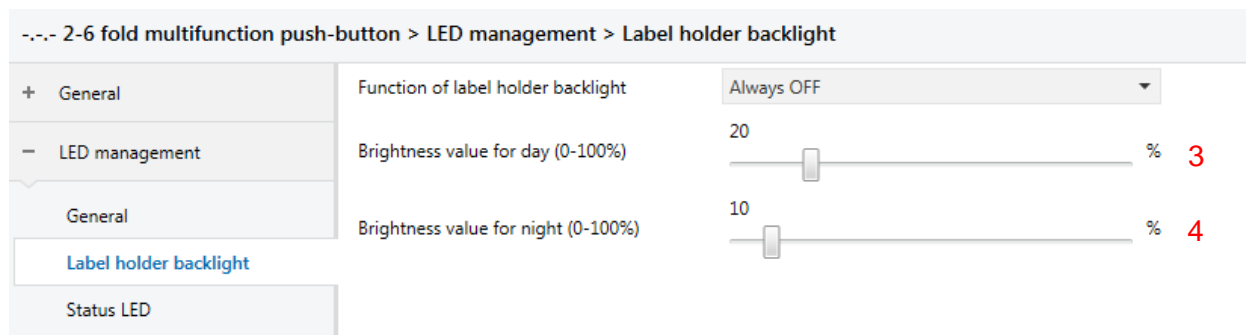


Figure 14: Label holder backlight Function

Parameters	Description	Value
Function of Backlight	This parameter defines the function of the backlighting. It can be used, for example, as an orientation light.	Always OFF * Always ON Status indication (ON = 1) Status indication (ON = 0) Status indication blinking by 1 Status indication blinking by 0
Brightness value daytime operation	The brightness of the status LED in daytime operation is set with this parameter.	10 %, ... 20 %* ... 100 %
Brightness value nighttime operation	The brightness of the status LED in nighttime operation is set with this parameter.	10 %* ... 100 %

Table 13: "General" LED Configuration

The brightness value for daytime/ nighttime operation can be adjusted individually with the two slide controls). The number above the slide control displays the current brightness value.

8 LED management – Label holder backlight – statusindication¹ (1.001 switch)

9 LED management – Label holder backlight - luminosity day (8 bit- 5.001 percentage)

10 LED management – Status-LED – luminosity day (8 bit- 5.001 percentage)

11 LED management – Label holder backlight - luminosity night (8 bit- 5.001 percentage)

12 LED management – Status-LED – luminosity night (8 bit- 5.001 percentage)

¹ This communication object is only visible if the "Always ON/Always OFF" functions are selected.

The backlighting can be used, for example, as an orientation light.

* Default

3.8.3 Status LED

The settings for the status LEDs are defined and configured in the following parameter windows.

3.8.3.1 "Individual" Status LED

If the "status LED – configuration concept" parameter is set to individual, the function of the status LED must then be configured separately in the parameters for the corresponding buttons.

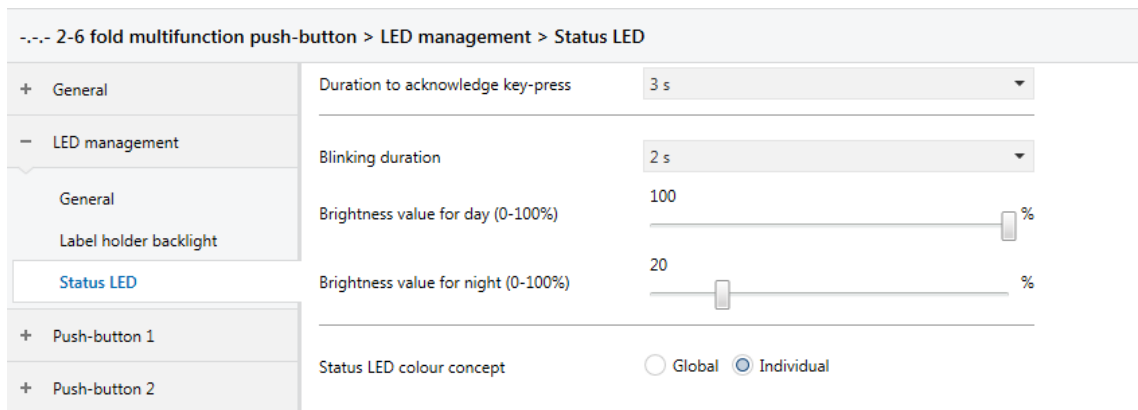


Figure 15: "Individual" Status LED

Parameters	Description	Value
Lighting duration of the status LED after pressing a button	With this parameter the lighting duration of the status LED after pressing a button is setting.	0.5 s ... 3 s * ... 5 s;
Blinking duration	The flashing duration of the status LED is set with this parameter.	250 ms ... 2 s * ... 5 s;
Brightness value daytime operation	The brightness of the status LED in daytime operation is set with this parameter.	10 %, ... 100 % *
Brightness value nighttime operation	The brightness of the status LED in nighttime operation is set with this parameter.	10 % ... 20 % * ... 100 %

Table 14: Status LED "Individual"

i If the "Status LED – individual" function is selected, the function of the status LED and colour must be set in the "Push-button function" parameter.

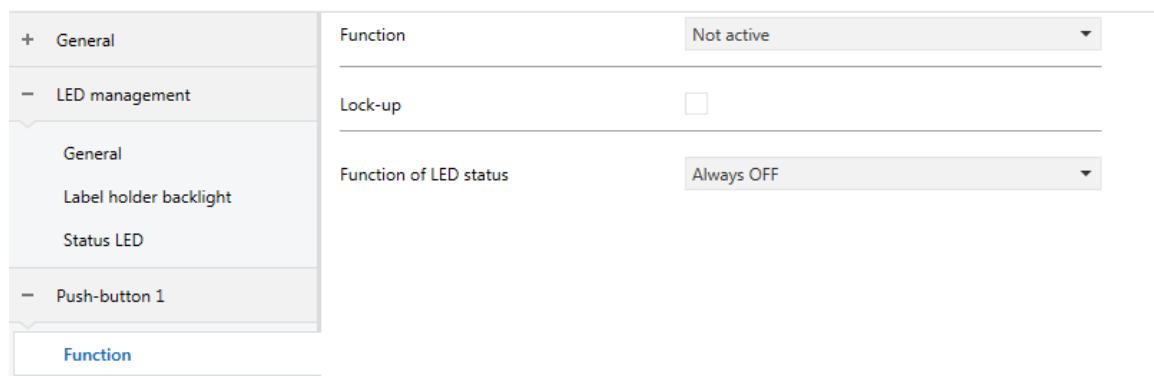


Figure 16: Configuration status LED for button/button pair

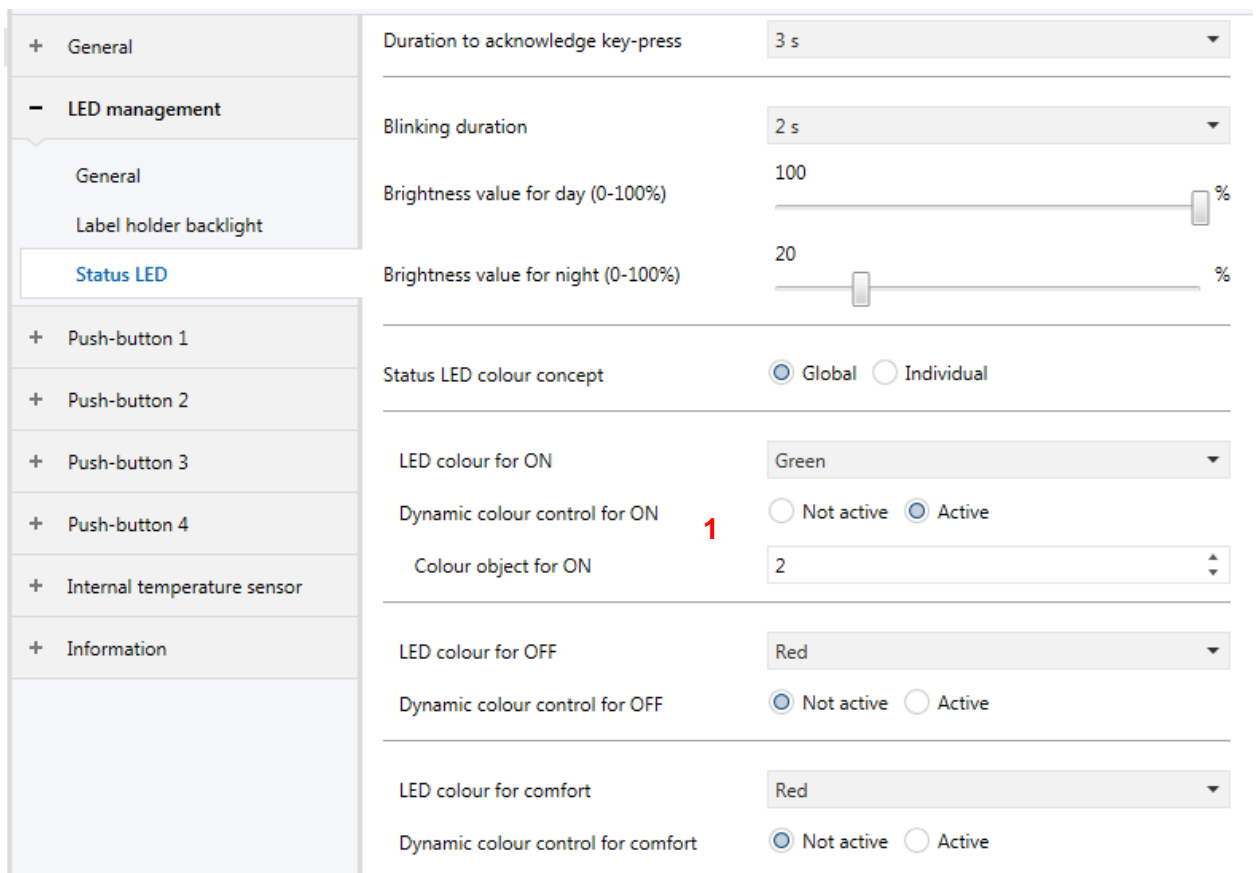
* Default

3.8.3.2 Status LED "Global"

If the "status LED – configuration concept" parameter is set to global, the colours for the status LEDs can be configured as in the following parameter window. The colour of the status LED is configured here once for the entire device.

If "Dynamic colour control" (figure 12, 1) is getting activated, then it is possible to control the colour of the LED-function through a communication object. It is also possible to link different functions with the same LED-colour object. There are six LED management objects available which can be used.

If nothing is send initially on the communication object, the LED-function will have the colour like it was selected in the field above (e.g. LED colour for ON).



+ General	Duration to acknowledge key-press	3 s
- LED management	Blinking duration	2 s
General	Brightness value for day (0-100%)	100 %
Label holder backlight	Brightness value for night (0-100%)	20 %
Status LED	Status LED colour concept	<input checked="" type="radio"/> Global <input type="radio"/> Individual
+ Push-button 1	LED colour for ON	Green
+ Push-button 2	Dynamic colour control for ON	<input type="radio"/> Not active <input checked="" type="radio"/> Active
+ Push-button 3	Colour object for ON	2
+ Push-button 4	LED colour for OFF	Red
+ Internal temperature sensor	Dynamic colour control for OFF	<input checked="" type="radio"/> Not active <input type="radio"/> Active
+ Information	LED colour for comfort	Red
	Dynamic colour control for comfort	<input checked="" type="radio"/> Not active <input type="radio"/> Active

Figure 17: Status LED "global"

13 LED management – Colour 1 (RGB value 3 x (0...255))

14 LED management – Colour 1 (RGB value 3 x (0...255))

15 LED management – Colour 1 (RGB value 3 x (0...255))

16 LED management – Colour 1 (RGB value 3 x (0...255))

17 LED management – Colour 1 (RGB value 3 x (0...255))

18 LED management – Colour 1 (RGB value 3 x (0...255))

Parameters	Description	Value
Colour status LED for ON	The colour of the status LED for "ON" is set with this parameter.	OFF Red Green <input type="checkbox"/> Blue Red / green Red / blue Green / blue
Colour status LED for OFF	The colour of the status LED for "OFF" is set with this parameter.	OFF Red * Green Blue Red / green Red / blue Green / blue
Colour status LED for Comfort	The colour of the status LED for "Comfort" is set with this parameter.	OFF Red * Green Blue Red / green Red / blue Green / blue
Colour status LED for Standby	The colour of the status LED for "Standby" is set with this parameter.	OFF * Red Green Blue Red / green Red / blue Green / blue
Colour status LED for nighttime operation	The colour of the status LED for "nighttime operation" is set with this parameter.	OFF Red Green <input type="checkbox"/> Blue Red / green Red / blue Green / blue
Colour status LED for frost/heat protection	The colour of the status LED for "frost/heat protection" is set with this parameter.	OFF * Red Green Blue * Red / green Red / blue Green / blue

Table 15: Status LED "global"

- i** If the "Status LED – global" function is selected, the function of the status LED must be set in the "push-button function" parameter.

*Default value

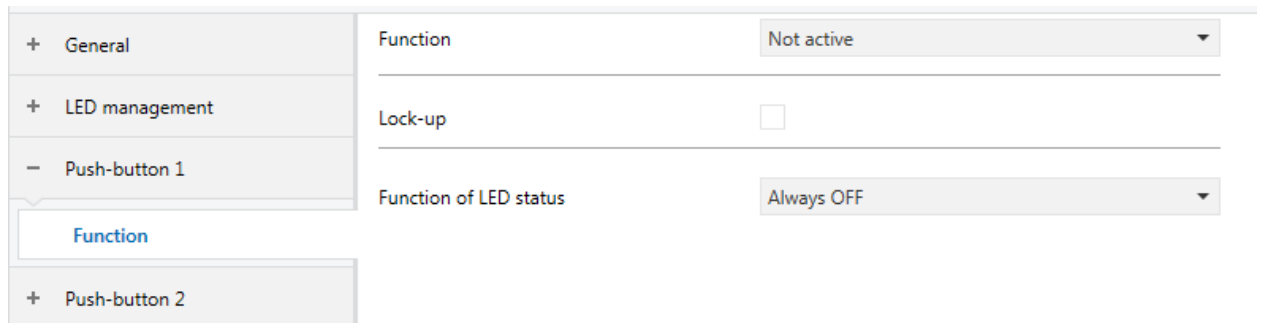
3.9 Function of the button/ button pair

In the following parameter window, the respective functions and selection options of the "Function of the button/ Function of the button pair" function are displayed and configured in the operating concept as button and in the operating concept as button pair.

Before the function of the button and button pair can be defined, the operating concept must first be defined under "General – operating concept".

Setting as operating concept "button":

If the operating concept "button" has been set, two single buttons to be set are listed for the respective button pair selected e.g. "button 1" and button 2".

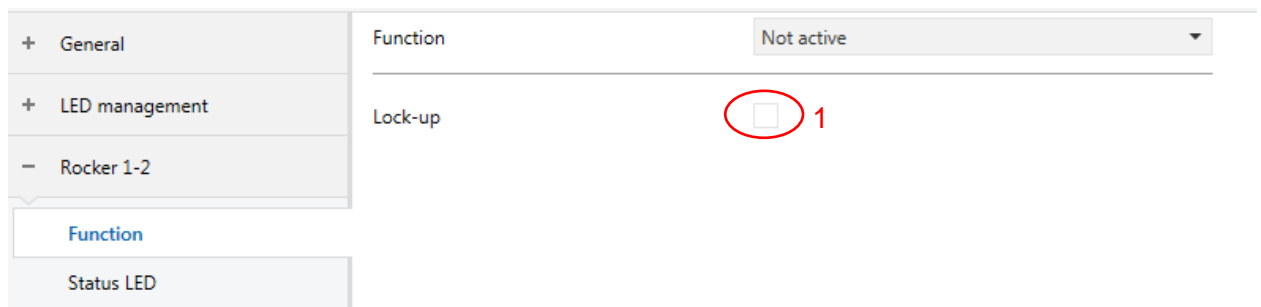


+ General	Function	Not active
+ LED management	Lock-up	<input type="checkbox"/>
- Push-button 1	Function of LED status	Always OFF
Function		
+ Push-button 2		

Figure 18: Function of the button

Setting as "button pair" operating concept:

If the "button pair" operating concept has been set, a button that is to be set "button pair 1 - 2" is listed for the respective button pair selected e.g. "button 1 – 2". The function for the lower and upper button pair side must be set here.



+ General	Function	Not active
+ LED management	Lock-up	<input type="checkbox"/> 1
- Rocker 1-2		
Function		
Status LED		

Figure 19: Function of the button pair

With both configuration options, it is also necessary to define whether the button, button pair is also included in the blocking function.

Furthermore, if individual configuration of the status LED has been set in the "status LED" menu, the configuration of the status LED must be configured (also see section 3.10 "Function of the status LED" Parameter).

All functions of the button, button pair are listed in 3.9 Function of the button/ button pair.

Fehler! Verweisquelle konnte nicht gefunden werden. The individual functions are described and configured in the following section. The description of the functions always relates to the button pair or to one or two buttons. The configuration must be carried out identically for the other variants.

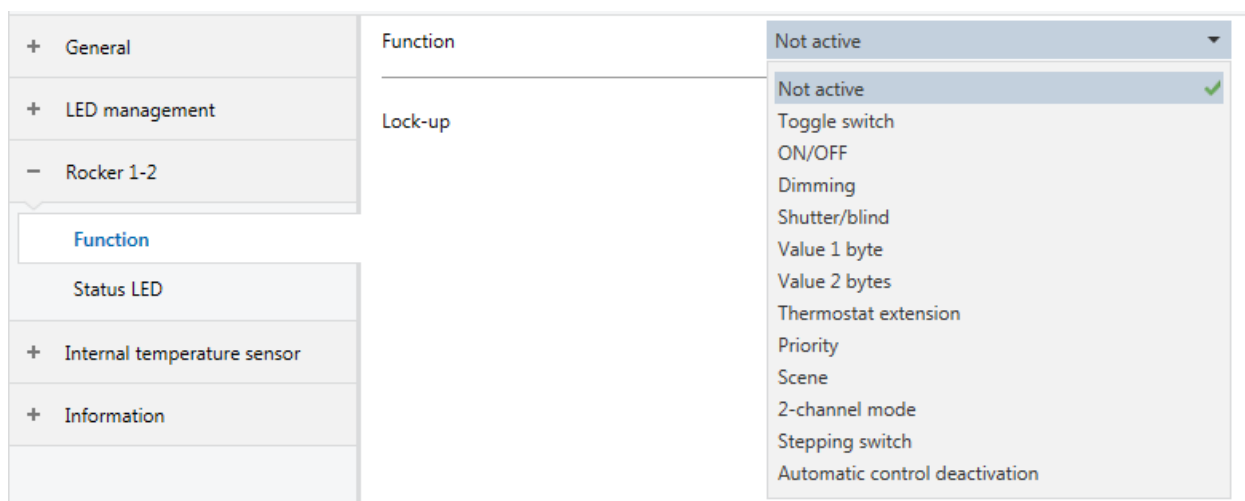


Figure 20: Function selection

Parameters	Description	Value
Function of the button ¹	A function is assigned to the rocker with this parameter. A distinction is made here between pressing/releasing the rocker left or right	Not active * Toggle switch Dimming Shutter/Blind Timer Value 1 byte Value 2 bytes Thermostat extension Priority Scene 2-channel mode Stepping switch Automatic control desactivation
Function of the button pair ¹	A function is assigned to the button with this parameter. A distinction is made here between pressing/releasing the button.	Not active * Toggle switch Dimming Shutter/Blind Value 1 byte Value 2 bytes Thermostat extension Priority Scene 2-channel mode Stepping switch Automatic control desactivation

Table 16: Function of the rocker / Function of the button

¹ When selecting one of the functions, one or more of the parameter windows open in order to configure the selected function. If the "Inactive" function is selected, the corresponding rocker/button is deactivated, except for the function.

