

Technical Manual



MDT Glass Push Button II Lite

BE-GTL1xx.x1

BE-GTL2xx.x1

BE-GTL4xx.x1

MDT Push Button Lite 55/63

BE-TAL55x1.x1 BE-TAL63x1.x1

BE-TAL55x2.x1 BE-TAL63x2.x1

BE-TAL55x4.01 BE-TAL63x4.01

MDT Push Button Lite 55 Basic

BE-TAL55B1.01

BE-TAL55B2.01

Further Documents :

Datasheets :

https://www.mdt.de/EN_Downloads_Datasheets.html

Assembly and Operation Instructions :

https://www.mdt.de/EN_Downloads_Instructions.html

Solution Proposals for MDT products:

https://www.mdt.de/EN_Downloads_Solutions.html

1 Content

1 Content.....	2
2 Overview	4
2.1 Overview Glass Push Button II Lite.....	4
2.2 Overview Push Button Lite 55	5
2.3 Overview Push Button Lite 63	6
2.4 Overview Push Button Lite 55 Basic	6
2.5 Exemplary Circuit Diagram	7
2.6 Structure & Handling	7
2.7 Functions	8
2.7.1 Special functions	8
2.8. Commissioning.....	9
3 Communication objects.....	10
3.1 Overview and Usage	10
4 Reference-ETS-Parameter	18
4.1 General Settings	18
4.1.1 Device selection	18
4.1.2 General Settings	18
4.2 Basic settings “Push button functions”.....	20
4.3 Push Button Functions.....	22
4.3.1 Identical Parameter.....	22
4.3.1.1 Blocking Object.....	22
4.3.1.2 Description of Buttons/Objects	22
4.3.2 Switch (General).....	23
4.3.2.1 Switching with the two-button function	25
4.3.2.2 Subfunction: Switch	25
4.3.2.3 Subfunction: Toggle	26
4.3.2.4 Subfunction: Send Status.....	27
4.3.3 Send Values	28
4.3.3.1 Subfunction: Send Values	28
4.3.3.2 Subfunction: Toggle Values/Scenes (up to 4 values).....	31
4.3.3.3 Subfunction: Shift Value	34
4.3.3.4 Subfunction: Send Value by State	36
4.3.3.5 Subfunction: Multi-Tip Function (Send values after number of operations)	37
4.3.4 Switch/Send Values short/long (with 2 Objects).....	39
4.3.5 Scene	41

4.3.6 Blinds/Shutter	43
4.3.7 Dimming	46
4.3.8 Slap-/Cleaning function	47
4.4 Status LED	49
4.4.1 LED Basic Settings	49
4.4.2 LED 1-4	51
4.4.2.1 Priority	54
4.5 Logic	55
4.5.1 Logic basic settings	55
4.5.2 Logic 1-4	55
4.5.2.1 Logic 1-4 submenu	57
4.6 Temperature Setting	58
5 Index	60
5.1 Register of illustrations	60
5.2 List of tables	61
6 Attachment	62
6.1 Statutory requirements	62
6.2 Disposal routine	62
6.3 Assemblage	62
6.4 Revision History	62

2 Overview

2.1 Overview Glass Push Button II Lite

The description refers to the following devices (order number in bold):