3.9.1 "Switching / Toggling" Function

The "Switching / Toggling" functions are described below. With the "Switching" function, for example, the lighting can be switched on / off, and with the "Toggling" function the lighting can be switched on and off again by pressing repeatedly.

Parameters	Description	Value
Button pair function "Switching"	With this parameter the following function is assigned to the button pair in the "Switching" function. A distinction is made here between the function when pressing the button left/right and when releasing the button left/right.	No function * On Off TOGGLE (toggling)
Function of the "Switching" button	The following function is assigned to the button in the "Switching" function with this parameter. A distinction is made here between pressing/releasing the button.	No function * On Off TOGGLE (toggling)

Table 17: Function of the "switching" rocker/button

Device	"Switching" communication objects
Push-button 2gang	<i>18 button 1 -ON/OFF (1 bit - 1.002 DPT_Bool)</i> <i>38 button 2 -ON/OFF (1 bit - 1.002 DPT_Bool)</i>
Push-button 4gang	<i>18 button 1 -ON/OFF (1 bit - 1.002 DPT_Bool)</i> <i>38 button 2 -ON/OFF (1 bit - 1.002 DPT_Bool)</i> <i>58 button 3 -ON/OFF (1 bit - 1.002 DPT_Bool)</i> <i>78 button 4 - ON/OFF (1 bit - 1.002 DPT_Bool)</i>
Push-button 6gang	<i>18 button 1 -ON/OFF (1 bit - 1.002 DPT_Bool)</i> <i>38 button 2 -ON/OFF (1 bit - 1.002 DPT_Bool)</i> <i>58 button 3 -ON/OFF (1 bit - 1.002 DPT_Bool)</i> <i>78 button 4 - ON/OFF (1 bit - 1.002 DPT_Bool)</i> <i>98 button 5 - ON/OFF (1 bit - 1.002 DPT_Bool)</i> <i>118 button 6 - ON/OFF (1 bit - 1.002 DPT_Bool)</i>

Table 18: Communication objects "Switching"

The delay time from when the signal is transmitted after pressing the button is to be set as a further parameter.

Parameters	Description	Value
Emission delay time by press	This parameter sets the transmission delay time after pressing a button.	Immediate emission * 1 s ... 5 min

Table 19: Emission delay time

* Default value

3.9.2 "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.

Parameters	Description	Value
Function of the "Dimming" button pair	With this parameter the following function is assigned to the rocker in the "Dimming" function. A distinction is made here between the function when pressing the button left/right.	Increase (On) * Decrease (Off) Increase (toggle switch) Decrease (toggle switch) Increase/Decrease (toggle switch) Dimming value
Function of the "Dimming" button	With this parameter the following function is assigned to the button in the "Dimming" function when pressing the button.	Increase (On) * Decrease (Off) Increase (toggle switch) Decrease (toggle switch) Increase/Decrease (toggle switch) Dimming value

Table 20: Function of the "Dimming" rocker/button

In addition to the dimming communication objects, the communication objects for switching are visible as well.

The "Switching" communication objects are responsible for the "short press of the button" and the "Dimming" communication objects are responsible for the actual dimming command, long press of the button. For this reason, two separate group addresses (0/0/1 dimming-short press of the button; 0/0/2 dimming-long press of the button) must be created and filled with the corresponding communication objects.

Device	"Switching" communication objects	"Dimming" communication object
Push-button 2gang	<i>18 button 1 -ON/OFF (1 bit - 1.002 DPT_Bool)</i>	<i>21 button 1 - dimming(1 byte- 5.001 DPT_Scaling)</i>
	<i>38 button 2 -ON/OFF (1 bit - 1.002 DPT_Bool)</i>	<i>41 button 2 - dimming(1 byte- 5.001 DPT_Scaling)</i>
Push-button 4gang	<i>18 button 1 -ON/OFF (1 bit - 1.002 DPT_Bool)</i>	<i>21 button 1 - dimming(1 byte- 5.001 DPT_Scaling)</i>
	<i>38 button 2 -ON/OFF (1 bit - 1.002 DPT_Bool)</i>	<i>41 button 2 - dimming(1 byte- 5.001 DPT_Scaling)</i>
	<i>58 button 3 -ON/OFF (1 bit - 1.002 DPT_Bool)</i>	<i>61 button 3 - dimming(1 byte- 5.001 DPT_Scaling)</i>
	<i>78 button 4 - ON/OFF (1 bit - 1.002 DPT_Bool)</i>	<i>81 button 4 - dimming(1 byte- 5.001 DPT_Scaling)</i>
Push-button 6gang	<i>18 button 1 -ON/OFF (1 bit - 1.002 DPT_Bool)</i>	<i>21 button 1 - dimming(1 byte- 5.001 DPT_Scaling)</i>
	<i>38 button 2 -ON/OFF (1 bit - 1.002 DPT_Bool)</i>	<i>41 button 2 - dimming(1 byte- 5.001 DPT_Scaling)</i>
	<i>58 button 3 -ON/OFF (1 bit - 1.002 DPT_Bool)</i>	<i>61 button 3 - dimming(1 byte- 5.001 DPT_Scaling)</i>

* Default value

<i>78 button 4 – ON/OFF (1 bit – 1.002 DPT_Bool)</i>	<i>81 button 4 – dimming(1 byte– 5.001 DPT_Scaling)</i>
<i>98 button 5 – ON/OFF (1 bit – 1.002 DPT_Bool)</i>	<i>101 button 5 – dimming(1 byte– 5.001 DPT_Scaling)</i>
<i>118 button 6 – ON/OFF (1 bit – 1.002 DPT_Bool)</i>	<i>121 button 6 – dimming(1 byte– 5.001 DPT_Scaling)</i>

Table 21: "Dimming" communication objects

If the "Dimming – dimming value" function is selected, the dimming value is to be set by means of the sidebar (0 % ... 100 %). With this function only one communication object is available for selection. The "Dimming – dimming value" function assigns a specific brightness value to the lamp via the connected actuator. This is to be used for the configuration of scenes.

Device	"Switching" communication objects
Push-button 2gang	<i>22 button 1 – dimming value</i> <i>42 button 2 – dimming value</i>
Push-button 4gang	<i>22 button 1 – dimming value</i> <i>42 button 2 – dimming value</i> <i>62 button 1 – dimming value</i> <i>82 button 2 – dimming value</i>
Push-button 6gang	<i>22 button 1 – dimming value</i> <i>42 button 2 – dimming value</i> <i>62 button 1 – dimming value</i> <i>82 button 2 – dimming value</i> <i>102 button 1 – dimming value</i> <i>122 button 2 – dimming value</i>

Table 22: Dimming communication objects "Dimming value"

3.9.3 "Timer" function

The "Timer" function is described in the following section. The function can only be used in the operating concept as a button.

Parameters	Description	Value
Function of the "Timer" button	"Timer" is assigned to the button in the function with this parameter.	Timer *

Table 23: Function of the "Timer" button

"Timer" communication objects

18 Push-button 1 – Timer (1 Bit 1.001 DPT_Start/Stop)

38 Push-button 2 – Timer(1 Bit 1.001 DPT_Start/Stop)

58 Push-button 3 – Timer (1 Bit 1.001 DPT_Start/Stop)

78 Push-button 4 – Timer (1 Bit 1.001 DPT_Start/Stop)

98 Push-button 5 – Timer (1 Bit 1.001 DPT_Start/Stop)

118 Push-button 6 – Timer (1 Bit 1.001 DPT_Start/Stop)

Table 24: "Timer" communication objects

- Short press of push-button
The output contact is switched on for the time set in the output.
- Long press of button
Interruption of the ongoing timer mode and shutdown of the output.

If a button is pressed for a short time, an "On command" is transmitted via the "Timer" object. If a button is pressed for a long time, an "Off command" is transmitted via the "Timer" object.

The "On command" switches on a switch actuator output for the set "Timer time".

If additional "On commands" are transmitted to the "Timer" communication object within 10s, the switch-on time of the output (for our TXA products" is calculated as follows:

$$\text{Switch-on time} = (1 + \text{number of additional touch operations}) * \text{set timer time}$$

After the last press of a button, the timer time in the actuator output is switched on. After 10s, an "On command" retriggers the set switch-on time in the parameters. An Off command switches off the output directly.

3.9.4 "Roller shutter/blind" function

The "Roller shutter/blind" function is described and configured in the following section.

Figure 21: Function of the rocker/button "roller shutter/blind"

Parameters	Description	Value
Using mode	The operating concept of the "Roller shutter / blind" function is selected with this parameter.	Hager operating concept * Short – long - short Long - short Short – long Long - short or short
Sun protection type	The sun protection type is defined with this parameter.	Blind * Shutter *

Table 25: Function of the rocker/button "roller shutter/blind"

"Roller shutter – up/down" communication objects

- 18 Push button 1 – Auf/AB (1 Bit – 1.001 DPT_Auf/Ab)*
- 38 Push button 2 – Auf/AB (1 Bit – 1.001 DPT_Auf/Ab)*
- 58 Push button 3 – Auf/AB (1 Bit – 1.001 DPT_Auf/Ab)*
- 78 Push button 4 – Auf/AB (1 Bit – 1.001 DPT_Auf/Ab)*
- 98 Push button 5 – Auf/AB (1 Bit – 1.001 DPT_Auf/Ab)*
- 118 Push button 6 – Auf/AB (1 Bit – 1.001 DPT_Auf/Ab)*

"Roller shutter – Stop" communication objects

- 19 Push button 1 – Stopp (1 Bit – 1.001 DPT_trigger)*
- 39 Push button 2 – Stopp (1 Bit – 1.001 DPT_trigger)*
- 59 Push button 3 – Stopp (1 Bit – 1.001 DPT_trigger)*
- 79 Push button 4 – Stopp (1 Bit – 1.001 DPT_trigger)*
- 99 Push button 5 – Stopp (1 Bit – 1.001 DPT_trigger)*
- 119 Push button 6 – Stopp (1 Bit – 1.001 DPT_trigger)*

"Roller blind – Step/Stop" communication objects

- 19 Push button 1 –Step/Stopp (1 Bit – 1.001 DPT_step)*
- 39 Push button 2 –Step/Stopp (1 Bit – 1.001 DPT_step)*
- 59 Push button 3 –Step/Stopp (1 Bit – 1.001 DPT_step)*
- 79 Push button 4 –Step/Stopp (1 Bit – 1.001 DPT_step)*
- 99 Push button 5 –Step/Stopp (1 Bit – 1.001 DPT_step)*
- 119 Push button 6 –Step/Stopp (1 Bit – 1.001 DPT_step)*

Move shading

This function is only visible if the blind/roller shutter function up/down has been selected.

Thereby the set position of the roller shutter and/or the set slat angle of the blind can be activated directly by a single key-press up/down.

Figure 22: Shutter / blind function „Move shading“

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.

If the Hager/Berker behaviour is selected, it is possible to select an additional position control, explained underneath.

HAGER operating concept

- ❗ The "Hager operating concept" has been specially adapted to the Hager blind and roller shutter actuators.

If position control is activated, then it is possible to set the shutter/blind to a dedicated position and slat angle. After the configuration the user needs to do a short press after the long press, then the preconfigured values are send on the bus.

Figure 23: Shutter / blind function „Additional position control“

Parameters	Description	Value
Roller shutter sun protection system	This parameter defines the sun protection system.	Roller shutter * Shutter
Function of the respective button in the blind sun protection system	This parameter defines the function type of the respective button.	Up * Down Up/Down/Stop Position of blind Position of blind and slat Position of slat Safety travel Up Safety travel Down Safety travel Up/Down/Stop
Function of the respective button in the roller shutter sun protection system	This parameter defines the function type of the respective button.	Up * Down Up/Down/Stop Position of roller shutter Safety travel Up Safety travel Down Safety travel Up/Down/Stop

Table 26: Parameter in the Hager operating concept

Parameters	Description	Value
Position of blind ^{1,2}	With this parameter a specific position of the blind can be set with the help of a sidebar by pressing a button.	0 % * ... 100 %
Position of slat ^{2,3}	With this parameter a specific position of the slat can be set with the help of a sidebar by pressing a button.	0 % * ... 100 %

Table 27: Blind and slat position parameter

¹ This parameter is only visible if the "Position of blind" function is selected.

² This parameter is only visible if the "Position of blind and slat" function is selected.

³ This parameter is only visible if the "Position of slat" function is selected.

* Default value (default setting)

Parameters	Description	Value
Position of blind ⁴	With this parameter a specific position of the blind can be set with the help of a sidebar by pressing a button.	0 % * ... 100 %

Table 28: Blind position parameter

⁴ This parameter is only visible if the "Position of blind" function is selected.

"Short – Long – Short" operating concept

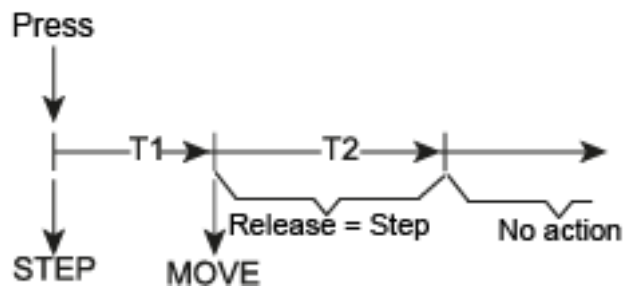


Figure 24: "Short – Long – Short" operating concept

Immediately upon pressing the button, the device transmits a short-time telegram (step) to the bus. As a result, a moving drive stops and time T1 ("the time between the short-time and long-time") command starts. If the button is released again within T1, no further telegram is transmitted. This step serves the purpose of stopping an ongoing continuous move.

i The "time between short-time and long-time 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 longer than T1, the push-button transmits a long-time telegram (move) 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.

The times T1 ("time between short-time and long-time command") and T2 ("slat adjusting time") must first be adjusted.

Parameters	Description	Value
Time T1	T1 is the time between a short-time and long-time command.	0 ... 5000 ms □ ... 65535 ms
Time T2	T2 is the time between a short-time and long-time command.	0 ... 5000 ms * ... 65535 ms,

Table 29: Timer setting under "Short-long-short"

* Default value (default setting)

Parameters	Description	Value
Roller shutter sun protection system	This parameter defines the sun protection system.	Roller shutter * Shutter
Function of the respective button in the blind sun protection system	This parameter defines the function type of the respective button.	Up * Down Position of blind Position of blind a. slat Position of slat
Function of the respective button in the roller shutter sun protection system	This parameter defines the function type of the respective button.	Up * Down Position of roller shutter

Table 30: Parameter in the "Short-long-short" operating concept

Parameters	Description	Value
Position of blind ^{1,2}	With this parameter a specific position of the blind can be set with the help of a sidebar by pressing a button.	0 % * ... 1000 %
Position of slat ^{2,3}	With this parameter a specific position of the slat can be set with the help of a sidebar by pressing a button.	0 % *... 1000 %

Table 31: Blind and slat position parameter

¹ This parameter is only visible if the "Position of blind" function is selected.

² This parameter is only visible if the "Position of blind and slat" function is selected.

³ This parameter is only visible if the "Position of slat" function is selected.

Parameters	Description	Value
Position of blind ⁴	With this parameter a specific position of the blind can be set with the help of a sidebar by pressing a button.	0 % *... 1000 %

Table 32: Roller shutter position parameter

⁴ This parameter is only visible if the "Position of blind" function is selected.

"Long – Short" operating concept

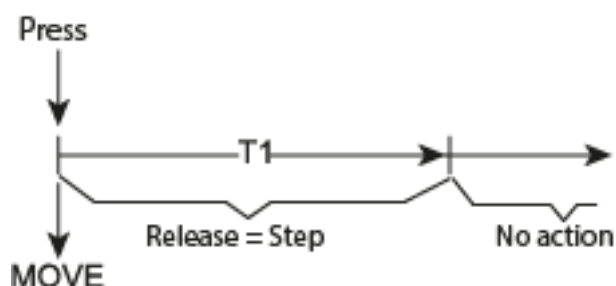


Figure 25: "Long – Short" operating concept

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

If the button is released within the slat adjusting time, the device transmits a short-time telegram (step). 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.

The times T1 ("time between short-time and long-time command") and T2 ("slat adjusting time") must first be adjusted.

Parameters	Description	Value
Time T1	T1 is the time between a short-time and long-time command.	0 ... 5000 ms * ... 65535 ms
Time T2	T2 is the time between a short-time and long-time command.	0 ... 5000 ms * ... 65535 ms,

Table 33: Timer setting under "Short-long-short"

Parameters	Description	Value
Roller shutter sun protection system	This parameter defines the sun protection system.	Roller shutter * Shutter
Function of the respective button in the blind sun protection system	This parameter defines the function type of the respective button.	Up * Down Position of blind Position of blind a. slat Position of slat
Function of the respective button in the roller shutter sun protection system	This parameter defines the function type of the respective button.	Up * Down Position of roller shutter

Table 34: Parameter in the "Short-long-short" operating concept

* Default value (default setting)

Parameters	Description	Value
Position of blind ^{1,2}	With this parameter a specific position of the blind can be set with the help of a sidebar by pressing a button.	0 % *... 1000%
Position of slat ^{2,3}	With this parameter a specific position of the slat can be set with the help of a sidebar by pressing a button.	0 % *... 100 %

Table 35: Blind and slat position parameter

¹ This parameter is only visible if the "Position of blind" function is selected.

² This parameter is only visible if the "Position of blind and slat" function is selected.

³ This parameter is only visible if the "Position of slat" function is selected.

Parameters	Description	Value
Position of blind ⁴	With this parameter a specific position of the blind can be set with the help of a sidebar by pressing a button.	0 % *... 100 %

Table 36: Roller shutter position parameter

⁴ This parameter is only visible if the "Position of blind" function is selected.

"Short – Long" operating concept

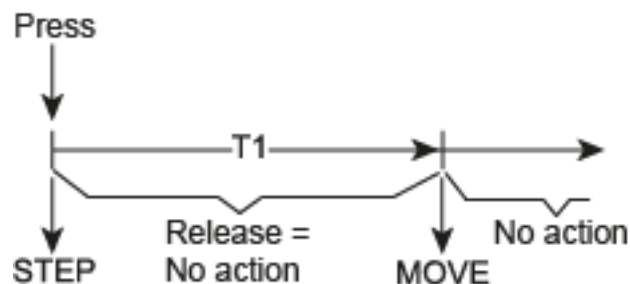


Figure 26: "Short – Long" operating concept

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 the short-time and long-time") command is started. If the button is released again within T1, no further telegram is transmitted. This step serves the purpose of stopping an ongoing continuous move. The "Time between short-time and long-time 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.

The times T1 ("time between short-time and long-time command") and T2 ("slat adjusting time") must first be adjusted.

Parameters	Description	Value
Time T1	T1 is the time between a short-time and long-time command.	0 ... 5000 ms □ ... 65535 ms
Time T2	T2 is the time between a short-time and long-time command.	0 ... 5000 ms * ... 65535 ms

Table 37: Timer setting under "Short-long-short"

Parameters	Description	Value
Roller shutter sun protection system	This parameter defines the sun protection system.	Roller shutter * Shutter
Function of the respective button in the blind sun protection system	This parameter defines the function type of the respective button.	Up * Down Position of blind Position of blind a. slat Position of slat
Function of the respective button in the roller shutter sun protection system	This parameter defines the function type of the respective button.	Up * Down Position of roller shutter

Table 38: Parameter in the "Short-long-short" operating concept

Parameters	Description	Value
Position of blind ^{1,2}	With this parameter a specific position of the blind can be set with the help of a sidebar by pressing a button.	0 % * ... 100 %
Position of slat ^{2,3}	With this parameter a specific position of the slat can be set with the help of a sidebar by pressing a button.	0 % * ... 100 %

Table 39: Blind and slat position parameter

¹ This parameter is only visible if the "Position of blind" function is selected.

² This parameter is only visible if the "Position of blind and slat" function is selected.

³ This parameter is only visible if the "Position of slat" function is selected.

Parameters	Description	Value
Position of blind ⁴	With this parameter a specific position of the blind can be set with the help of a sidebar by pressing a button.	0 % * ... 100 %

Table 40: Roller shutter position parameter

⁴ This parameter is only visible if the "Position of blind" function is selected.

* Default value (default setting)

"Long – Short or Short" operating concept

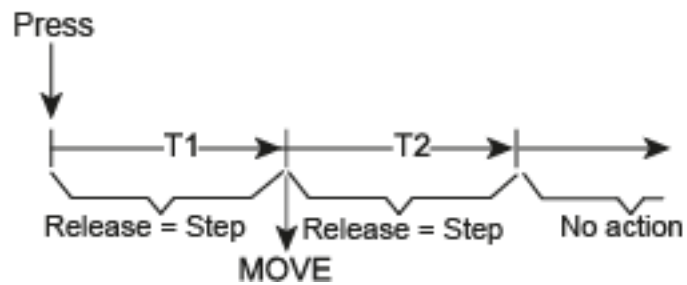


Figure 27: "Long – Short or Short" operating concept

Immediately upon pressing the button, the device starts the time T1 ("time between short-time and long-time command") and waits. If the button is released again before T1 expires, the device transmits a short-time telegram (step). In this way, a moving drive can be stopped. A stationary drive turns the slats by one step.

If the button is still kept pressed after T1 has expired, the device transmits a long-time telegram (move) 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.

- ❗ In this operating concept the device does not transmit a telegram immediately when pressing the button or a rocker. This makes it possible in the rocker configuration to also detect a full surface operation.

The times T1 ("time between short-time and long-time command") and T2 ("slat adjusting time") must first be adjusted.

Parameters	Description	Value
Time T1	T1 is the time between a short-time and long-time command.	0 ... 5000 ms □... 65535 ms
Time T2	T2 is the time between a short-time and long-time command.	0 ... 5000 ms *... 65535 ms

Table 41: Timer setting under "Short-long-short"

* Default value

Parameters	Description	Value
Roller shutter sun protection system	This parameter defines the sun protection system.	Roller shutter <input type="checkbox"/> Shutter
Function of the respective button in the blind sun protection system	This parameter defines the function type of the respective button.	Up * Down Position of blind Position of blind a. slat Position of slat
Function of the respective button in the roller shutter sun protection system	This parameter defines the function type of the respective button.	Up * Down Position of roller shutter

Table 42: Parameter in the "Short-long-short" operating concept

Parameters	Description	Value
Position of blind ^{1,2}	With this parameter a specific position of the blind can be set with the help of a sidebar by pressing a button.	0 % *... 100 %
Position of slat ^{2,3}	With this parameter a specific position of the slat can be set with the help of a sidebar by pressing a button.	0 % *... 100 %

Table 43: Blind and slat position parameter

¹ This parameter is only visible if the "Position of blind" function is selected.

² This parameter is only visible if the "Position of blind and slat" function is selected.

³ This parameter is only visible if the "Position of slat" function is selected.

Parameters	Description	Value
Position of blind ⁴	With this parameter a specific position of the blind can be set with the help of a sidebar by pressing a button.	0 % *... 100 %

Table 44: Roller shutter position parameter

⁴ This parameter is only visible if the "Position of roller shutter" function is selected.

* Default value

3.9.5 Value transmitter 1-byte function

In the following parameter window, the "Value transmitter 1-byte" function is parameterised and set as a rocker and button in the operating concept.

The application provides a 1-byte communication object for each rocker or button. The set value or value that was last saved internally by a value adjustment is transmitted to the bus when a button is pressed. In the operating concept as "rocker", different values can be parameterised and set for both rocker sides.

Parameters	Description	Value
Function of the "Value 1 byte" button pair ¹	With this parameter the following function is assigned to the button pair in the "Value transmitter 1byte" function. A distinction is made here between the function when pressing the button left/right.	Value (0 ... 255) * Percent (0 ... 100%)
Function of the "Value 1 byte function" button ¹	With this parameter the following function is assigned to the button in the "Value transmitter 1-byte" function when pressing the button.	Value (0 ... 255) * Percent (0 ... 100%)

Table 45: Function of the "Value transmitter 1-byte" rocker/button

¹ If the respective function value is selected, another parameter window opens for setting the desired 1-byte value (0 ... 255 / 0 ... 100%).

"Value – 1 Byte (0...255)" communication objects (Push button)

- 22 Push button 1 – Value (0...255) (1 Byte – 5.010 DPT_Counter pulses (0..255))*
- 42 Push button 2 – Value (0...255) (1 Byte – 5.010 DPT_Counter pulses (0..255))*
- 62 Push button 3 – Value(0...255) (1 Byte – 5.010 DPT_Counter pulses (0..255))*
- 82 Push button 4 – Value (0...255) (1 Byte – 5.010 DPT_Counter pulses (0..255))*
- 102 Push button 5 – Value (0...255) (1 Byte – 5.010 DPT_Counter pulses (0..255))*
- 122 Push button 6 – Value (0...255) (1 Byte – 5.010 DPT_Counter pulses (0..255))*

"Value – 1 Byte (0...100%)" communication objects (Push button)

- 22 Push button 1 – Value in % (1 Byte – 5.001 DPT_Percentage (0...100%))*
- 42 Push button 2 – Value in % (1 Byte – 5.001 DPT_Percentage (0...100%))*
- 62 Push button 3 – Value in % (1 Byte – 5.001 DPT_Percentage (0...100%))*
- 82 Push button 4 – Value in % (1 Byte – 5.001 DPT_Percentage (0...100%))*
- 102 Push button 5 – Value in % (1 Byte – 5.001 DPT_Percentage (0...100%))*
- 122 Push button 6 – Value in % (1 Byte – 5.001 DPT_Percentage (0...100%))*

"Value – 1 Byte (0...255)" communication objects (Rocker)

- 22 Rocker 1-2 – Value (0...255) (1 Byte – 5.010 DPT_Counter pulses (0..255))*
- 62 Rocker 3-4 – Value(0...255) (1 Byte – 5.010 DPT_Counter pulses (0..255))*
- 102 Rocker 5-6 – Value (0...255) (1 Byte – 5.010 DPT_Counter pulses (0..255))*

"Value – 1 Byte (0...100%)" communication objects (Rocker)

- 22 Rocker 1-2 – Value in % (1 Byte – 5.001 DPT_Percentage (0...100%))*
- 62 Rocker 3-4 – Value in % (1 Byte – 5.001 DPT_Percentage (0...100%))*
- 102 Rocker 5-6 – Value in % (1 Byte – 5.001 DPT_Percentage (0...100%))*

* Default value

The "value transmitter 1-byte" parameter defines which value range the push-button uses. Integer numbers ranging from 0 ... 255 or relative values ranging from 0 ... 100% can be transmitted optionally to the bus for the value transmitter 1-byte function by means of a slide control.

- ⓘ During a value adjustment, the newly set values are only saved in the RAM volatile memory of the device. Thus, the saved values in the event of a reset (bus voltage failure or ETS programming operation) are replaced by the preset values programmed by the ETS.

3.9.6 "Value transmitter 2-byte" function

In the following parameter window, the "Value transmitter 2-byte" function is parameterised and set as a button pair and button in the operating concept.

The application provides a 2-byte communication object for each button pair or button. If a button is pressed, the set value or value last saved internally by a value adjustment is transmitted to the bus. In the operating concept as "button pair", different values can be parameterised and set for both button pair sides.

Parameters	Description	Value
Function of the "Value 2 byte" button pair ¹	With this parameter the following function is assigned to the button pairs in the "Value 2 byte" function. A distinction is made here between the function when pressing the respective button pair side left/right.	Value (0 ... 65535) * Temperature (0 ... 40°C) Luminosity (0 ... 1000 Lux)
Function of the "Value 2 byte function" button ¹	With this parameter the following function is assigned to the button in the "Value 2 byte" function when pressing the button.	Value (0 ... 65535) * Temperature (0 ... 40°C) Luminosity (0 ... 1000 Lux)

Table 46: Function of the "Value transmitter 2-byte" rocker/button

¹ If the respective function value is selected, another parameter window opens for setting the desired 2-byte value (temperature, luminosity and value). The corresponding values can be adjusted by means of a slide control.

"Value – 2 Byte (0...65535)" communication objects (Push button)

24 Push button 1 – Value (0...65535) (2 Byte – 7.001 DPT_Pulse)
44 Push button 2 – Value (0...65535) (2 Byte – 7.001 DPT_Pulse)
64 Push button 3 – Value (0...65535) (2 Byte – 7.001 DPT_Pulse)
84 Push button 4 – Value (0...65535) (2 Byte – 7.001 DPT_Pulse)
104 Push button 5 – Value (0...65535) (2 Byte – 7.001 DPT_Pulse)
124 Push button 6 – Value (0...65535) (2 Byte – 7.001 DPT_Pulse)

"Value – 2 Byte (Temperature)" communication objects (Push button)

24 Push button 1 – Temperatur (2 Byte – 9.001 DPT_Temperatur (°C))
44 Push button 2 – Temperatur (2 Byte – 9.001 DPT_Temperatur (°C))
64 Push button 3 – Temperatur (2 Byte – 9.001 DPT_Temperatur (°C))
84 Push button 4 – Temperatur (2 Byte – 9.001 DPT_Temperatur (°C))
104 Push button 5 – Temperatur (2 Byte – 9.001 DPT_Temperatur (°C))
124 Push button 6 – Temperatur (2 Byte – 9.001 DPT_Temperatur (°C))

"Value – 2 Byte (Luminosity)" communication objects (Push button)

24 Push button 1 – Luminosity (2 Byte – 9.004 DPT_Lux (Lux))
44 Push button 2 – Luminosity (2 Byte – 9.004 DPT_Lux (Lux))
64 Push button 3 – Luminosity (2 Byte – 9.004 DPT_Lux (Lux))
84 Push button 4 – Luminosity (2 Byte – 9.004 DPT_Lux (Lux))
104 Push button 5 – Luminosity (2 Byte – 9.004 DPT_Lux (Lux))
124 Push button 6 – Luminosity (2 Byte – 9.004 DPT_Lux (Lux))

* Default value

"Value – 2 Byte (0...65535)" communication objects (Rocker)

24 Rocker 1-2 – Value (0...65535) (2 Byte – 7.001 DPT_Pulse)

64 Rocker 3-4 – Value (0...65535) (2 Byte – 7.001 DPT_Pulse)

104 Rocker 5-6 – Value (0...65535) (2 Byte – 7.001 DPT_Pulse)

"Value – 2 Byte (Temperature)" communication objects (Rocker)

24 Rocker 1-2 – Temperatur (2 Byte – 9.001 DPT_Temperatur (°C))

64 Rocker 3-4 – Temperatur (2 Byte – 9.001 DPT_Temperatur (°C))

104 Rocker 5-6 – Temperatur (2 Byte – 9.001 DPT_Temperatur (°C))

"Value – 2 Byte (Luminosity)" communication objects (Rocker)

24 Rocker 1-2 – Luminosity (2 Byte – 9.004 DPT_Lux (Lux))

64 Rocker 3-4 – Luminosity (2 Byte – 9.004 DPT_Lux (Lux))

104 Rocker 5-6 – Luminosity (2 Byte – 9.004 DPT_Lux (Lux))

- i** During a value adjustment, the newly set values are only saved in the RAM volatile memory of the device. Thus, the saved values in the event of a reset (bus voltage failure or ETS programming operation) are replaced by the preset values programmed by the ETS.

3.9.7 "Thermostat extension" function

Parameters	Description	Value
Function of the "Setpoint selection" rocker	This parameter, actuating the rocker in the "Setpoint selection" function changes the operating mode in a room thermostat. A distinction is made here between the rocker functions when it is pressed up/down.	Comfort * Standby Night setpoint Frost protection Auto
Function of the "Setpoint selection" button	This parameter, actuating the button in the "Setpoint selection" function changes the operating mode in a room thermostat.	Comfort * Standby Night selection Frost protection Auto
Function of the "Override setpoint" rocker	This parameter, actuating the rocker in the "Override setpoint" function changes the operating mode in a room thermostat. A distinction is made here between the rocker functions when it is pressed up/down.	-1.0°C ... +1.0°C *
Function of the "Override setpoint" button	This parameter, actuating the button in the "Override setpoint" function changes the operating mode in a room thermostat.	-1.0°C ... +1.0°C *
Function of the "Heating/cooling - changeover" rocker	This parameter, actuating the rocker in the "Heating/cooling - changeover" function changes the operating mode in a room thermostat. A distinction is made here between the rocker functions when it is pressed up/down.	
Function of the "Heating/cooling - changeover" button	This parameter, actuating the button in the "Heating/cooling - changeover" function changes the operating mode in a room thermostat. A distinction is made here between the rocker functions when it is pressed up/down.	
Function of the "Presence" rocker	This parameter, actuating the rocker in the "Presence" function changes the operating mode in a room thermostat. A distinction is made here between the rocker functions when it is pressed up/down.	Presence On * Presence Off *
Function of the "Presence" button	This parameter, actuating the button in the "Presence" function changes the operating mode in a room thermostat. A distinction is made here between the rocker functions when it is pressed up/down.	Presence On * Presence Off *

Table 47: Function of the "Setpoint selection" rocker/button

The **Setpoint selection** function allows the Comfort, Standby, Frost protection, absence or Auto operating modes to be transmitted to the bus.

- Comfort
The **Comfort** operating mode sets the room temperature to a temperature value predefined in the thermostat e.g. comfort temperature 21°C for comfort (presence).
- Standby²
The **Standby** operating mode reduces the room temperature after leaving the room (brief absence) to a value e.g. 19°C predefined in the thermostat.

* Default value

- Frost protection
The **Frost protection** operating mode reduces the heating circuit temperature, e.g. during a long absence, to a minimum temperature of 7°C defined in the controller to protect against frost damage.
- Absence
The **Absence** operating mode turns down the room temperature during a long absence (e. g. holiday) to a value of 17°C defined in the thermostat.
- Auto³
The **Auto** operating mode resets the operating mode automatically to the current operating mode (e. g. after forced position).

i With underfloor heating the change-over from comfort to standby first becomes noticeable after a certain length of time due to the sluggishness of the underfloor heating system.

²The "Standby" operating mode can only be used in the operating concept as a button.

³The "Auto" operating mode can only be used in the operating concept as a rocker.

In the course of this, the system switches back and forth between the Comfort – Standby – Night selection– Frost/Heat protection operating modes.

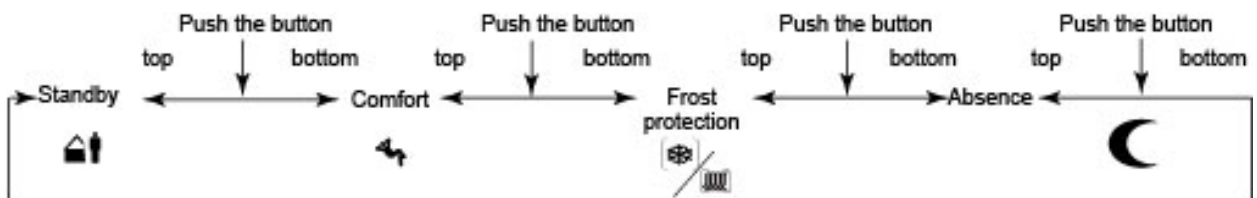


Figure 28: Setpoint selection RTR for rocker function

Example: Room temperature change "Party room"

The room temperature is automated, regulated and controlled in the Night selection operating mode throughout the entire year. To change the room temperature for a party, the "Comfort" mode can be activated and deactivated again at the end of the party by a touch operation of the "Comfort" mode.

"Value – Thermostat extension (Current mode)" communication objects (Rocker)

22 Rocker 1-2 – Current mode(1 Byte – 20.102 DPT_HVAC mode)

62 Rocker 3-4 – Current mode(1 Byte – 20.102 DPT_HVAC mode)

102 Rocker 5-6 – Current mode(1 Byte – 20.102 DPT_HVAC mode)

"Value – Thermostat extension (Override setpoint)" communication objects (Rocker)

24 Rocker 1-2 – Override setpoint (2 Byte–9.002 DPT_temperature difference (K))

29 Rocker 1-2 – Override setpoint status (2 Byte–9.002 DPT_temperature difference (K))

64 Rocker 3-4– Override setpoint (2 Byte–9.002 DPT_temperature difference (K))

69 Rocker 3-4– Override setpoint status (2 Byte–9.002 DPT_temperature difference (K))

104 Rocker 5-6– Override setpoint (2 Byte–9.002 DPT_temperature difference (K))

109 Rocker 5-6 – Override setpoint status (2 Byte–9.002 DPT_temperature difference (K))

"Value – Thermostat extension (Heating/cooling - changeover)" communication objects (Rocker)

13 Rocker 1-2 – Heating/Cooling – status indication(1 Bit – 1.100 DPT-heating/cooling)

18 Rocker 1-2 – Heating/Cooling - changeover(1 Bit – 1.100 DPT-heating/cooling)

53 Rocker 3-4 – Heating/Cooling – status indication(1 Bit – 1.100 DPT-heating/cooling)

58 Rocker 3-4 – Heating/Cooling - changeover(1 Bit – 1.100 DPT-heating/cooling)

93 Rocker 5-6 – Heating/Cooling – status indication(1 Bit – 1.100 DPT-heating/cooling)

98 Rocker 5-6 – Heating/Cooling - changeover(1 Bit – 1.100 DPT-heating/cooling)

"Value – Thermostat extension (Presence)" communication objects (Rocker)

18 Rocker 1-2 – Presence(1 Bit – 1.100 DPT-switch)

58 Rocker 3-4 – Presence(1 Bit – 1.100 DPT-switch)

98 Rocker 5-6– Presence(1 Bit – 1.100 DPT-switch)

"Value – Thermostat extension (Current mode)" communication objects (Push button)

22 Push button 1 – Current mode(1 Byte – 20.102 DPT_HVAC mode)

42 Push button 2– Current mode(1 Byte – 20.102 DPT_HVAC mode)

62 Push button 3 – Current mode(1 Byte – 20.102 DPT_HVAC mode)

82 Push button 4 – Current mode(1 Byte – 20.102 DPT_HVAC mode)

102 Push button 5 – Current mode(1 Byte – 20.102 DPT_HVAC mode)

122 Push button 6 – Current mode(1 Byte – 20.102 DPT_HVAC mode)

"Value – Thermostat extension (Override setpoint)" communication objects (Push button)