BE-GTL10W.01	1-fold, White, Version NEUTRAL
BE-GTL1TW.01	1-fold, White, Version NEUTRAL, with temperature sensor
BE-GTL10W.A1	1-fold, White, Version UP/DOWN symbol
BE-GTL1TW.B1	1-fold, White, Version I/O Symbol, with temperature sensor
BE-GTL10S.01	1-fold, Black, Version NEUTRAL
BE-GTL1TS.01	1-fold, Black, Version NEUTRAL, with temperature sensor
BE-GTL10S.A1	1-fold, Black, Version UP/DOWN symbol
BE-GTL1TS.B1	1-fold, Black, Version I/O symbol, with temperature sensor
BE-GTL20W.01	2-fold, White, Version NEUTRAL
BE-GTL2TW.01	2-fold, White, Version NEUTRAL, with temperature sensor
BE-GTL20W.A1	2-fold, White, Version UP/DOWN symbol
BE-GTL2TW.B1	2-fold, White, Version I/O symbol, with temperature sensor
BE-GTL2TW.C1	2-fold, White, Version UP/DOWN and I/O symbol, with temperature sensor
BE-GTL2TW.D1	2-fold, White, Version I/O and UP/DOWN symbol, with temperature sensor
BE-GTL20S.01	2-fold, Black, Version NEUTRAL
BE-GTL2TS.01	2-fold, Black, Version NEUTRAL, with temperature sensor
BE-GTL20S.A1	2-fold, Black, Version UP/DOWN symbol
BE-GTL2TS.B1	2-fold, Black, Version I/O symbol, with temperature sensor
BE-GTL2TS.C1	2-fold, Black, Version UP/DOWN and I/O symbol, with temperature sensor
BE-GTL2TS.D1	2-fold, Black, Version I/O and UP/DOWN symbol, with temperature sensor
BE-GTL40W.01	4-fold, White, Version NEUTRAL
BE-GTL4TW.01	4-fold, White, Version NEUTRAL, with temperature sensor
BE-GTL40S.01	4-fold, Black, Version NEUTRAL
BE-GTL4TS.01	4-fold, Black, Version NEUTRAL, with temperature sensor

2.2 Overview Push Button Lite 55

The description refers to the following devices (order number in bold):

BE-TAL5501.01	1-fold, white glossy finish, Version NEUTRAL
BE-TAL55T1.01	1-fold, white glossy finish, Version NEUTRAL, with temperature sensor
BE-TAL5501.A1	1-fold, white glossy finish, Version UP/DOWN symbol
BE-TAL5501.B1	1-fold, white glossy finish, Version I/O symbol
BE-TAL55T1.B1	1-fold, white glossy finish, Version I/O symbol, with temperature sensor
BE-TAL5502.01	2-fold, white glossy finish, Version NEUTRAL
BE-TAL55T2.01	2-fold, white glossy finish, Version NEUTRAL, with temperature sensor
BE-TAL5502.A1	2-fold, white glossy finish, Version UP/DOWN symbol
BE-TAL5502.B1	2-fold, white glossy finish, Version I/O symbol
BE-TAL55T2.B1	2-fold, white glossy finish, Version I/O symbol, with temperature sensor
BE-TAL5502.C1	2-fold, white glossy finish, Version UP/DOWN und I/O symbol
BE-TAL55T2.C1	2-fold, white glossy finish, Version UP/DOWN und I/O symbol, with temperature sensor
BE-TAL5502.D1	2-fold, white glossy finish, Version I/O and UP/DOWN symbol
BE-TAL55T2.D1	2-fold, white glossy finish, Version I/O and UP/DOWN symbol, with temperature sensor
BE-TAL5504.01	4-fold, white glossy finish, Version NEUTRAL
BE-TAL55T4.01	4-fold, white glossy finish, Version NEUTRAL, with temperature sensor

2.3 Overview Push Button Lite 63

The description refers to the following devices (order number in bold):

BE-TAL6301.01	1-fold, studio white glossy finish, Version NEUTRAL
BE-TAL63T1.01	1-fold, studio white glossy finish, Version NEUTRAL, with temperature sensor
BE-TAL6301.A1	1-fold, studio white glossy finish, Version UP/DOWN symbol
BE-TAL6301.B1	1-fold, studio white glossy finish, Version I/O symbol
BE-TAL63T1.B1	1-fold, studio white glossy finish, Version I/O symbol, with temperature sensor
BE-TAL6302.01	2-fold, studio white glossy finish, Version NEUTRAL
BE-TAL63T2.01	2-fold, studio white glossy finish, Version NEUTRAL, with temperature sensor
BE-TAL6302.A1	2-fold, studio white glossy finish, Version UP/DOWN symbol
BE-TAL6302.B1	2-fold, studio white glossy finish, Version I/O symbol
BE-TAL63T2.B1	2-fold, studio white glossy finish, Version I/O symbol, with temperature sensor
BE-TAL6302.C1	2-fold, studio white glossy finish, Version UP/DOWN and I/O symbol
BE-TAL63T2.C1	2-fold, studio white glossy finish, Version UP/DOWN and I/O symbol, with temperature sensor
BE-TAL6302.D1	2-fold, studio white glossy finish, Version I/O and UP/DOWN symbol
BE-TAL63T2.D1	2-fold, studio white glossy finish, Version I/O and UP/DOWN symbol, with temperature sensor
BE-TAL6304.01	4-fold, studio white glossy finish, Version NEUTRAL
BE-TAL63T4.01	4-fold, studio white glossy finish, Version NEUTRAL, with temperature sensor