24 Push button 1 – Override setpoint (2 Byte–9.002 DPT_temperature difference (K))

29 Push button 1 – Override setpoint status (2 Byte–9.002 DPT_temperature difference (K))

44 Push button 2 – Override setpoint (2 Byte–9.002 DPT_temperature difference (K))

49 Push button 2 – Override setpoint status (2 Byte–9.002 DPT_temperature difference (K))

64 Push button 3 – Override setpoint (2 Byte–9.002 DPT_temperature difference (K))

69 Push button 3– Override setpoint status (2 Byte–9.002 DPT_temperature difference (K))

84 Push button 4 – Override setpoint (2 Byte–9.002 DPT_temperature difference (K))

89 Push button 4– Override setpoint status (2 Byte–9.002 DPT_temperature difference (K))

104 Push button 5 – Override setpoint (2 Byte–9.002 DPT_temperature difference (K))

109 Push button 5 – Override setpoint status (2 Byte–9.002 DPT_temperature difference (K))

124 Push button 6 – Override setpoint (2 Byte–9.002 DPT_temperature difference (K))

129 Push button 6 – S Override setpoint status (2 Byte–9.002 DPT_temperature difference (K))

"Value – Thermostat extension (Heating/cooling - changeover)" communication objects (Push button)

13 Push button 1 – Heating/Cooling – status indication(1 Bit – 1.100 DPT-heating/cooling)

18 Push button 1 – Heating/Cooling - changeover(1 Bit – 1.100 DPT-heating/cooling)

33 Push button 2 – Heating/Cooling – status indication(1 Bit – 1.100 DPT-heating/cooling)

38 Push button 2 – Heating/Cooling - changeover(1 Bit – 1.100 DPT-heating/cooling)

53 Push button 3 – Heating/Cooling – status indication(1 Bit – 1.100 DPT-heating/cooling)

58 Push button 3 – Heating/Cooling - changeover(1 Bit – 1.100 DPT-heating/cooling)

73 Push button 4 – Heating/Cooling – status indication(1 Bit – 1.100 DPT-heating/cooling)

78 Push button 4 – Heating/Cooling - changeover(1 Bit – 1.100 DPT-heating/cooling)

93 Push button 5 – Heating/Cooling – status indication(1 Bit – 1.100 DPT-heating/cooling)

98 Push button 5 – Heating/Cooling - changeover(1 Bit – 1.100 DPT-heating/cooling)

113 Push button 6 – Heating/Cooling – status indication(1 Bit – 1.100 DPT-heating/cooling)

118 Push button 6 – Heating/Cooling - changeover(1 Bit – 1.100 DPT-heating/cooling)

"Value – Thermostat extension (Presence)" communication objects (Push button)

18 Push button 1 – Presence(1 Bit – 1.100 DPT-switch)

38 Push button 2 – Presence(1 Bit – 1.100 DPT-switch)

58 Push button 3 – Presence(1 Bit – 1.100 DPT-switch)

78 Push button 4 – Presence(1 Bit – 1.100 DPT-switch)

98 Push button 5 – Presence(1 Bit – 1.100 DPT-switch)

118 Push button 6 – Presence(1 Bit – 1.100 DPT-switch)

3.9.8 "Priority" function

In the following parameter window, the "Priority" function is parameterised and set as a button pair and button in the operating concept.

With the using mode (1) it can be selected if the "forced" should be toggled, started or stopped. With priority (2) the value of the forced is defined.

Figure 29: "Priority" function

Parameters	Description	Value
Function of the "Priority" button pair	With this parameter the following function is assigned to the button pairs in the " Priority " function. A distinction is made here between the function when pressing the rocker left/right.	ON * / OFF
Function of the "Priority" button	With this parameter the following function is assigned to the button in the " Priority " function when pressing the button.	Priority – On * Priority - Off

Table 48: Function of the " Priority " rocker/button

" Priority " communication objects (Rocker)

- 13 Rocker 1-2 – Status indication priority (1 Bit – DPT 1.011-State)*
- 53 Rocker 3-4 – Status indication priority (1 Bit – DPT 1.011-State)*
- 93 Rocker 5-6 – Status indication priority (1 Bit – DPT 1.011-State)*
- 20 Rocker 1-2 – Priority (1 Bit – DPT 2.002 boolean control)*
- 60 Rocker 3-4 – Priority (1 Bit – DPT 2.002 boolean control)*
- 100 Rocker 5-6 – Priority (1 Bit – DPT 2.002 boolean control)*

" Priority " communication objects (Push button)

- 13 Push button 1 – Status indication priority (1 Bit – DPT 1.011-State)*
- 33 Push button 2 – Status indication priority (1 Bit – DPT 1.011-State)*
- 53 Push button 3 – Status indication priority (1 Bit – DPT 1.011-State)*

* Default value

73 Push button 4 – Status indication priority (1 Bit – DPT 1.011-State)
93 Push button 5 – Status indication priority (1 Bit – DPT 1.011-State)
113 Push button 6 – Status indication priority (1 Bit – DPT 1.011-State)
20 Push button 1 – Priority (1 Bit – DPT 2.002 boolean control)
40 Push button 2 – Priority (1 Bit – DPT 2.002 boolean control)
60 Push button 3 – Priority (1 Bit – DPT 2.002 boolean control)
80 Push button 4 – Priority (1 Bit – DPT 2.002 boolean control)
100 Push button 5 – Priority (1 Bit – DPT 2.002 boolean control)
120 Push button 6 – Priority (1 Bit – DPT 2.002 boolean control)

With this function any previously defined states are triggered by pressing the lower or upper button pair side (e.g. deactivate presence detector controlled lighting by the function and switch the lighting to PERMANENTLY ON).

Example: "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.

Various subfunctions are available under the "Mandatory control" function, which can be executed by pressing or releasing the button.

3.9.9 "Scene" function

In the following parameter window, the "Scene" function is parameterised and set as a rocker and button in the operating concept.

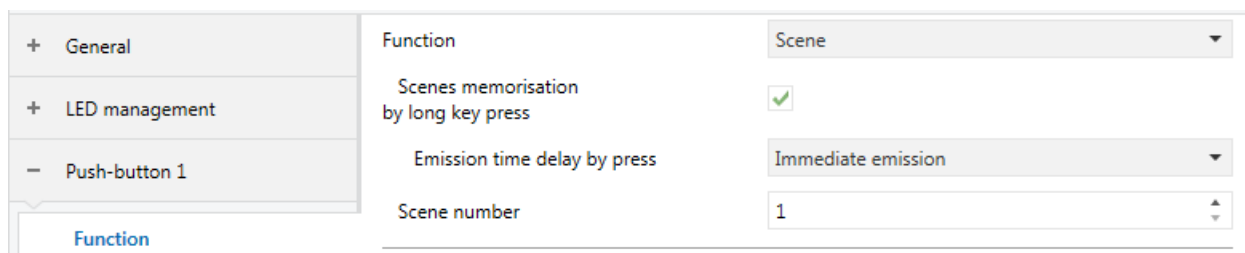


Figure 30: "Scene" function

The application provides a 1-byte communication object for each rocker or button. If a button is pressed, the scene parameters saved under the set and parameterised scene number are opened and executed.

At the same time, up to 64 scenes can be opened, adjusted and, if set, also saved.

Parameters	Description	Value
Function of the "Scene" button pair	With this parameter a scene number is assigned to the button pair in the "Scene" function. A distinction is made here between the function when pressing the rocker left/right.	Scene number rocker left Scene number rocker right (1* ... 64);
Function of the "Scene" button	With this parameter a scene number is assigned to the button in the "Scene" function when pressing the button.	Scene number (1* ... 64)
Emission delay time by press	This parameter defines when the command is transmitted to the bus when pressed.	Immediate emission * time selection 1s ... 5 min
Scenes memorisation by long key press	A changed scene can be saved again by activating this function.	Active * Inactive

Table 49: Function of the "Scene extension unit" rocker/button

If the parameters of a scene are changed by the device, the new scene parameters can be saved by a long press of the button.

„Scene“ communication objects (Rocker)

22 Rocker 1-2 – Scene (1 Byte – 18.001 DPT_scene control

62 Rocker 3-4 – Scene (1 Byte – 18.001 DPT_scene control

102 Rocker 5-6 – Scene (1 Byte – 18.001 DPT_scene control

„Scene“ communication objects (Push button)

22 Push button 1 – Scene (1 Byte – 18.001 DPT_scene control

42 Push button 2 – Scene (1 Byte – 18.001 DPT_scene control

62 Push button 3 – Scene (1 Byte – 18.001 DPT_scene control

82 Push button 4 – Scene (1 Byte – 18.001 DPT_scene control

* Default value

102 Push button 5 - Scene (1 Byte - 18.001 DPT_scene control

122 Push button 6 - Scene (1 Byte - 18.001 DPT_scene control

❗ These new parameters are only saved in the RAM module so that they are overwritten again by the values set previously in the ETS after a bus voltage failure or reset.

❗ The "Save scene by a long press of the button" function is switched on by default.

In the Scene extension unit function the push-button transmits a preset scene (1 ... 64) via a separate communication object if a button is pressed. This makes it possible to open scenes stored in another device e.g. touch display, or to save scenes when using the save function.

When opening an internal scene, no telegram (scene saved in the push-button) is transmitted to the bus. Therefore, the corresponding communication object is also missing. With this function, only the maximum of 8 internally stored scenes can be opened, or saved when using the save function.

In the "Scene extension unit without save function", a simple scene recall is generated if a button is pressed. A long press of a button has no other or additional effect.

In the "Scene extension unit with save function", the push-button checks the duration of the touch operation. Pressing a button for less than one second, as described above, causes a simple scene to be opened.

If a touch operation is longer than five seconds, the push-button generates a save command. In the function as a scene extension unit, a save telegram is transmitted to the bus at the same time. In the configuration as recall of an internal scene, the internal scene is saved in this case. The internal scene control module then requests the current scene values from the bus for the actuator groups used.

❗ A touch operation between one and five seconds is not detected, but discarded as invalid.

The "scene number" parameter defines which of the 8 internal or maximum 64 external scenes should be used if a button is pressed. In the case of a rocker function, two different scene numbers can be predefined.

3.9.10 2-channel mode (2-channel operation)

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

+ General	Function	2-channel mode
+ LED management	Using mode	<input checked="" type="radio"/> Channel A or B <input type="radio"/> Channel A and B
- Push-button 1	Channel A function	ON/OFF
	Function by press	Not active
	Channel B function	ON/OFF
	Function by press	Not active
+ Push-button 2		

Figure 31: "2-channel mode function" parameter

With the 2-channel mode (2-channel operation) it is possible to assign a second operating level to the device. In this function, two channels are assigned to the selected button pair/ button. Channel A is executed with the saved function by a short press of the respective button (left/right)/button and channel B is executed with the saved function by a long press of the button.

In this operation mode, the only functions available are switching, value transmitter 1-byte/2-byte, temperature value transmitter, brightness value transmitter and percentage value.

Parameters	Description	Value
Function of the "2-channel mode" button pair	With this parameter the following function is assigned to the button pair in the "2-channel mode" function. A distinction is made here between the function when pressing the respective button left/right.	ON/OFF * Shutter/blind Value 1 byte Value 2 byte Scene
Function of the "2-channel mode" button	With this parameter the following function is assigned to the button in the "2-channel mode" function when pressing the button	ON/OFF * Shutter/blind Value 1 byte Value 2 byte Scene

Table 50: Function of the "2-channel mode" rocker/button

„2-channel mode – (switch)“ communication objekt“ (Rocker)

18 Rocker 1-2 ON/OFF Channel A (1 Bit – DPT_1.001 switch)

26 Rocker 1-2 ON/OFF Channel B (1 Bit – DPT_1.001 switch)

58 Rocker 3-4 ON/OFF Channel A (1 Bit – DPT_1.001 switch)

66 Rocker 3-4 ON/OFF Channel B (1 Bit – DPT_1.001 switch)

98 Rocker 5-6 ON/OFF Channel A (1 Bit – DPT_1.001 switch)

106 Rocker 5-6 ON/OFF Channel B (1 Bit – DPT_1.001 switch)

„2-channel mode – (1 Byte value)“ communication objekt“ (Rocker)

22 Rocker 1-2 Channel A value (0-255) (1 Byte – DPT_5.010_pulses (0-255))

27 Rocker 1-2 Channel B value (0-255) (1 Byte – DPT_5.010_pulses (0-255))

62 Rocker 3-4 Channel A value (0-255) (1 Byte – DPT_5.010_pulses (0-255))

* Default value

67 Rocker 3-4 Channel B value (0-255) (1 Byte – DPT_5.010_pulses (0-255))
 102 Rocker 5-6 Channel A value (0-255) (1 Byte – DPT_5.010_pulses (0-255))
 107 Rocker 5-6 Channel B value (0-255) (1 Byte – DPT_5.010_pulses (0-255))

„2-channel mode – (Percent 0-100%)“ communication objekt“ (Rocker)

22 Rocker 1-2 Channel A value (%) (1 Byte – DPT_5.001_percentage(0-100%))
 27 Rocker 1-2 Channel B value (%) (1 Byte – DPT_5.001_percentage(0-100%))
 62 Rocker 3-4 Channel A value (%) (1 Byte – DPT_5.001_percentage(0-100%))
 67 Rocker 3-4 Channel B value (%) (1 Byte – DPT_5.001_percentage(0-100%))
 102 Rocker 5-6 Channel A value (%) (1 Byte – DPT_5.001_percentage(0-100%))
 107 Rocker 5-6 Channel B value (%) (1 Byte – DPT_5.001_percentage(0-100%))

„2-channel mode – (Temperature)“ communication objekt“ (Rocker)

24 Rocker 1-2 Channel A value (Temperature) (1 Byte – DPT_9.001_temperature(°C))
 28 Rocker 1-2 Channel B value (Temperature) (1 Byte – DPT_9.001_temperature(°C))
 64 Rocker 3-4 Channel A value (Temperature) (1 Byte – DPT_9.001_temperature(°C))
 68 Rocker 3-4 Channel B value (Temperature) (1 Byte – DPT_9.001_temperature(°C))
 104 Rocker 5-6 Channel A value (Temperature) (1 Byte – DPT_9.001_temperature(°C))
 108 Rocker 5-6 Channel B value (Temperature) (1 Byte – DPT_9.001_temperature(°C))

„2-channel mode – (Luminosity)“ communication objekt“ (Rocker)

24 Rocker 1-2 Channel A value (Luminosity) (1 Byte – DPT_9.004_Lux (Lux))
 28 Rocker 1-2 Channel B value (Luminosity) (1 Byte – DPT_9.004_Lux (Lux))
 64 Rocker 3-4 Channel A value (Luminosity) (1 Byte – DPT_9.004_Lux (Lux))
 68 Rocker 3-4 Channel B value (Luminosity) (1 Byte – DPT_9.004_Lux (Lux))
 104 Rocker 5-6 Channel A value (Luminosity) (1 Byte – DPT_9.004_Lux (Lux))
 108 Rocker 5-6 Channel B value (Luminosity) (1 Byte – DPT_9.004_Lux (Lux))

„2-channel mode – (2 Byte value)“ communication objekt“ (Rocker)

24 Rocker 1-2 Channel A value (0-65535) (1 Byte – DPT_7.001_Pulses)
 28 Rocker 1-2 Channel B value (0-65535) (1 Byte – DPT_7.001_Pulses)
 64 Rocker 3-4 Channel A value (0-65535) (1 Byte – DPT_7.001_Pulses)
 68 Rocker 3-4 Channel B value (0-65535) (1 Byte – DPT_7.001_Pulses)
 104 Rocker 5-6 Channel A value (0-65535) (1 Byte – DPT_7.001_Pulses)
 108 Rocker 5-6 Channel B value (0-65535) (1 Byte – DPT_7.001_Pulses)

„2-channel mode – (Scene)“ communication objekt“ (Rocker)

28 Rocker 1-2 – Scene channel A (1 Byte – Scene number)
34 Rocker 1-2 – Scene channel B (1 Byte – Scene number)
51 Rocker 3-4 – Scene channel A (1 Byte – Scene number)
57 Rocker 3-4 – Scene channel B (1 Byte – Scene number)
74 Rocker 5-6– Scene channel A (1 Byte – Scene number)
80 Rocker 5-6– Scene channel B (1 Byte – Scene number)

„2-channel mode – (switch)“ communication objekt“ (Push button)

18 Push button 1 ON/OFF Channel A (1 Bit – DPT_1.001 switch)
26 Push button 1 ON/OFF Channel B (1 Bit – DPT_1.001 switch)
38 Push button 2 ON/OFF Channel A (1 Bit – DPT_1.001 switch)
46 Push button 2 ON/OFF Channel B (1 Bit – DPT_1.001 switch)
58 Push button 3 ON/OFF Channel A (1 Bit – DPT_1.001 switch)
66 Push button 3 ON/OFF Channel B (1 Bit – DPT_1.001 switch)
78 Push button 4 ON/OFF Channel A (1 Bit – DPT_1.001 switch)
86 Push button 4 ON/OFF Channel B (1 Bit – DPT_1.001 switch)
98 Push button 5 ON/OFF Channel A (1 Bit – DPT_1.001 switch)
106 Push button 5 ON/OFF Channel B (1 Bit – DPT_1.001 switch)
118 Push button 6 ON/OFF Channel A (1 Bit – DPT_1.001 switch)
126 Push button 6 ON/OFF Channel B (1 Bit – DPT_1.001 switch)

„2-channel mode – (1 Byte value)“ communication objekt“ (Push button)

22 Push button 1 Channel A value (0-255) (1 Byte – DPT_5.010 pulses (0-255))
27 Push button 1 Channel B value (0-255) (1 Byte – DPT_5.010 pulses (0-255))
42 Push button 2 Channel A value (0-255) (1 Byte – DPT_5.010 pulses (0-255))
47 Push button 2 Channel B value (0-255) (1 Byte – DPT_5.010 pulses (0-255))
62 Push button 3 Channel A value (0-255) (1 Byte – DPT_5.010 pulses (0-255))
67 Push button 3 Channel B value (0-255) (1 Byte – DPT_5.010 pulses (0-255))
82 Push button 4 Channel A value (0-255) (1 Byte – DPT_5.010 pulses (0-255))
87 Push button 4 Channel B value (0-255) (1 Byte – DPT_5.010 pulses (0-255))
102 Push button 5 Channel A value (0-255) (1 Byte – DPT_5.010 pulses (0-255))
107 Push button 5 Channel B value (0-255) (1 Byte – DPT_5.010 pulses (0-255))
122 Push button 6 Channel A value (0-255) (1 Byte – DPT_5.010 pulses (0-255))
127 Push button 6 Channel B value (0-255) (1 Byte – DPT_5.010 pulses (0-255))

„2-channel mode – (Percent 0-100%)“ communication objekt“ (Push button)

22 Push button 1 Channel A (%) (1 Byte – DPT_5.001 percentage (0-100%))
27 Push button 1 Channel B (%) (1 Byte – DPT_5.001 percentage (0-100%))
42 Push button 2 Channel A (%) (1 Byte – DPT_5.001 percentage (0-100%))
47 Push button 2 Channel B (%) (1 Byte – DPT_5.001 percentage (0-100%))
62 Push button 3 Channel A (%) (1 Byte – DPT_5.001 percentage (0-100%))
67 Push button 3 Channel B (%) (1 Byte – DPT_5.001 percentage (0-100%))
82 Push button 4 Channel A (%) (1 Byte – DPT_5.001 percentage (0-100%))

87 Push button 4 Channel B (%) (1 Byte – DPT_5.001 percentage (0-100%))

102 Push button 5 Channel A (%) (1 Byte – DPT_5.001 percentage (0-100%))

107 Push button 5 Channel B (%) (1 Byte – DPT_5.001 percentage (0-100%))

122 Push button 6 Channel A (%) (1 Byte – DPT_5.001 percentage (0-100%))

127 Push button 6 Channel B (%) (1 Byte – DPT_5.001 percentage (0-100%))

„2-channel mode – (Temperature)“ communication objekt“ (Push button)

24 Push button 1 Channel A value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

28 Push button 1 Channel B value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

44 Push button 2 Channel A value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

48 Push button 2 Channel B value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

64 Push button 3 Channel A value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

68 Push button 3 Channel B value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

84 Push button 4 Channel A value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

88 Push button 4 Channel B value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

104 Push button 5 Channel A value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

108 Push button 5 Channel B value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

124 Push button 6 Channel A value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

128 Push button 6 Channel B value (Temperature) (1 Byte – DPT_9.001 temperature (°C))

„2-channel mode – (Luminosity)“ communication objekt“ (Push button)

24 Push button 1 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

28 Push button 1 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

44 Push button 2 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

48 Push button 2 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

64 Push button 3 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

68 Push button 3 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

84 Push button 4 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

88 Push button 4 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

104 Push button 5 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

108 Push button 5 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

124 Push button 6 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

128 Push button 6 Channel A value (Luminosity) (1 Byte – DPT_9.004 Lux (Lux))

„2-channel mode – (2 Byte value)“ communication objekt“ (Push button)

24 Push button 1 – Channel A value (0-65535) (2 Byte – DPT_7.001 pulses)
28 Push button 1 – Channel B value (0-65535) (2 Byte – DPT_7.001 pulses)
44 Push button 2 – Channel A value (0-65535) (2 Byte – DPT_7.001 pulses)
48 Push button 2 – Channel B value (0-65535) (2 Byte – DPT_7.001 pulses)
64 Push button 3 – Channel A value (0-65535) (2 Byte – DPT_7.001 pulses)
68 Push button 3 – Channel B value (0-65535) (2 Byte – DPT_7.001 pulses)
84 Push button 4 – Channel A value (0-65535) (2 Byte – DPT_7.001 pulses)
88 Push button 4 – Channel B value (0-65535) (2 Byte – DPT_7.001 pulses)
104 Push button 5 – Channel A value (0-65535) (2 Byte – DPT_7.001 pulses)
108 Push button 5 – Channel B value (0-65535) (2 Byte – DPT_7.001 pulses)
124 Push button 6 – Channel A value (0-65535) (2 Byte – DPT_7.001 pulses)
128 Push button 6 – Channel B value (0-65535) (2 Byte – DPT_7.001 pulses)

„2-channel mode – (Scene)“ communication objekt“ (Push button)

28 Push button 1 – Scene channel A (1 Byte – Scene number)
34 Push button 1 – Scene channel B (1 Byte – Scene number)
51 Push button 2 – Scene channel A (1 Byte – Scene number)
57 Push button 2 – Scene channel B (1 Byte – Scene number)
74 Push button 3 – Scene channel A (1 Byte – Scene number)
80 Push button 3 – Scene channel B (1 Byte – Scene number)
97 Push button 4 – Scene channel A (1 Byte – Scene number)
103 Push button 4 – Scene channel B (1 Byte – Scene number)

Depending on the object type set, the object value that the push-button should transmit when a button is pressed can be selected. "Switching (1 bit)" makes it possible to select whether an ON or OFF telegram should be transmitted if a button is pressed or whether the object value should be transmitted toggled (TOGGLE).

With the "value transmitter 1-byte" parameterisation the object value can be entered freely ranging from 0 ... 255 or 0 ... 100%.

A temperature value ranging from 0 ... 40°C can be selected as "temperature value transmitter 2-byte", a brightness value ranging from 0 ... 1000 lx can be selected as "brightness value transmitter (2 -byte)".

The object value ranging from 0 ... 65535 can be freely entered for the "value transmitter 2-byte" function.

It is not possible to adjust the object value for the "2-channel mode" function by a long press of the button, since the determination of the actuation duration is used for the adjustable operating concepts.

Under "operating concept", two functions "Channel A and channel B" or "Channel A or channel B" are available as an additional section option.

Channel A or Channel B operating concept

In this operating concept exactly one telegram is transmitted to the bus for each actuation.

- In the case of a short actuation, the push-button transmits a telegram for channel A.
- In the case of a long actuation, the push-button transmits a telegram for channel B.

The duration for distinguishing between a short and long touch operation is set by the parameter "General - Parameter".

If the rocker is pressed for a duration shorter than the set time, then the telegram is only transmitted to channel A. If the duration of the actuation exceeds the set time, only the telegram for channel B is performed.

Therefore, this operating concept only provides for the transmission of a telegram for one channel. In this operating concept, the push-button does not transmit a telegram immediately upon pressing the rocker.



T1 = Duration of long key-press 2-channel mode

Figure 32: Channel A or Channel B operating concept

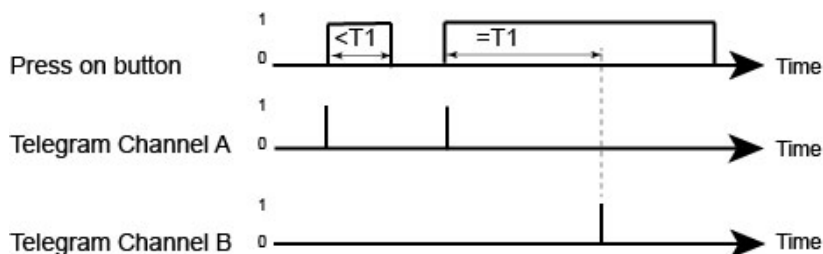
Channel A and Channel B operating concept

In this operating concept, one telegram, or alternatively two telegrams is/are transmitted to the bus for each actuation.

- In the case of a short actuation, the push-button transmits a telegram for channel A.
- In the case of a long actuation, the push-button first transmits the telegram for channel A and then the telegram for channel B.

The duration for distinguishing between a short and long touch operation is set by the parameter "Time between channel 1 and channel 2 for rocker left" and "Time between channel 1 and channel 2 for rocker right".

If the rocker is pressed for a duration shorter than the set time, then the telegram is only transmitted to channel A.



T1 = Duration of long key-press 2-channel mode

Figure 33: Channel A and Channel B operating concept

3.9.11 Stepping switch

In the following parameter window, the respective function and selection options of the "Stepping switch" function are displayed and configured.

Figure 34: "Step switch" function

Parameters	Description	Value
Function of the "Value type stepping switch" button pair	With this parameter the following function is assigned to the button pair in the "Stepping switch" function. A distinction is made here between the function when pressing the rocker left/right.	Value (0 ... 255) <input type="checkbox"/> Value (0 ... 100%) Scene (1 ... 64)
Behaviour	The concept for the step switch is defined with this parameter.	Pass through * Flow and return
Function of the "Stepping number" button	With this parameter the following function is assigned to the button in the "Stepping switch" function when pressing the button.	1* ... 7
Step X (0-255) Step X (0-100%) Step X (scene 1-64)	With this parameter the corresponding value for each step is set.	0* ... 255 0* ... 100% 1* ... 64

Table 51: Function of the "Stepping switch" rocker/button

The stepping switch provides the option of selecting and transmitting predefined values e.g. 1-byte values (0 ... 100%, 0 ... 255 or scenes 1 ... 64) to the bus.

„Step switch – (value 0-255)“ communication objekt“ (Rocker)

22 Rocker 1-2 Value(0-255) (1 Byte – DPT 5.010_counter pulses (0..255))

62 Rocker 3-4 Value(0-255) (1 Byte – DPT 5.010_counter pulses (0..255))

102 Rocker 5-6 Value(0-255) (1 Byte – DPT 5.010_counter pulses (0..255))

„Step switch – (value %)“ communication objekt“ (Rocker)

22 Rocker 1-2 Value in % (1 Byte – DPT 5.001_percentage (0..100%))

62 Rocker 3-4 Value in % (1 Byte – DPT 5.001_percentage (0..100%))

102 Rocker 5-6 Value in % (1 Byte – DPT 5.001_percentage (0..100%))

„Step switch – (scene)“ communication objekt“ (Rocker)

22 Rocker 1-2 Scene (1 Byte – DPT 18.001_scene control)

62 Rocker 3-4 Scene (1 Byte – DPT 18.001_scene control)

102 Rocker 5-6 Scene (1 Byte – DPT 18.001_scene control)

„Step switch – (value 0-255)“ communication objekt“ (Push button)

22 Push button 1 – Value(0-255) (1 Byte – DPT 5.010_counter pulses (0..255))

42 Push button 2 – Value(0-255) (1 Byte – DPT 5.010_counter pulses (0..255))
 62 Push button 3 – Value(0-255) (1 Byte – DPT 5.010_counter pulses (0..255))
 82 Push button 4 – Value(0-255) (1 Byte – DPT 5.010_counter pulses (0..255))
 102 Push button 5 – Value(0-255) (1 Byte – DPT 5.010_counter pulses (0..255))
 122 Push button 6 – Value(0-255) (1 Byte – DPT 5.010_counter pulses (0..255))

„Step switch – (value %)“ communication objekt“ (Push button)

22 Push button 1 – Value in % (1 Byte – DPT 5.001_percentage (0..100%))
 42 Push button 2 – Value in % (1 Byte – DPT 5.001_percentage (0..100%))
 62 Push button 3 – Value in % (1 Byte – DPT 5.001_percentage (0..100%))
 82 Push button 4 – Value in % (1 Byte – DPT 5.001_percentage (0..100%))
 102 Push button 5 – Value in % (1 Byte – DPT 5.001_percentage (0..100%))
 122 Push button 6 – Value in % (1 Byte – DPT 5.001_percentage (0..100%))

„Step switch – (scene)“ communication objekt“ (Push button)

22 Push button 1 – Scene (1 Byte – DPT 18.001_scene control)
 42 Push button 2 – Scene (1 Byte – DPT 18.001_scene control)
 62 Push button 3 – Scene (1 Byte – DPT 18.001_scene control)
 82 Push button 4 – Scene (1 Byte – DPT 18.001_scene control)
 102 Push button 5 – Scene (1 Byte – DPT 18.001_scene control)
 122 Push button 6 – Scene (1 Byte – DPT 18.001_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 No.	1 byte	[1 ... 64]

Table 52: Value processing of step switch

The first setting to be selected within the configuration is the function of the respective button pair for every actuation. This selection is important in order to define the counting direction every time the individual button pair sides (lower side / upper side) are pressed. The following modes of operation are possible:

- A. Switch up/Switch down
- B. Switch down/Switch up
- C. Pass through
- D. Flow and return

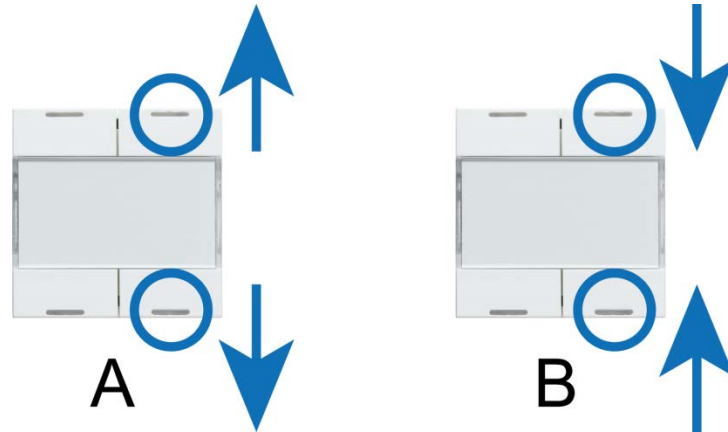


Figure 35: Function of rockers selection

In the next step it is possible to select the possible number of steps (values). The number of steps is the same for both rocker sides. A maximum of seven steps (1, 2, 3, 4, 5, 6, 7) are available.

After selecting the possible number of steps, the type of value is configured. The possible value types can be found in **Fehler! Verweisquelle konnte nicht gefunden werden..**

Example: Dimming value default by means of step switch

Parameter settings:

Functional principle = Upper rocker = Dim brighter / Lower rocker = Dim darker

Number of steps = 7

Data point type = DPT 5.001

Value = 0 ... 100 % (dimming value default)

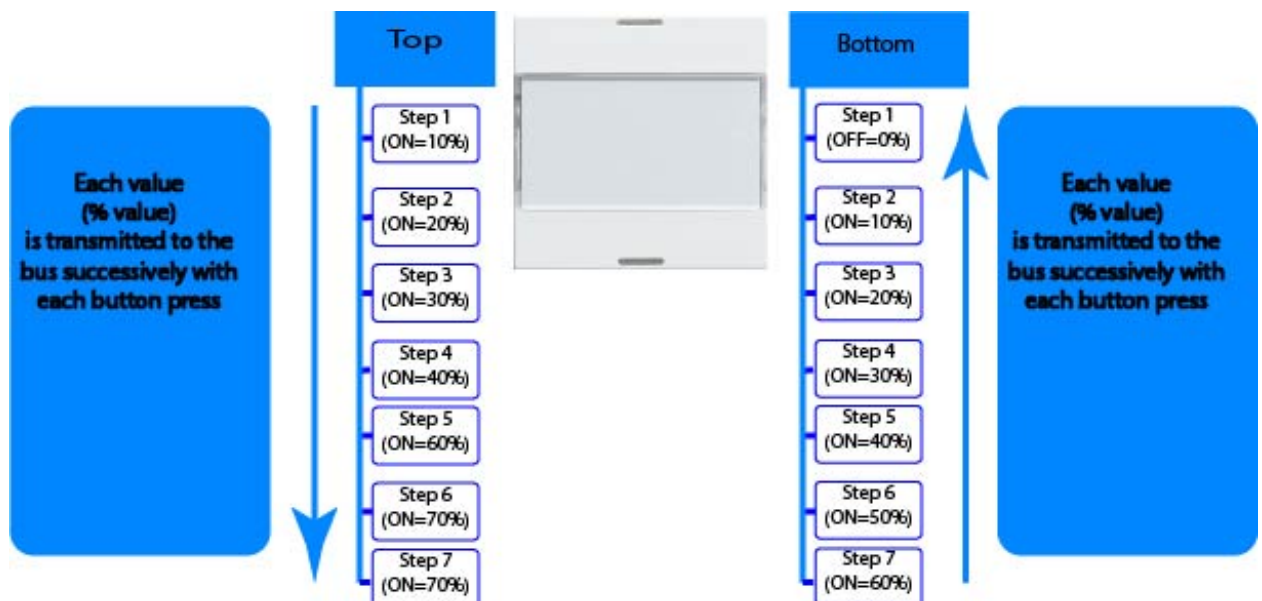


Figure 36: Overview of 1 step switch function

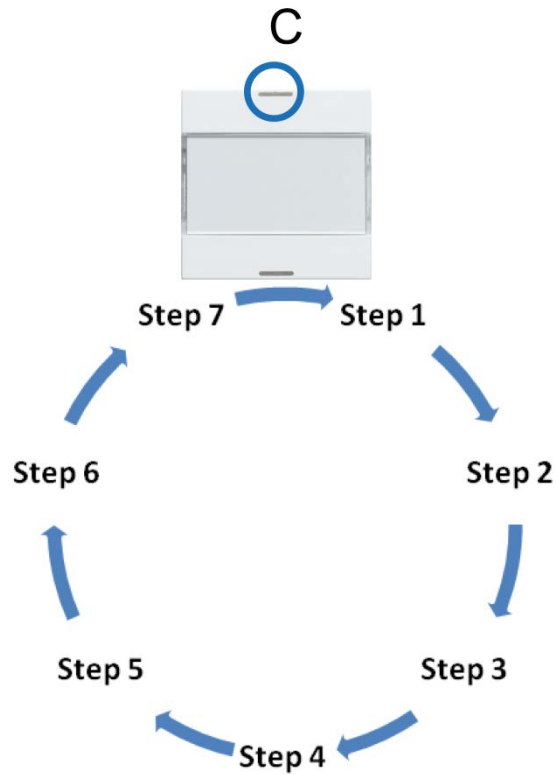


Figure 37: Overview of 2a step switch function

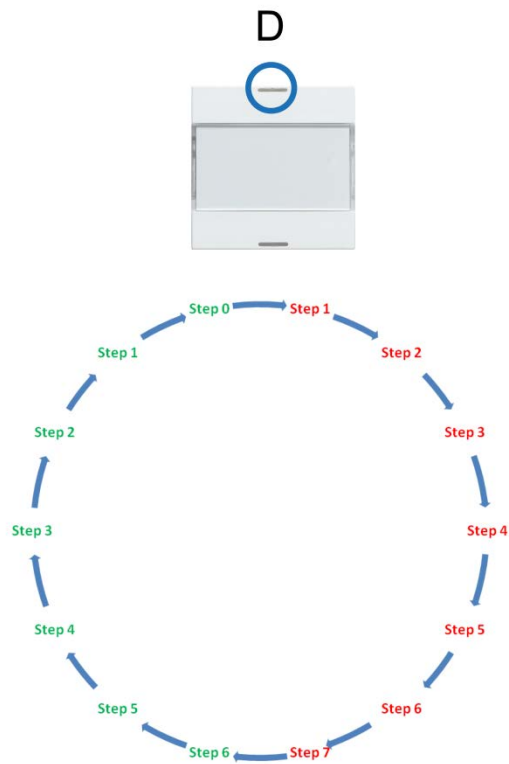


Figure 38: Overview of 2b step switch function

3.9.12 Automatic control deactivation function

The "Deactivate automatic functions" function is described and presented in the following section.

+ General	Function	Automatic control deactivation ▼
+ LED management	Lock-up	<input type="checkbox"/>

Figure 39: Parameter " Automatic control deaktivation "

„ Automatic control deaktivation “ communication objekt“ (Rocker)

13 Wippe 1-2 – Automatic control deactivation status (1 Bit – DPT 1.003_enable)

18 Wippe 1-2 – Automatic control deactivation (1 Bit – DPT 1.003_enable)

53 Wippe 3-4 – Automatic control deactivation status (1 Bit – DPT 1.003_enable)

58 Wippe 3-4 – Automatic control deactivation (1 Bit – DPT 1.003_enable)

93 Wippe 5-6 – Automatic control deactivation status (1 Bit – DPT 1.003_enable)

98 Wippe 5-6 – Automatic control deactivation (1 Bit – DPT 1.003_enable)

„ Automatic control deaktivation “ communication objekt“ (Push button)

13 Taste 1 – Automatic control deactivation status (1 Bit – DPT 1.003_enable)

18 Taste 1 – Automatic control deactivation (1 Bit – DPT 1.003_enable)

33 Taste 2 – Automatic control deactivation status (1 Bit – DPT 1.003_enable)

38 Taste 2 – Automatic control deactivation (1 Bit – DPT 1.003_enable)

53 Taste 3 – Automatic control deactivation status (1 Bit – DPT 1.003_enable)

58 Taste 3 – Automatic control deactivation (1 Bit – DPT 1.003_enable)

73 Taste 4 – Automatic control deactivation status (1 Bit – DPT 1.003_enable)

78 Taste 4 – Automatic control deactivation (1 Bit – DPT 1.003_enable)

93 Taste 5 – Automatic control deactivation status (1 Bit – DPT 1.003_enable)

98 Taste 5 – Automatic control deactivation (1 Bit – DPT 1.003_enable)

113 Taste 6 – Automatic control deactivation status (1 Bit – DPT 1.003_enable)

118 Taste 6 – Automatic control deactivation (1 Bit – DPT 1.003_enable)

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

3.10 "Function of the status LED" Parameter

In the following section the functions of the status LED in the "as button pair" operating concept and the functions of the status LED left/right in the "button" operating concept are described and set.