2.4 Overview Push Button Lite 55 Basic

BE-TAL55B1.01	1-fold, white glossy finish
BE-TAL55B2.01	2-fold, white glossy finish

2.5 Exemplary Circuit Diagram

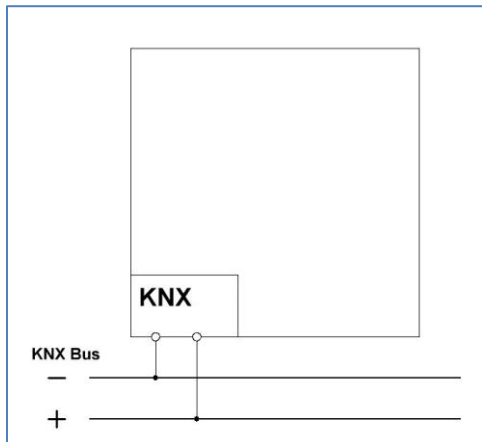


Figure 1: Exemplary Circuit Diagram

2.6 Structure & Handling

The example shown here is the Glass Push Button II Lite.

Push Buttons Lite 55/63 have the same design.

The Push Button Lite 55 Basic has no status LEDs. Programming LED is next to programming button.

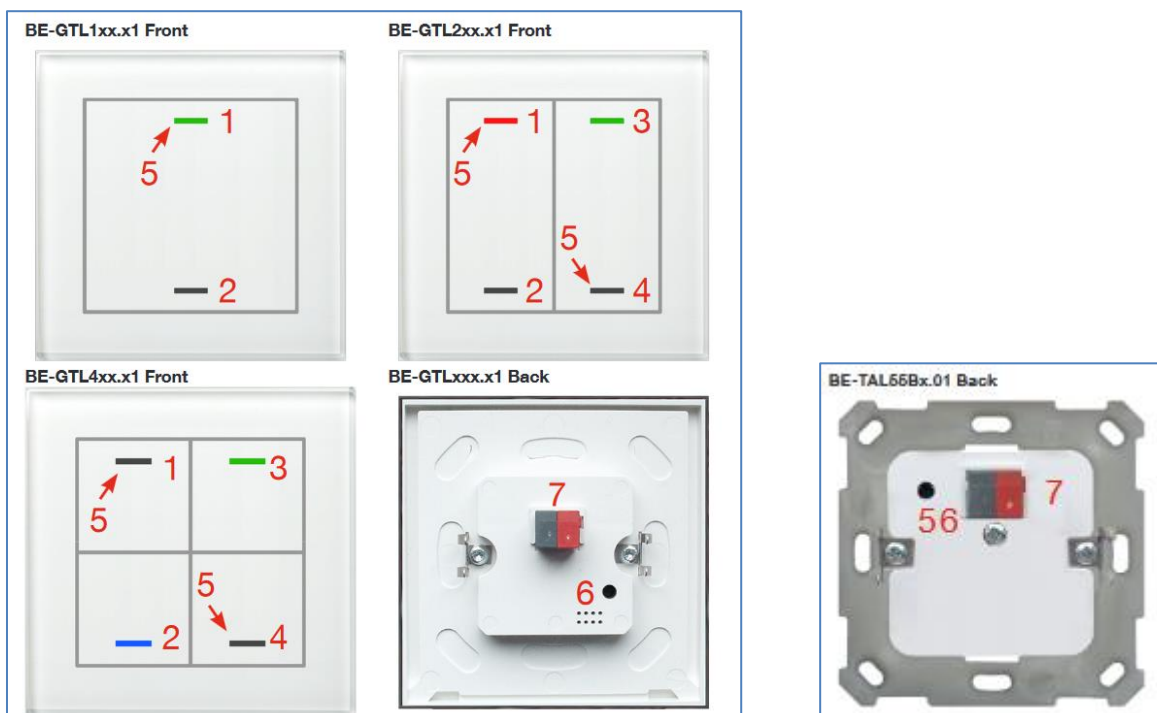


Figure 2: Structure & Handling

- 1, 2, 3, 4 = Sensor surfaces (Glass Push Button II Lite) respectively buttons (Push Button Light 55/63/Basic) for operating the key functions
- 5 = RGBW status LEDs / Programming LED (only Push Button Lite 55 Basic)
- 6 = Programming button
- 7 = Bus connection terminal