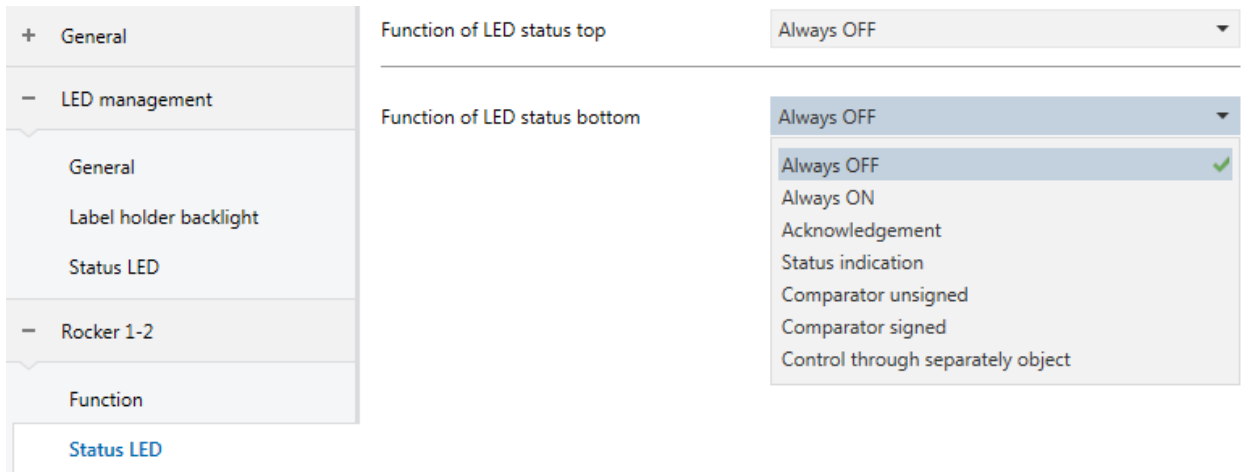


Figure 40: Functional overview of the status LED

- i** The "individual configuration of the status LED" function must be set in section 3.8.3 Status LED for the configuration of every single status LED.

Parameters	Description	Value
Function of the status LED in the "button pair" operating concept	The function of the status LED left and right can be configured with this parameter.	Always Off * Always On Acknowledgement Status indication Comparator unsigned Comparator signed Control through separately object
Function of the status LED in the "button" operating concept	The function of the status LED right is configured with this parameter.	Always Off * Always On Acknowledgement Status indication Comparator unsigned Comparator signed Control through separately object

Table 53: Functional overview of the status LED

- i** The parameterisation will only be described for the first two buttons (button 1-2) or first button pair (button 1/button 2). The parameterisation must be carried out identically for the other button pairs or buttons.

* Default value

In the following sections the individual function types of the status LEDs will be described and configured. The status LEDs can be switched on permanently, activated by actuating the associated button or controlled via objects.

3.10.1 Function Status LED "Always ON"

If individual colour is selected, it is possible to change the colour externally with one of the six communication objects, like it is described in the chapter LED colour global. Please adjust the same for the following descriptions.

Parameters	Description	Value
Always On	With this parameter the status LED is switched on permanently in the colour selected.	OFF * Red Green Blue Red + Green Red + Blue Blue + Green

Table 54: Parameter function of the status LED "Function Always On"

 No colour of the status LED indicates that the LED lights up in white.

3.10.2 Function status LED "Acknowledgement"

Parameters	Description	Value
Acknowledgement	With this parameter the status LED is switched on by actuating the respective button and only lights up in the selected colour for a duration defined in the device when actuated.	OFF * Red Green Blue Red + Green Red + Blue Blue + Green

Table 55: Parameter function of the status LED "Actuation display"

3.10.3 Function status LED "Switch status indication"

Parameters	Description	Value
Status indication (ON = 0)	The status LED is used as a feedback indicator by switching on a light, for example, to show that the lighting was switched on. The status LED lights up as long as the lighting is switched off in the respectively set colour.	OFF * Red Green Blue Red + Green Red + Blue Blue + Green
Status indication (ON = 1)	The status LED is used as a feedback indicator by switching off a light, for example, to show that the lighting was switched off. The status LED lights up as long as the lighting is switched on in the respectively set colour.	OFF * Red Green Blue Red + Green Red + Blue Blue + Green

Table 56: Parameter function of the status LED "Switch status display of object"

3.10.4 Function Status LED "Activation via separate object if On/Off"

Parameters	Description	Value
Activation via separate object if On	The status LED is switched on by a separate communication object (e.g. status object actuator channel On) if a "1" is present and lights up in the set colour.	OFF * Red Green Blue Red + Green Red + Blue Blue + Green
Activation via separate object if Off	The status LED is switched on by a separate communication object (e.g. status object actuator channel Off) if a "0" is present and lights up in the set colour.	OFF * Red Green Blue Red + Green Red + Blue Blue + Green

Table 57: Parameter function of the status LED "Activation via separate object"

The "status LED" can be switched on or off separately e.g. by pressing a second push-button. Activation takes place by means of the value on the "switching" communication object.

3.10.5 Function Status "Status indication blinking by 1 / 0"

Parameters	Description	Value
Status indication blinking by 1	The status LED is used as a feedback indicator by switching on a light, for example, to show that the lighting was switched on. The status LED flashes in the respectively set colour as long as the lighting is switched off. Flashing frequency 1 Hz.	OFF* Red Green Blue Red + Green Red + Blue Blue + Green

Table 58: Parameter function of the status LED "flashing status display – flashing if 1"

The status LED indicates the state of the separate 1-bit LED object. The additional parameter "Activation of the status LED via object value" is displayed by this setting.

Parameters	Description	Value
Status indication blinking by 1	The status LED is used as a feedback indicator by switching on a light, for example, to show that the lighting was switched on. The status LED flashes in the respectively set colour as long as the lighting is switched off. Flashing frequency 1 Hz.	OFF * Red Green Blue Red + Green Red + Blue Blue + Green

Table 59: Parameter function of the status LED "flashing status display – flashing if 0"

The status LED indicates the state of the separate 1-bit LED object. The additional parameter "Activation of the status LED via object value" is displayed by this setting.

3.10.6 Function of status LED "Operating mode display of KNX controller"

The status LED indicates the state of a KNX room thermostat via a separate 1-byte communication object. The additional parameter "Status LED ON if" is displayed by this setting.

Parameters	Description	Value
Operating mode display of KNX controller	With this parameter the state is indicated by a status LED in the parameterised button (operating modes) of a room thermostat.	No colour * Red Green Blue Red + Green Red + Blue Blue + Green

Table 60: Parameter function of the status LED "Operating mode display of KNX controller"

The values of a communication object with data type 20.102 "HVAC Mode" are defined as follows: 0 = Automatic / 1 = Comfort / 2 = Standby / 3 = Night / 4 = Frost-/Heat protection.

Here, the "Automatic" value is only used by the "mandatory-operating mode-change-over" objects. The status LED lights up if the object contains the value parameterised at this point. Possibly a table with the value – operating mode - symbol

- ❗ After a bus reset or ETS programming operation, the value of the LED object is always "0" (Automatic).

3.10.7 Function status LED "Comparator unsigned (1 byte)"

In the "Comparator without sign" function (value range 0 ... 255), the device compares a defined, set value (comparison value) with a received value. If the comparison value is greater than the received value, the status LED then lights up in the selected colour.

The status LED is controlled depending on a comparison operation. This configuration has a separate 1-byte communication object for receiving the unsigned comparison value (0...255). The additional parameter "Status LED ON if" is displayed by this setting.

Parameters	Description	Value
Status LED On if...	With this parameter the status LED is switched on if the comparison value is greater than the received value.	No colour * Red Green Blue Red + Green Red + Blue Blue + Green
Status LED On if...	With this parameter the status LED is switched on if the comparison value is less than the received value.	No colour * Red Green Blue Red + Green Red + Blue Blue + Green
Status LED On if...	With this parameter the status LED is switched on if the comparison value is equal to the received value.	No colour * Red Green Blue Red + Green Red + Blue Blue + Green

Table 61: Parameter function of the status LED "Comparator unsigned"

* Default value

3.10.8 Function status LED "Comparator signed (1 byte)"

The status LED is controlled depending on a comparison operation. This configuration has a separate 1-byte communication object for receiving the positive or negative comparison value (-128...127).

Parameters	Description	Value
Status LED On if...	With this parameter the status LED is switched on if the comparison value is greater than the received value.	No colour * Red Green Blue Red + Green Red + Blue Blue + Green
Status LED On if...	With this parameter the status LED is switched on if the comparison value is less than the received value.	No colour * Red Green Blue Red + Green Red + Blue Blue + Green
Status LED On if...	With this parameter the status LED is switched on if the comparison value is equal to the received value.	No colour * Red Green Blue Red + Green Red + Blue Blue + Green

Table 62: Parameter function of the status LED "Comparator signed"

 After a bus reset or ETS programming operation, the value of the LED object is always "0".

* Default value

3.11 Function parameter "internal temperature sensor"

In the following parameter window, the configuration and parameterisation of the internal temperature sensor is described and presented.

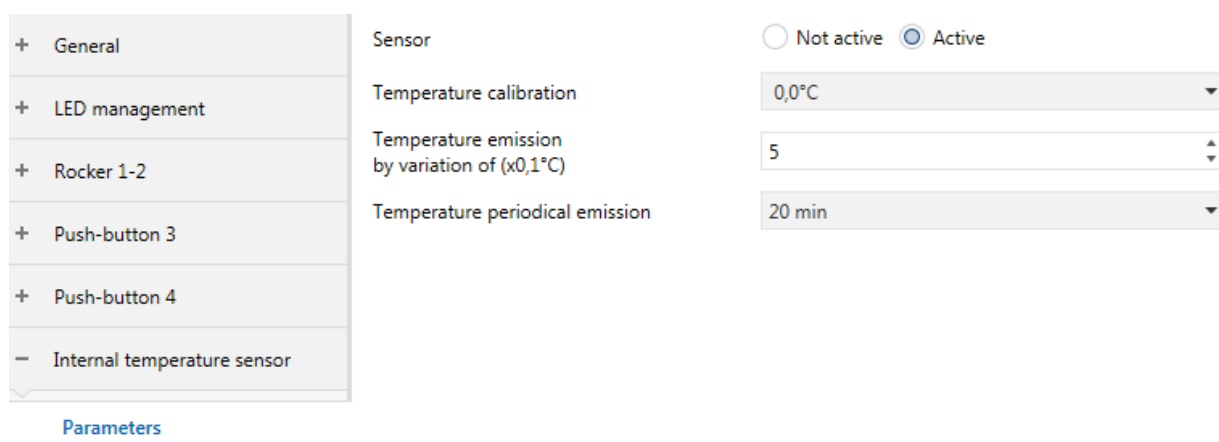


Figure 41: Function parameter of internal temperature sensor

Parameters	Description	Value
Sensor selection	With this parameter the system first decides whether the internal temperature sensor is to be used.	Not active* Active
Temperature calibration ¹	With this parameter the difference between the measured temperature on the device and the measured temperature is adjusted by a reference measuring device. "Calibration of the temperature sensor"	-5 °C ... 0 °C * ... + 5 °C
Temperature emission by variation of (x0.1°C) ¹	This parameter defines at what temperature difference a new value should be transmitted to the bus.	0 ... 5 * ... 255
Temperature periodical emission ¹	This parameter defines in which cycle the actual value is compared with the setpoint and should be transmitted to the bus.	Inactive 10 s ... 20 min* ... 30 min

Table 63: Function parameter of internal temperature sensor

¹ These parameters are only visible if the "Sensor selection" parameter is selected for "Users".

157 - Internal temperature sensor - Internal temperature sensor (2 Byte - DPT 9.001_Temperature (°C))

4 Information

This parameter window specifies which application, database version and translation version the deployed device works with.

5 IR interface

The following parameter window describes the description and configuration of the IR interface. The devices of the IR interfaces have a total of 12 IR channels. The infrared control is triggered by pressing the respective channel button on the IR remote control. The confirmation LED lights up and confirms the transmission of the transmission commands.

For transmission of telegrams the infrared remote control uses the RC6A protocol

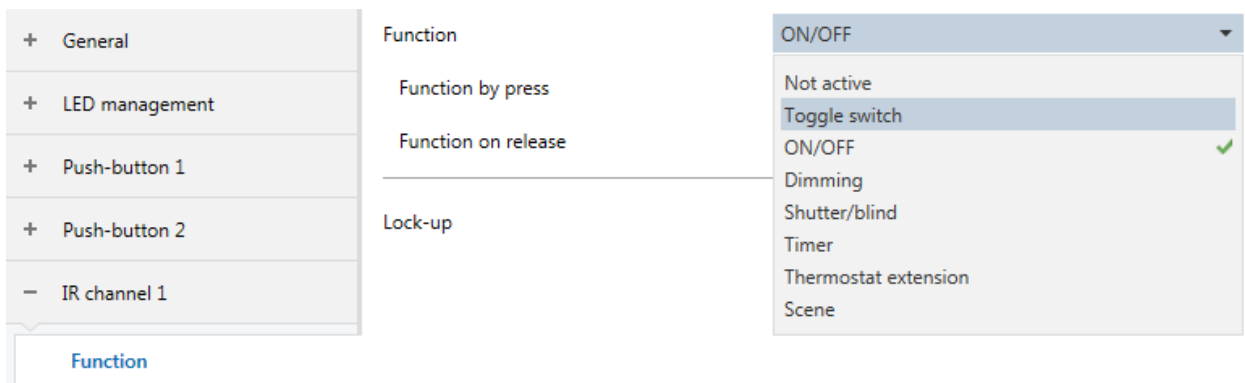


Figure 42: Function parameter IR interface

- ❗ The single functions such as switching, toggling, dimming, roller shutter/blind, etc. are to be configured and set in the same way as has already been described in the sections from chapter 3.9 Function of the button/ button pair on.
- ❗ In order to ensure a proper function at a maximum distance the remote control is to be aligned to the IR receiver (devices with IR interface).

For the number of the required IR channels (a maximum of 12 IR channels is available) the required function is to be set under "Function" and to be configured in such way as has already been described from chapter 3.9 Function of the button/ button pair on.

- ❗ A list of all communication objects for the 12 IR channels is to be found in chapter 7.5 IR interface.

6 Default state

If the device has not yet been programmed with application data by the ETS, the operating LED flashes slowly (approx. 0.75 Hz). If a sensor surface is actuated, the associated status LED will light up briefly (actuation display). This state is first finished by programming the application. In addition, the device, by slow flashing of the operating LED (approx. 0.75 Hz), can indicate that a non-executable application was programmed by the ETS. Applications are then not executable if they were not intended for use with the device in the ETS product database. It is also important to ensure that the device variant corresponds to the device variant in the project (e. g. 4gang that is created in the ETS project is installed as well). The operating LED will also flash slowly if the application programme was also unloaded by the ETS. In both cases, the device is not functional.

7 Communication objects

7.1 General Parameter Settings

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	General	Configuration second level			1 bit	C	-	W	-	-	state	Low
3	General	Alarm			1 bit	C	-	W	-	-	alarm	Low
4	General	Lock-up			1 bit	C	-	W	-	-	state	Low
5	General	Monitoring			1 bit	C	R	-	T	-	switch	Low

Figure 43: "General" communication object

7.1.1 Configuration second level

No.	Name	Object function	Length	Data type	Flags
2	General	Configuration second level	1 bit	DPT_alarm	C,W
<p>This object is activated if the "2-channel mode" parameter is activated in the "General – second operating level" parameter. This object allows the control of the buttons in a second operating level.</p> <p>For additional information, see Parameter „Using-mode“</p>					

7.1.2 Alarm

No.	Name	Object function	Length	Data type	Flags
3	General	Alarm	1 bit	DPT_alarm	C,W
<p>This object is activated if the "Alarm" parameter is activated. This object allows the use of an alarm telegram. If the alarm telegram is used, it is necessary to distinguish at what input signal (0 / 1) an alarm can be triggered.</p> <p>For additional information, see Alarm message</p>					

7.1.3 Lock-up

No.	Name	Object function	Length	Data type	Flags
4	General	Lock-up	1 bit	DPT_state	C,W
<p>This object is always active but must be activated separately for each button/button pair. This object allows the disabling of the button, button pair through transmission of a 0/1 by means of a second button, for example.</p> <p>For additional information, see Lock-up</p>					

7.1.4 Blocking function

No.	Name	Object function	Length	Data type	Flags
5	General	Monitoring	1 bit	DPT_state	C,R,T
<p>This object is activated if the "Monitoring" parameter is activated. This object allows the use of an Monitoring telegram. If the Monitoring telegram is used, it is necessary to distinguish at what input signal (0 / 1) an alarm can be triggered.</p> <p>For additional information, see Monitoring</p>					

7.2 Communication objects LED configuration

Number	Name	Object Function	Descriptor	Group	A	Length	C	R	W	T	U	Data Type	Priority
6	LED management	Day/night				1 bit	C	-	W	-	U	state	Low
7	LED management	Device LED - ON/OFF				1 bit	C	-	W	-	U	switch	Low
9	LED management	Label holder backlight - luminosity day				1 byte	C	-	W	-	U	percentage (0..100%)	Low
10	LED management	Status LED - luminosity day				1 byte	C	-	W	-	U	percentage (0..100%)	Low
11	LED management	Label holder backlight - luminosity night				1 byte	C	-	W	-	U	percentage (0..100%)	Low
12	LED management	Status LED - luminosity night				1 byte	C	-	W	-	U	percentage (0..100%)	Low
13	LED management	Colour 1				3 bytes	C	-	W	T	U	RGB value 3x(0..255)	Low
14	LED management	Colour 2				3 bytes	C	-	W	T	U	RGB value 3x(0..255)	Low
15	LED management	Colour 3				3 bytes	C	-	W	T	U	RGB value 3x(0..255)	Low
16	LED management	Colour 4				3 bytes	C	-	W	T	U	RGB value 3x(0..255)	Low
17	LED management	Colour 5				3 bytes	C	-	W	T	U	RGB value 3x(0..255)	Low
18	LED management	Colour 6				3 bytes	C	-	W	T	U	RGB value 3x(0..255)	Low

Figure 44: "LED Management" communication object

7.2.1 Labelling field illumination, device illumination

No.	Name	Object function	Length	Data type	Flags
6	LED management	Day/Night	1 bit		C,W,U
7	LED management	Devices LED ON/OFF	1 bit	DPT_Switch	C,W,U

These objects are activated if the "LED Management" parameter is activated in the "LED Management - General – LED-Management" parameter.
This object allows control of the backlighting.

For additional information, see LED configuration

No.	Name	Object function	Length	Data type	Flags
9	LED management	Label holder backlight-luminosity day	1 byte	DPT_percentage (0..100%)	C,W,U
10	LED management	Status LED luminosity day	1 byte	DPT_percentage (0..100%)	C,W,U

These objects are activated if the "Brightness value change" parameter is activated in the "LED Management – General" parameter.
These objects allow the change in the brightness value of the backlighting for daytime and nighttime operation.

For additional information, see LED configuration

7.2.2 Status LED

No.	Name	Object function	Length	Data type	Flags
11	LED management	Label holder backlight - luminosity day	1 byte	DPT_percentage (0..100%)	C,W,U
12	LED management	Status LED luminosity day	1 byte	DPT_percentage (0..100%)	C,W,U

These objects are activated if the "Brightness value change" parameter is activated in the "LED Management – General" parameter.
These objects allow the return of the status value for the status LED in daytime and nighttime operation.

For additional information, see LED configuration

7.2.3 LED Colour management

No.	Name	Object function	Length	Data type	Flags
13-18	LED management	Colour 1-6	3 byte	DPT_RGB value 3x(0..255)	C,W,T,U
<p>These objects are activated if the "Dynamic colour control" parameter is activated in the "LED Management – Status LED – colour concept Global" parameter.</p> <p>These objects allow the return of the status value for the status LED in operation.</p> <p>For additional information, see LED configuration</p>					

7.3 Communication objects Buttons

7.3.1 Switching / Toggling

7.3.1.1 Toggling

20	Push-button 1	Status indication ON/OFF	1 bit	C - W T U	switch	Low
24	Push-button 1	ON/OFF	1 bit	C R - T -	switch	Low
43	Push-button 2	Status indication ON/OFF	1 bit	C - W T U	switch	Low
47	Push-button 2	ON/OFF	1 bit	C R - T -	switch	Low
66	Push-button 3	Status indication ON/OFF	1 bit	C - W T U	switch	Low
70	Push-button 3	ON/OFF	1 bit	C R - T -	switch	Low
89	Push-button 4	Status indication ON/OFF	1 bit	C - W T U	switch	Low
93	Push-button 4	ON/OFF	1 bit	C R - T -	switch	Low
112	Push-button 5	Status indication ON/OFF	1 bit	C - W T U	switch	Low
116	Push-button 5	ON/OFF	1 bit	C R - T -	switch	Low
135	Push-button 6	Status indication ON/OFF	1 bit	C - W T U	switch	Low
139	Push-button 6	ON/OFF	1 bit	C R - T -	switch	Low

Figure 45: "Toggling" communication object

No.	Name	Object function	Length	Data type	Flags
20,43,66, 89,112,135	Button x	Status indication ON/OFF	1 bit	DPT_Switch	C,W,T, U
24,47,70, 93,116,139	Button x	ON/OFF	1 bit	DPT_Switch	C,R,T
<p>These objects are activated if the "Toggling" function is selected in the parameters for every single button.</p> <p>These objects (20,43,66, 89,112,135) allow 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.</p> <p>These objects (24,47,70, 93,116,139) transmit a 1-bit command to the actuator channel and trigger a switching command when a button is pressed.</p> <p>For additional information, see "Switching / Toggling" Function</p>					

7.3.1.2 Switching

24	Push-button 1	ON/OFF	1 bit	C R - T -	switch	Low
47	Push-button 2	ON/OFF	1 bit	C R - T -	switch	Low
70	Push-button 3	ON/OFF	1 bit	C R - T -	switch	Low
93	Push-button 4	ON/OFF	1 bit	C R - T -	switch	Low
116	Push-button 5	ON/OFF	1 bit	C R - T -	switch	Low
139	Push-button 6	ON/OFF	1 bit	C R - T -	switch	Low

Figure 46: "Switching" communication object

No.	Name	Object function	Length	Data type	Flags
24,47,70, 93,116,139	Push button x	ON/OFF	1 bit	DPT_Switch	C,R,T
<p>These objects are activated if the "Switching" function is selected in the parameters for every single button. These objects transmit a 1-bit command to the actuator channel and trigger a switching command when a button is pressed.</p> <p>For additional information, see "Switching / Toggling" Function</p>					

7.3.2 Dimming

24	Push-button 1	ON/OFF	1 bit	C R - T -	switch	Low
27	Push-button 1	Dimming	4 bit	C R - T -	dimming control	Low
47	Push-button 2	ON/OFF	1 bit	C R - T -	switch	Low
50	Push-button 2	Dimming	4 bit	C R - T -	dimming control	Low
70	Push-button 3	ON/OFF	1 bit	C R - T -	switch	Low
73	Push-button 3	Dimming	4 bit	C R - T -	dimming control	Low
93	Push-button 4	ON/OFF	1 bit	C R - T -	switch	Low
96	Push-button 4	Dimming	4 bit	C R - T -	dimming control	Low
116	Push-button 5	ON/OFF	1 bit	C R - T -	switch	Low
119	Push-button 5	Dimming	4 bit	C R - T -	dimming control	Low
139	Push-button 6	ON/OFF	1 bit	C R - T -	switch	Low
142	Push-button 6	Dimming	4 bit	C R - T -	dimming control	Low

Figure 47: "Dimming, ON/OFF" communication object

No.	Name	Object function	Length	Data type	Flags
24,47,70, 93,116,139	Push button x	ON/OFF	1 bit	DPT_switch	C,R,T
<p>These objects are activated if the "Dimming – BRIGHTER/DARKER" function is selected in the parameters for every single button. These objects transmit a 1-bit command to the actuator channel and trigger a switching command ON/OFF when a button is pressed.</p> <p>For additional information, see "Dimming" Function</p>					
27,50,73, 96,119,142	Push button x	Dimming	4 bit	DPT_dimming control	C,R,T
<p>These objects are activated if the "Dimming – BRIGHTER/DARKER" function is selected in the parameters for every single button. These objects transmit a 4-bit command to the actuator channel and trigger a dimming command BRIGHTER/DARKER when a button is pressed.</p> <p>For additional information, see "Dimming" Function</p>					

20	Push-button 1	Status indication ON/OFF	1 bit	C - W T U	switch	Low
24	Push-button 1	ON/OFF	1 bit	C R - T -	switch	Low
27	Push-button 1	Dimming	4 bit	C R - T -	dimming control	Low
43	Push-button 2	Status indication ON/OFF	1 bit	C - W T U	switch	Low
47	Push-button 2	ON/OFF	1 bit	C R - T -	switch	Low
50	Push-button 2	Dimming	4 bit	C R - T -	dimming control	Low
66	Push-button 3	Status indication ON/OFF	1 bit	C - W T U	switch	Low
70	Push-button 3	ON/OFF	1 bit	C R - T -	switch	Low
73	Push-button 3	Dimming	4 bit	C R - T -	dimming control	Low
89	Push-button 4	Status indication ON/OFF	1 bit	C - W T U	switch	Low
93	Push-button 4	ON/OFF	1 bit	C R - T -	switch	Low
96	Push-button 4	Dimming	4 bit	C R - T -	dimming control	Low
112	Push-button 5	Status indication ON/OFF	1 bit	C - W T U	switch	Low
116	Push-button 5	ON/OFF	1 bit	C R - T -	switch	Low
119	Push-button 5	Dimming	4 bit	C R - T -	dimming control	Low
135	Push-button 6	Status indication ON/OFF	1 bit	C - W T U	switch	Low
139	Push-button 6	ON/OFF	1 bit	C R - T -	switch	Low
142	Push-button 6	Dimming	4 bit	C R - T -	dimming control	Low

Figure 48: "Dimming, Toggling" communication object

No.	Name	Object function	Length	Data type	Flags
20,43,66, 89,112,135	Push button x	Status indication ON/OFF	1 bit	DPT_switch	C,W,T, U
<p>These objects are activated if the "Dimming - Toggling" function is selected in the parameters for every single button. These objects transmit a 1-bit command to the actuator channel and trigger a switching command ON/OFF when a button is pressed.</p> <p>For additional information, see "Dimming" Function</p>					
24,47,70, 93,116,139	Push button x	ON/OFF	1 bit	DPT_switch	C,R,T
<p>These objects are activated if the "Dimming - Toggling" function is selected in the parameters for every single button. These objects transmit a 1-bit command to the actuator channel and trigger a switching command ON/OFF when a button is pressed.</p> <p>For additional information, see "Dimming" Function</p>					
27,50,73, 96,119,142	Push button x	Dimming	4 bit	DPT_dimming control	C,R,T
<p>These objects are activated if the "Dimming - Toggling" function is selected in the parameters for every single button. These objects transmit a 4-bit command to the actuator channel and trigger a dimming command BRIGHTER/DARKER when a button is pressed.</p> <p>For additional information, see "Dimming" Function</p>					

28	Push-button 1	Brightness value	1 byte	C R - T -	percentage (0..100%)	Low
51	Push-button 2	Brightness value	1 byte	C R - T -	percentage (0..100%)	Low
74	Push-button 3	Brightness value	1 byte	C R - T -	percentage (0..100%)	Low
97	Push-button 4	Brightness value	1 byte	C R - T -	percentage (0..100%)	Low
120	Push-button 5	Brightness value	1 byte	C R - T -	percentage (0..100%)	Low
143	Push-button 6	Brightness value	1 byte	C R - T -	percentage (0..100%)	Low

Figure 49: "Dimming, Value" communication object

No.	Name	Object function	Length	Data type	Flags
28,51,74, 97,120,143	Push button x	Brightness value	1 byte	DPT_percentage (0..100%)	C,R,T
<p>These objects are activated if the "Dimming - Value" function is selected in the parameters for every single button. These objects transmit a 1-byte command to the actuator channel and transmit a value command when a button is pressed.</p> <p>For additional information, see "Dimming" Function</p>					

7.3.3 Roller shutter / blind

24	Push-button 1	Up/down	1 bit	C R - T -	up/down	Low
25	Push-button 1	Stop (short press)	1 bit	C R - T -	trigger	Low
47	Push-button 2	Up/down	1 bit	C R - T -	up/down	Low
48	Push-button 2	Stop (short press)	1 bit	C R - T -	trigger	Low
70	Push-button 3	Up/down	1 bit	C R - T -	up/down	Low
71	Push-button 3	Stop (short press)	1 bit	C R - T -	trigger	Low
93	Push-button 4	Up/down	1 bit	C R - T -	up/down	Low
94	Push-button 4	Stop (short press)	1 bit	C R - T -	trigger	Low
116	Push-button 5	Up/down	1 bit	C R - T -	up/down	Low
117	Push-button 5	Stop (short press)	1 bit	C R - T -	trigger	Low
139	Push-button 6	Up/down	1 bit	C R - T -	up/down	Low
140	Push-button 6	Stop (short press)	1 bit	C R - T -	trigger	Low

Figure 50: "Roller shutter/blind – Roller shutter" communication object

No.	Name	Object function	Length	Data type	Flags
24,47,70, 93,116,139	Push-button x	Up/down	1 bit	DPT_up/down	C,R,T
<p>These objects are activated if the "Roller shutter/blind – shutter or blind" function is selected in the parameters for every single button. These objects transmit a 1-bit command to the actuator channel and trigger a switching command Move UP/DOWN when a button is pressed.</p> <p>For additional information, see "Roller shutter/blind" function</p>					
25,48,71, 94,117,140	Push-button x	Stop (short press)	1 bit	DPT_trigger	C,R,T
<p>These objects are activated if the "Roller shutter/blind – shutter or blind" function is selected in the parameters for every single button. These objects transmit a 1-bit command to the actuator channel and trigger a stop command when a button is briefly pressed.</p> <p>For additional information, see "Roller shutter/blind" function</p>					

7.3.4 Timer

24	Push-button 1	Timer	1 bit	C R - T -	start/stop	Low
47	Push-button 2	Timer	1 bit	C R - T -	start/stop	Low
70	Push-button 3	Timer	1 bit	C R - T -	start/stop	Low
93	Push-button 4	Timer	1 bit	C R - T -	start/stop	Low
116	Push-button 5	Timer	1 bit	C R - T -	start/stop	Low
139	Push-button 6	Timer	1 bit	C R - T -	start/stop	Low

Figure 51: "Timer" communication object

No.	Name	Object function	Length	Data type	Flags
24,47,70, 93,116,139	Push-button x	Timer	1 bit	DPT_start/stop	C,T
<p>These objects are activated if the "Timer" function is selected in the parameters for every single button.</p> <p>These objects transmit a 1-bit command to the actuator channel and trigger a Start/Stop command when a button is pressed.</p> <p>For additional information, see "Timer" function</p>					

7.3.5 Value transmitter 1-byte

28	Push-button 1	Value (0-255)	1 byte	C R - T -	counter pulses (0..255)	Low
51	Push-button 2	Value (0-255)	1 byte	C R - T -	counter pulses (0..255)	Low
74	Push-button 3	Value (0-255)	1 byte	C R - T -	counter pulses (0..255)	Low
97	Push-button 4	Value (0-255)	1 byte	C R - T -	counter pulses (0..255)	Low
120	Push-button 5	Value (0-255)	1 byte	C R - T -	counter pulses (0..255)	Low
143	Push-button 6	Value (0-255)	1 byte	C R - T -	counter pulses (0..255)	Low

Figure 52: "Value transmitter 1-byte – Value" communication object

28	Push-button 1	Value in %	1 byte	C R - T -	percentage (0..100%)	Low
51	Push-button 2	Value in %	1 byte	C R - T -	percentage (0..100%)	Low
74	Push-button 3	Value in %	1 byte	C R - T -	percentage (0..100%)	Low
97	Push-button 4	Value in %	1 byte	C R - T -	percentage (0..100%)	Low
120	Push-button 5	Value in %	1 byte	C R - T -	percentage (0..100%)	Low
143	Push-button 6	Value in %	1 byte	C R - T -	percentage (0..100%)	Low

Figure 53: "Value transmitter 1-byte – Percentage value" communication object

No.	Name	Object function	Length	Data type	Flags
28,51,74, 97,120,143	Push-button x	Value(0-255)	1 byte	DPT_counter pulses (0..255)	C,R,T
28,51,74, 97,120,143	Push-button x	Value in %	1 byte	DPT_percentage (0..100%)	C,R,T

These objects are activated if the "Value transmitter 1-byte" function is selected in the parameters for every single button.
These objects transmit a 1-byte command as a fixed value (0...255) or percentage value (0...100%) to the actuator channel and trigger a command when a button is pressed. This command can be, for instance, to assign a fixed dimming value to a dimmer channel.

For additional information, see Value transmitter 1-byte function

7.3.6 Value transmitter 2-byte

31	Push-button 1	Value (0-65535)	2 bytes	C R - T -	pulses	Low
54	Push-button 2	Value (0-65535)	2 bytes	C R - T -	pulses	Low
77	Push-button 3	Temperature	2 bytes	C R - T -	temperature (°C)	Low
100	Push-button 4	Temperature	2 bytes	C R - T -	temperature (°C)	Low
123	Push-button 5	Luminosity	2 bytes	C R - T -	lux (Lux)	Low
146	Push-button 6	Luminosity	2 bytes	C R - T -	lux (Lux)	Low

Figure 54: "Value transmitter 2-byte" communication object

No.	Name	Object function	Length	Data type	Flags
31,54,77, 100,123, 146	Push-button x	Value (0...65535) Temperature Luminosity	2 byte	DPT_pulses DPT_temperatur(°C) DPT_lux(lux)	C,R,T

These objects are activated if the "Value transmitter 2-byte - Value" function is selected in the parameters for every single button.
These objects transmit a 2-byte command as a fixed value (0...65535), a temperature value (0...40°C) or brightness value (0...1000 Lux) to the actuator channel and trigger a command when a button is pressed. This command can be for instance, to assign a fixed dimming value to a dimmer channel. or a change of the setpoint temperature in a room thermostat.

For additional information, see "Value transmitter 2-byte" function

7.3.7 Thermostat extension

28	Push-button 1	Setpoint selection	1 byte	C R - T -	HVAC mode	Low
51	Push-button 2	Setpoint selection	1 byte	C R - T -	HVAC mode	Low
69	Push-button 3	Override setpoint status	2 bytes	C - W T U	temperature difference (K)	Low
76	Push-button 3	Override setpoint	2 bytes	C R - T -	temperature difference (K)	Low
89	Push-button 4	Heating/Cooling - status indication	1 bit	C - W T U	cooling/heating	Low
93	Push-button 4	Heating/Cooling - changeover	1 bit	C R - T -	cooling/heating	Low
116	Push-button 5	Presence	1 bit	C R - T -	switch	Low
139	Push-button 6	Presence	1 bit	C R - T -	switch	Low

Figure 55: "Setpoint selection – Current Mode" communication object

No.	Name	Object function	Length	Data type	Flags
28,51,74, 97,120,143	Push-button x	Setpoint selection	1 byte	DPT_HVAC Mode	C,R,T
<p>These objects are activated if the "Setpoint selection - Mode" function is selected in the parameters for every single button. These objects transmit a 1-byte command when a button is pressed and thus change the operating mode.</p> <p>For additional information, see "Thermostat extension" function</p>					

No.	Name	Object function	Length	Data type	Flags
30,53,76, 99,122,145	Push-button x	Override setpoint	2 byte	DPT_temperature difference (K)	C,R,T
<p>These objects are activated if the "Setpoint selection - Difference value" function is selected in the parameters for every single button. These objects transmit a 2-byte command when a button is pressed and can thereby change the corresponding temperature value.</p> <p>For additional information, see "Thermostat extension" function</p>					
23,46,69, 92,115,138	Push-button x	Override setpoint status	2 byte	DPT_Temperatur e difference (K)	C,W,T, U
<p>These objects are activated if the "Setpoint selection - Difference value" function is selected in the parameters for every single button. These objects receive a 2-byte command after a button is pressed and can thereby change the corresponding temperature value.</p> <p>For additional information, see "Thermostat extension" function</p>					

No.	Name	Object function	Length	Data type	Flags
20,43,66, 89,112,135	Push-button x	Heating/Cooling - status indication	1 bit	DPT_heating/cool ing	C,W,T, U
<p>These objects are activated if the "Setpoint selection - Change heating/cooling" function is selected in the parameters for every single button. These objects transmit a 1-bit command when a button is pressed and can thereby display the status for heating or cooling.</p> <p>For additional information, see "Thermostat extension" function</p>					
24,47,70, 93,116,139	Push-button x	Heating/Cooling - changeover	1 bit	DPT_Heating/cool ing	C,R,T
<p>These objects are activated if the "Setpoint selection - Change heating/cooling" function is selected in the parameters for every single button. These objects receive a 1-bit command after a button is pressed and can thereby change the operation between heating and cooling.</p> <p>For additional information, see "Thermostat extension" function</p>					

No.	Name	Object function	Length	Data type	Flags
24,47,70, 93,116,139	Push-button x	Presence	1 bit	DPT_switch	C,R,T
<p>These objects are activated if the "Setpoint selection - Presence" function is selected in the parameters for every single button. These objects transmit a 1-bit command when a button is pressed and can thereby trigger the "Presence" operating mode.</p> <p>For additional information, see "Thermostat extension" function</p>					

7.3.8 Priority

20	Push-button 1	Status indication priority	1 bit	C - W T U	state	Low
26	Push-button 1	Priority	2 bit	C R - T -	boolean control	Low
43	Push-button 2	Status indication priority	1 bit	C - W T U	state	Low
49	Push-button 2	Priority	2 bit	C R - T -	boolean control	Low
66	Push-button 3	Status indication priority	1 bit	C - W T U	state	Low
72	Push-button 3	Priority	2 bit	C R - T -	boolean control	Low
89	Push-button 4	Status indication priority	1 bit	C - W T U	state	Low
95	Push-button 4	Priority	2 bit	C R - T -	boolean control	Low
112	Push-button 5	Status indication priority	1 bit	C - W T U	state	Low
118	Push-button 5	Priority	2 bit	C R - T -	boolean control	Low
135	Push-button 6	Status indication priority	1 bit	C - W T U	state	Low
141	Push-button 6	Priority	2 bit	C R - T -	boolean control	Low