2.7 Functions

The functions of the Glass Push Button II Lite and Push Button Lite 55/63/Basic are divided into the general settings, the button functions, the settings for the status LED (not available for Push Button Lite 55 Basic) and the settings for the logic function.

The push buttons of the BE-GTL1Tx.x1, BE-GLT2Tx.x1 and BE-TAL55Tx.x1 series have additional settings for the integrated temperature sensor.

2.7.1 Special functions

- **Extensive application**
The functional range of the application exceeds that of a "normal" push-button many times over. In addition to the usual functions such as blinds, switching, dimming, scene, the user also has functions for controlling various values, such as HSV colour values, colour temperature, etc. In addition to a long keystroke, the push-button also has an extra long keystroke and the option of sending up to 4 values with one key via the multi-tip function over the same or different objects
- **„Slap“ function** (*Only for Glass Push Button II Lite*)
The slap function, which is triggered by touching the button across the entire surface, enables intuitive operation. This function allows, for example, the light to be switched on when entering the room without the operator having to search for the exact position of the individual buttons..
- **Innovative group control**
With the function group long/extra long key press, it is possible to send telegrams via separate communication objects by pressing and holding down the key for a long and/or extra long time. This can be used for a group function, for example. The short key press switches the room On/Off, the long key press switches the floor and the extra long key press switches the building. The status LED indicates the time of pressing as follows: press briefly - LED on for as long as pressed. Time for long key press reached - LED starts flashing. Time for extra long key press reached - LED goes out.
- **RGBW State LEDs** (*Not for Push Button Lite 55 Basic*)
One RGBW status LED per key is available to the user, which can visualize both a keystroke and an external or internal status with an adjustable color.
- **Logic functions**
With a total of 4 logic functions, nested function calls can also be implemented, e.g. to release a scene call only in day mode. The logic function can process both internal and external statuses.
- **Room temperature** (*Only for BE-GTLxTx.x1 and BE-TALxTx.x1*)
The integrated temperature sensor can be used for room temperature control and can transmit measured temperature values to control devices such as the AKH-x00.02. This eliminates the need for an additional temperature sensor. Settings for transmission conditions of the temperature value and a status object for a lower and an upper threshold value can be set.

- **Long Frame Support**

Device supports the sending of longer telegrams and thus the storage of more user data per telegram. This significantly shortens the programming time (from ETS5).

Requirements: Use of a programming interface which supports the transmission of long frames, e.g. MDT SCN-USBR.02 or SCN-IP000.02/03 / SCN-IP100.02/03.

- **Updateable via DCA (devices from version R1.1)**

With the help of the MDT Update Tool the push buttons can be updated if necessary

The behavior of the programming LEDs in bootloader mode differs from the "normal" mode:

Normal mode: upper and lower LEDs flash alternately red

Bootloader mode: upper and lower light permanently red

2.8. Commissioning

After wiring the device, the physical address is assigned and the individual channels are parameterised:

- (1) Connect the interface with the bus, e.g. MDT USB Interface
- (2) Switch on bus voltage
- (3) Press the programming key on the device. (Glass Push Button Lite and Push Button Lite 55/63: Status LEDs flash red alternately. Push Button 55 Basic: Programming LED lights up red)
- (4) Loading of the physical address out of the ETS-Software by using the interface (Red LEDs will turn off as soon as this is successfully completed)
- (5) Loading of the application, with requested parameterization
- (6) If the device is enabled you can test the requested functions (also possible by using the ETS-Software)

3 Communication objects

3.1 Overview and Usage

The following table shows the standard settings for the communication objects:

Standard Settings – Push Buttons								
No.	Name	Function	Length	C	R	W	T	U
0	Push button 1: Push buttons 1/2:	Switch	1 Bit	X			X	
0	Push button 1:	Toggle	1 Bit	X			X	
0	Push button 1:	Send status	1 Bit	X			X	
0	Push button 1: Push buttons 1/2:	Forcible control	2 Bit	X			X	
0	Push button 1: Push buttons 1/2:	Percent value	1 Byte	X			X	
0	Push button 1: Push buttons 1/2:	Decimal value	1 Byte	X			X	
0	Push button 1: Push buttons 1/2:	Scene	1 Byte	X			X	
0	Push button 1: Push buttons 1/2:	Color temperature	2 Byte	X			X	
0	Push button 1: Push buttons 1/2:	Temperature	2 Byte	X			X	
0	Push button 1: Push buttons 1/2:	Brightness value	3 Byte	X			X	
0	Push button 1: Push buttons 1/2:	RGB value HSV value	3 Byte	X			X	
0	Push button 1: Push buttons 1/2:	Blind Up/Down	1 Bit	X			X	
0	Push button 1: Push buttons 1/2:	Dimming On/Off	1 Bit	X			X	
0	Push Button 1 short: Push Buttons 1/2 short:	Switch	1 Bit	X			X	
0	Push Button 1 short: Push Buttons 1/2 short:	Toggle	1 Bit	X			X	
0	Push Button 1 short: Push Buttons 1/2 short:	Forcible control	2 Bit	X			X	
0	Push Button 1 short: Push Buttons 1/2 short:	Percent value	1 Byte	X			X	
0	Push Button 1 short: Push Buttons 1/2 short:	Decimal value	1 Byte	X			X	

0	Push Button 1 short: Push Buttons 1/2 short:	Scene	1 Byte	X			X	
0	Push Button 1 short: Push Buttons 1/2 short:	Color temperature	2 Byte	X			X	
0	Push Button 1 short: Push Buttons 1/2 short:	Temperature	2 Byte	X			X	
0	Push Button 1 short: Push Buttons 1/2 short:	Brightness value	2 Byte	X			X	
0	Push Button 1 short: Push Buttons 1/2 short:	RGB value HSV value	3 Byte	X			X	
0	Push Button 1, 1x tip:	Switch On/Off	1 Bit	X			X	
0	Push Button 1, 1x tip:	Percent value	1 Byte	X			X	
0	Push Button 1, 1x tip:	Forcible control	2 Bit	X			X	
0	Push Button 1, 1x tip:	Decimal value	1 Byte	X			X	
0	Push Button 1, 1x tip:	Scene	1 Byte	X			X	
0	Push Button 1, 1x tip:	Color temperature	2 Byte	X			X	
0	Push Button 1, 1x tip:	Temperature	2 Byte	X			X	
0	Push Button 1, 1x tip:	Brightness value	2 Byte	X			X	
0	Push Button 1, 1x tip:	RGB value HSV value	3 Byte	X			X	
1	Push Button 1:	Value for toggle	1 Bit	X		X	X	X
1	Push button 1:	Scene	1 Byte	X			X	
1	Push button 1: Push buttons 1/2:	Dimming relative	4 Bit	X			X	
1	Push Button 1, 2x tip:	Switch	1 Bit	X			X	
1	Push Button 1, 2x tip:	Percent value	1 Byte	X			X	
1	Push Button 1, 2x tip:	Forcible control	2 Bit	X			X	
1	Push Button 1, 2x tip:	Decimal value	1 Byte	X			X	
1	Push Button 1, 2x tip:	Scene	1 Byte	X			X	
1	Push Button 1, 2x tip:	Color temperature	2 Byte	X			X	
1	Push Button 1, 2x tip:	Temperature	2 Byte	X			X	
1	Push Button 1, 2x tip:	Brightness value	2 Byte	X			X	
1	Push Button 1, 2x tip:	RGB value HSV value	3 Byte	X			X	
1	Push Button 1 short: Push Buttons 1/2 short:	Value for toggle	1 Bit	X		X	X	X
1	Push button 1: Push buttons 1/2:	Stop/Slats Open/Close	1 Bit	X			X	
2	Push Button 1 group long: Push Buttons 1/2 group long:	Switch	1 Bit	X			X	
2	Push Button 1 group long:	Toggle	1 Bit	X			X	
2	Push Button 1 group long: Push Buttons 1/2 group long:	Percent value	1 Byte	X			X	