Figure 56: "Priority" communication object

No.	Name	Object function	Length	Data type	Flags
20,43,66, 89,112,135	Push-button x	Status indication priority	1 bit	DPT_state	C,W,T, U
<p>These objects are activated if the "Mandatory control" function is selected in the parameters for every single button.</p> <p>These objects transmit a 1-bit command when a button is pressed and can thereby output the status for the Mandatory control function.</p> <p>For additional information, see "Priority" function</p>					
26,49,72, 95,118,141	Push-button x	Priority	2 bit	DPT_boolean controller	C,R,T
<p>These objects are activated if the "Mandatory control" function is selected in the parameters for every single button.</p> <p>These objects receive a 1-bit command after a button is pressed and can thereby e.g. set a roller shutter channel to a forced mode.</p> <p>For additional information, see "Priority" function</p>					

7.3.9 Scene

28	Push-button 1	Scene	1 byte	C R - T -	scene control	Low
51	Push-button 2	Scene	1 byte	C R - T -	scene control	Low
74	Push-button 3	Scene	1 byte	C R - T -	scene control	Low
97	Push-button 4	Scene	1 byte	C R - T -	scene control	Low
120	Push-button 5	Scene	1 byte	C R - T -	scene control	Low
143	Push-button 6	Scene	1 byte	C R - T -	scene control	Low

Figure 57: "Scene" communication object

No.	Name	Object function	Length	Data type	Flags
28,51,74, 97,120,143	Push-button x	Scene	1 byte	DPT_scene control	C,R,T
<p>These objects are activated if the "Scene" function is selected in the parameters for every single button.</p> <p>These objects transmit a 1-byte command when a button is pressed and can open a set scene.</p> <p>For additional information, see "Scene" function</p>					

7.3.10 2-channel mode

24	Push-button 1	ON/OFF Channel A	1 bit	C R - T -	switch	Low
33	Push-button 1	ON/OFF Channel B	1 bit	C R - T -	switch	Low
47	Push-button 2	ON/OFF Channel A	1 bit	C R - T -	switch	Low
56	Push-button 2	ON/OFF Channel B	1 bit	C R - T -	switch	Low
70	Push-button 3	ON/OFF Channel A	1 bit	C R - T -	switch	Low
79	Push-button 3	ON/OFF Channel B	1 bit	C R - T -	switch	Low
93	Push-button 4	ON/OFF Channel A	1 bit	C R - T -	switch	Low
102	Push-button 4	ON/OFF Channel B	1 bit	C R - T -	switch	Low
116	Push-button 5	ON/OFF Channel A	1 bit	C R - T -	switch	Low
125	Push-button 5	ON/OFF Channel B	1 bit	C R - T -	switch	Low
139	Push-button 6	ON/OFF Channel A	1 bit	C R - T -	switch	Low
148	Push-button 6	ON/OFF Channel B	1 bit	C R - T -	switch	Low

Figure 58: "2-Channel mode – Switching" communication object

20	Push-button 1	Channel A status	1 bit	C - W T U	switch	Low
24	Push-button 1	ON/OFF Channel A	1 bit	C R - T -	switch	Low
32	Push-button 1	Channel B status	1 bit	C - W T U	switch	Low
33	Push-button 1	ON/OFF Channel B	1 bit	C R - T -	switch	Low
43	Push-button 2	Channel A status	1 bit	C - W T U	switch	Low
47	Push-button 2	ON/OFF Channel A	1 bit	C R - T -	switch	Low
55	Push-button 2	Channel B status	1 bit	C - W T U	switch	Low
56	Push-button 2	ON/OFF Channel B	1 bit	C R - T -	switch	Low
66	Push-button 3	Channel A status	1 bit	C - W T U	switch	Low
70	Push-button 3	ON/OFF Channel A	1 bit	C R - T -	switch	Low
78	Push-button 3	Channel B status	1 bit	C - W T U	switch	Low
79	Push-button 3	ON/OFF Channel B	1 bit	C R - T -	switch	Low
89	Push-button 4	Channel A status	1 bit	C - W T U	switch	Low
93	Push-button 4	ON/OFF Channel A	1 bit	C R - T -	switch	Low
101	Push-button 4	Channel B status	1 bit	C - W T U	switch	Low
102	Push-button 4	ON/OFF Channel B	1 bit	C R - T -	switch	Low
112	Push-button 5	Channel A status	1 bit	C - W T U	switch	Low
116	Push-button 5	ON/OFF Channel A	1 bit	C R - T -	switch	Low
124	Push-button 5	Channel B status	1 bit	C - W T U	switch	Low
125	Push-button 5	ON/OFF Channel B	1 bit	C R - T -	switch	Low
139	Push-button 6	ON/OFF Channel A	1 bit	C R - T -	switch	Low
147	Push-button 6	Channel B status	1 bit	C - W T U	switch	Low
148	Push-button 6	ON/OFF Channel B	1 bit	C R - T -	switch	Low

Figure 59: "2-Channel mode – Toggling" communication object

28	Push-button 1	Channel A value (0-255)	1 byte	C R - T -	percentage (0..100%)	Low
34	Push-button 1	Channel B value (0-255)	1 byte	C R - T -	percentage (0..100%)	Low
51	Push-button 2	Channel A value (0-255)	1 byte	C R - T -	percentage (0..100%)	Low
57	Push-button 2	Channel B value (0-255)	1 byte	C R - T -	percentage (0..100%)	Low
74	Push-button 3	Channel A value (0-255)	1 byte	C R - T -	percentage (0..100%)	Low
80	Push-button 3	Channel B value (0-255)	1 byte	C R - T -	percentage (0..100%)	Low
97	Push-button 4	Channel A value (%)	1 byte	C R - T -	percentage (0..100%)	Low
103	Push-button 4	Channel B value (%)	1 byte	C R - T -	percentage (0..100%)	Low
120	Push-button 5	Channel A value (%)	1 byte	C R - T -	percentage (0..100%)	Low
126	Push-button 5	Channel B value (%)	1 byte	C R - T -	percentage (0..100%)	Low
143	Push-button 6	Channel A value (%)	1 byte	C R - T -	percentage (0..100%)	Low
149	Push-button 6	Channel B value (%)	1 byte	C R - T -	percentage (0..100%)	Low

Figure 60: "2-Channel mode – 1-Byte value" communication object

31	Push-button 1	Channel A value (0-65535)	2 bytes	C R - T -	pulses	Low
35	Push-button 1	Channel B value (0-65535)	2 bytes	C R - T -	pulses	Low
54	Push-button 2	Channel A value (0-65535)	2 bytes	C R - T -	pulses	Low
58	Push-button 2	Channel B value (0-65535)	2 bytes	C R - T -	pulses	Low
77	Push-button 3	Channel A value (Temperature)	2 bytes	C R - T -	temperature (°C)	Low
81	Push-button 3	Channel B value (Temperature)	2 bytes	C R - T -	temperature (°C)	Low
100	Push-button 4	Channel A value (Temperature)	2 bytes	C R - T -	temperature (°C)	Low
104	Push-button 4	Channel B value (Temperature)	2 bytes	C R - T -	temperature (°C)	Low
123	Push-button 5	Channel A value (Luminosity)	2 bytes	C R - T -	lux (Lux)	Low
127	Push-button 5	Channel B value (Luminosity)	2 bytes	C R - T -	lux (Lux)	Low
146	Push-button 6	Channel A value (Luminosity)	2 bytes	C R - T -	lux (Lux)	Low
150	Push-button 6	Channel B value (Luminosity)	2 bytes	C R - T -	lux (Lux)	Low

Figure 61: "2-Channel mode – 2-Byte value" communication object

28	Push-button 1	Scene channel A	1 byte	C R - T -	scene number	Low
34	Push-button 1	Scene channel B	1 byte	C R - T -	scene number	Low
51	Push-button 2	Scene channel A	1 byte	C R - T -	scene number	Low
57	Push-button 2	Scene channel B	1 byte	C R - T -	scene number	Low
74	Push-button 3	Scene channel A	1 byte	C R - T -	scene number	Low
80	Push-button 3	Scene channel B	1 byte	C R - T -	scene number	Low
97	Push-button 4	Scene channel A	1 byte	C R - T -	scene number	Low
103	Push-button 4	Scene channel B	1 byte	C R - T -	scene number	Low
120	Push-button 5	Scene channel A	1 byte	C R - T -	scene number	Low
126	Push-button 5	Scene channel B	1 byte	C R - T -	scene number	Low
143	Push-button 6	Scene channel A	1 byte	C R - T -	scene number	Low
149	Push-button 6	Scene channel B	1 byte	C R - T -	scene number	Low

Figure 62: "2-Channel mode – Scene" communication object

No.	Name	Object function	Length	Data type	Flags
24,47,70, 93,116, 139	Push-button x	ON/OFF channel A	1 bit	DPT_switch	C,R,T
33,56,79, 102,125, 148	Push-button x	ON/OFF channel B	1 bit	DPT_switch	C,R,T
<p>These objects are activated if the "2-Channel mode - Switching" function is selected in the parameters for every single button. These objects transmit a 1-bit command from the second operating level when a button is pressed and can thereby switch an actuator channel.</p> <p>For additional information, see 2-channel mode (2-channel operation)</p>					
20,43,66, 89,112,135	Push-button x	Channel A Status	1 bit	DPT_switch	C,W,T,U
32,55,78, 101,124,147	Push-button x	Channel B Status	1 bit	DPT_switch	C,W,T,U
<p>These objects are activated if the "2-Channel mode - Toggling" function is selected in the parameters for every single button. These objects transmit a 1-bit command after a button is pressed and can display, output the respective status.</p> <p>For additional information, see 2-channel mode (2-channel operation)</p>					
28,51,74, 97,120, 143	Push-button x	Channel A value (0...255) Channel A (%)	1 byte	DPT_counter pulses (0...255) DPT_percentage (%)	C,R,T
34,57,80, 103,126, 149	Push-button x	Channel B value (0...255) Channel B value (%)	1 byte	DPT_counter pulses (0...255) DPT_percentage (%)	C,R,T
<p>These objects are activated if the "2-Channel mode – Value 1 byte / Percentage value" function is selected in the parameters for every single button. These objects transmit a 1-bit command after a button is pressed and can assign a set value/percentage value to a dimming channel from the second operating level.</p> <p>For additional information, see 2-channel mode (2-channel operation)</p>					
31,54,77, 100,123,146 35,58,81, 104,127,150	Push-button x	Channel A value (Temperature) Channel B value (Temperature)	2 byte	DPT_temperature (°C)	C,R,T

31,54,77, 100,123,146 35,58,81, 104,127,150	Push-button x	Channel A value (Luminosity) Channel B value (Luminosity)	2 byte	DPT_lux (Lux)	C,R,T
31,54,77, 100,123,146 35,58,81, 104,127,150	Push-button x	Channel A value (0...65535) Channel B value (...65535)	2 byte	DPT_pulses	C,R,T
<p>These objects are activated if the "2-Channel mode – Value 2-byte / temperature/ brightness value" function is selected in the parameters for every single button. These objects transmit a 2-byte command after a button is pressed and can e.g. assign a set value/temperature value to a room thermostat from the second operating level.</p> <p>For additional information, see 2-channel mode (2-channel operation)</p>					
28,51,74, 97,120,143 34,57,80, 103,126, 149	Push-button x	Channel A Scene Channel B Scene	1 byte	DPT_scene number	C,R,T
<p>These objects are activated if the "2-Channel mode – Scene" function is selected in the parameters for every single button. These objects transmit a 1-byte command after a button is pressed and can e.g. assign a scene from the second operating level.</p> <p>For additional information, see 2-channel mode (2-channel operation)</p>					

7.3.11 Stepping switch

28	Push-button 1	Value (0-255)	1 byte	C R - T -	counter pulses (0..255)	Low
51	Push-button 2	Value (0-255)	1 byte	C R - T -	counter pulses (0..255)	Low
74	Push-button 3	Value in %	1 byte	C R - T -	percentage (0..100%)	Low
97	Push-button 4	Value in %	1 byte	C R - T -	percentage (0..100%)	Low
120	Push-button 5	Scene	1 byte	C R - T -	scene control	Low
143	Push-button 6	Scene	1 byte	C R - T -	scene control	Low

Figure 63: "Stepping switch" communication object

No.	Name	Object function	Length	Data type	Flags
28,51,74, 97,120,143	Push-button x	Value (0...255)	1 byte	DPT_counter pulses (0...255)	C,R,T
<p>These objects are activated if the "Step switch – Value (0...255)" function is selected in the parameters for every single button. These objects transmit a 1-byte command when a button is pressed and can thereby dim the dimming channel up/down incrementally.</p> <p>For additional information, see Stepping switch</p>					
28,51,74, 97,120,143	Push-button x	Value in %	1 byte	DPT_percentage (0...100%)	C,R,T
<p>These objects are activated if the "Step switch – percentage value" function is selected in the parameters for every single button. These objects transmit a 1-byte command when a button is pressed and can thereby dim the dimming channel up/down incrementally.</p> <p>For additional information, see Stepping switch</p>					
28,51,74, 97,120,143	Push-button x	Scene	1 byte	DPT_scenes control	C,R,T
<p>These objects are activated if the "Step switch – scene" function is selected in the parameters for every single button. These objects transmit a 1-byte command when a button is pressed and can jump back and forth between the individually created scenes by pressing the button repeatedly.</p> <p>For additional information, see Stepping switch</p>					

7.3.12 Automatic control deactivation function

120	Push-button 1	Automatic control deactivation status	1 bit	C - W T U	boolean	Low
124	Push-button 1	Automatic control deactivation	1 bit	C R - T -	enable	Low
143	Push-button 2	Automatic control deactivation status	1 bit	C - W T U	boolean	Low
147	Push-button 2	Automatic control deactivation	1 bit	C R - T -	enable	Low
166	Push-button 3	Automatic control deactivation status	1 bit	C - W T U	boolean	Low
170	Push-button 3	Automatic control deactivation	1 bit	C R - T -	enable	Low
189	Push-button 4	Automatic control deactivation status	1 bit	C - W T U	boolean	Low
193	Push-button 4	Automatic control deactivation	1 bit	C R - T -	enable	Low
1112	Push-button 5	Automatic control deactivation status	1 bit	C - W T U	boolean	Low
1116	Push-button 5	Automatic control deactivation	1 bit	C R - T -	enable	Low
1135	Push-button 6	Automatic control deactivation status	1 bit	C - W T U	boolean	Low
1139	Push-button 6	Automatic control deactivation	1 bit	C R - T -	enable	Low

Figure 64: "Automatic mode" communication object

No.	Name	Object function	Length	Data type	Flags
20,43,66, 89,112,135	Push-button x	Automatic control deactivation status	1 bit	DPT_enable	C,W,T,U
24,47,70, 93,116,139	Push-button x	Automatic control deactivation	1 bit	DPT_enable	C,R,T

These objects are activated if the "Automatic mode" function is selected in the parameters for every single button.
These objects transmit a 1-bit command when a button is pressed and can thereby start a set automatic mode and return the respective status.

For additional information, see Automatic control deactivation function

7.4 Communication object internal temperature sensor

157	Internal temperature sensor	Internal temperature sensor	2 bytes	C R - T -	temperature (°C)	Low
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Figure 65: Internal temperature sensor – communication object

No.	Name	Object function	Length	Data type	Flags
137	Internal temperature sensor	Internal temperature sensor	2 byte	DPT_temperature (°C)	C,R,T

This object is activated if the "Temperature sensor selection" parameter is activated.
This object makes it possible, for example, to forward the measured temperature value to a room thermostat.

For additional information, see **Fehler! Verweisquelle konnte nicht gefunden werden.**

7.5 IR interface

111	IR channel 1	Status indication ON...	1 bit	C - W T U	switch	Low
112	IR channel 1	ON/OFF	1 bit	C R - T -	switch	Low
118	IR channel 2	ON/OFF	1 bit	C R - T -	switch	Low
123	IR channel 3	Status indication ON...	1 bit	C - W T U	switch	Low
124	IR channel 3	ON/OFF	1 bit	C R - T -	switch	Low
126	IR channel 3	Dimming	4 bit	C R - T -	dimming control	Low
130	IR channel 4	Up/down	1 bit	C R - T -	up/down	Low
131	IR channel 4	Stop (short press)	1 bit	C R - T -	step	Low
136	IR channel 5	Up/down	1 bit	C R - T -	up/down	Low
137	IR channel 5	Step/stop (short pre...	1 bit	C R - T -	step	Low
142	IR channel 6	Timer	1 bit	C R - T -	start/stop	Low
151	IR channel 7	Setpoint selection	1 byte	C R - T -	HVAC mode	Low
154	IR channel 8	Presence	1 bit	C R - T -	switch	Low
163	IR channel 9	Scene	1 byte	C R - T -	scene control	Low
166	IR channel 10	Timer	1 bit	C R - T -	start/stop	Low
172	IR channel 11	ON/OFF	1 bit	C R - T -	switch	Low
181	IR channel 12	Scene	1 byte	C R - T -	scene control	Low

Figure 66: Communication objects IR interface

Nr.	Name	Objektfunktion	Länge	Datentyp	Flags
Toggeln					
111,117,123,129,135,141,147,153,159,166,173,179	IR x	Status indication ON/OFF	1 bit	DPT_switch	C,W,T,U
112,118,124,130,136,142,148,154,160	IR x	ON/OFF	1 bit	DPT_switch	C,R,T
ON/OFF					
112,118,124,130,136,142,148,154,160	IR x	ON/OFF	1 bit	DPT_switch	C,R,T
Dimming					
114,120,126,132,138,144,150,156,162	IR x	Dimming	4 bit	DPT_Dimmer_control	C,R,T
112,118,124,130,136,142,148,154,160	IR x	ON/OFF	1 bit	DPT_switch	C,R,T
Shutter/blind					
112,118,124,130,136,142,148,154,160	IR x	Up/Down	1 bit	DPT_Up/Down	C,R,T
113,119,125,131,137,143,149,155,161	IR x	Stop (Short press)	1 bit	DPT_start/stopp	C,R,T
Timer					
112,118,124,130,136,142,148,154,160	IR x	Timer	1 bit	DPT_start/stopp	C,R,T

Thermostat extension					
115,121,127, 133,139,145, 151,157,163	IR x	Setpoint selection	1 byte	DPT_HVAC Mode	C,R,T
112,118,124, 130,136,142, 148,154,160	IR x	Presence	1 bit	DPT_switch	C,R,T
Scene					
115,121,127, 133,139,145, 151,157,163	IR x	Scene	1 byte	DPT_scene control	C,R,T
<p>These objects are activated if the appropriate function has been selected for the required IR interfaces.</p> <p>These objects enable the processing of the received signals of the IR remote control and forward them to the appropriately connected devices e.g. switch actuator/blind actuator.</p> <p>For further information see chapter IR interface</p>					

8 Appendix

8.1 Technical data

KNX Medium	TP 1
Start-up mode	system link, easy link
Rated voltage KNX	DC 21 ... 32 V SELV
Current consumption KNX	type 20 mA
Connection mode KNX	bus connection terminal
IR protocol	RC6A
Degree of protection	IP20
Protection class	III
Operating temperature	-5 ... +45 °C
Storage/transport temperature	-20 ... +70 °C
Dimensions (W x H x D)	42 x 40,8 x 20,9 mm
Standards	EN 50428, EN 60669-2-1, EN 60669-1

8.2 Accessories

Labelling field sheets	WST900
Bus connecting terminals	TG008

8.3 Characteristics

	1gang	1gang IR	2gang	2gang IR	3gang
Max. number of group addresses	254	254	254	254	254
Max. number of assignments	254	254	254	254	254
Objects	132	162	312	162	132

Table 64: characteristics

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