2	Push Button 1 group long: Push Buttons 1/2 group long:	Forcible control	2 Bit	X			X	
2	Push Button 1 group long: Push Buttons 1/2 group long:	Decimal value	1 Byte	X			X	
2	Push Button 1 group long: Push Buttons 1/2 group long:	Scene	1 Byte	X			X	
2	Push Button 1 group long: Push Buttons 1/2 group long:	Color temperature	2 Byte	X			X	
2	Push Button 1 group long: Push Buttons 1/2 group long:	Temperature	2 Byte	X			X	
2	Push Button 1 group long: Push Buttons 1/2 group long:	Brightness value	2 Byte	X			X	
2	Push Button 1 group long: Push Buttons 1/2 group long:	RGB value HSV value	3 Byte	X			X	
2	Push Button 1, 3x tip:	Switch	1 Bit	X			X	
2	Push Button 1, 3x tip:	Percent value	1 Byte	X			X	
2	Push Button 1, 3x tip:	Forcible control	2 Bit	X			X	
2	Push Button 1, 3x tip:	Decimal value	1 Byte	X			X	
2	Push Button 1, 3x tip:	Scene	1 Byte	X			X	
2	Push Button 1, 3x tip:	Color temperature	2 Byte	X			X	
2	Push Button 1, 3x tip:	Temperature	2 Byte	X			X	
2	Push Button 1, 3x tip:	Brightness value	2 Byte	X			X	
2	Push Button 1, 3x tip:	RGB value HSV value	3 Byte	X			X	
2	Push Button 1 long: Push Buttons 1/2 long:	Switch	1 Bit	X			X	
2	Push Button 1 long: Push Buttons 1/2 long:	Toggle	1 Bit	X			X	
2	Push Button 1 long: Push Buttons 1/2 long:	Percent value	1 Byte	X			X	
2	Push Button 1 long: Push Buttons 1/2 long:	Forcible control	2 Bit	X			X	
2	Push Button 1 long: Push Buttons 1/2 long:	Decimal value	1 Byte	X			X	
2	Push Button 1 long: Push Buttons 1/2 long:	Scene	1 Byte	X			X	
2	Push Button 1 long: Push Buttons 1/2 long:	Color temperature	2 Byte	X			X	
2	Push Button 1 long: Push Buttons 1/2 long:	Temperature	2 Byte	X			X	
2	Push Button 1 long: Push Buttons 1/2 long:	Brightness value	2 Byte	X			X	
2	Push Button 1 long: Push Buttons 1/2 long:	RGB value HSV value	3 Byte	X			X	

2	Push Button 1:	Scene	1 Byte	X			X	
2	Push Button 1:	Value for change of direction	1 Bit	X		X	X	X
2	Push Button 1:	Value for toggle	1 Bit	X		X	X	X
2	Push Button 1 (2. Object): Push Buttons 1/2 (2. Object):	Switch	1 Bit	X			X	
2	Push Button 1 (2. Object): Push Buttons 1/2 (2. Object):	Percent value	1 Byte	X			X	
2	Push Button 1 (2. Object): Push Buttons 1/2 (2. Object):	Forcible control	2 Bit	X			X	
2	Push Button 1 (2. Object): Push Buttons 1/2 (2. Object):	Decimal value	1 Byte	X			X	
2	Push Button 1 (2. Object): Push Buttons 1/2 (2. Object):	Scene	1 Byte	X			X	
2	Push Button 1 (2. Object): Push Buttons 1/2 (2. Object):	Color temperature	2 Byte	X			X	
2	Push Button 1 (2. Object): Push Buttons 1/2 (2. Object):	Temperature	2 Byte	X			X	
2	Push Button 1 (2. Object): Push Buttons 1/2 (2. Object):	Brightness value	2 Byte	X			X	
2	Push Button 1 (2. Object): Push Buttons 1/2 (2. Object):	RGB value HSV value	3 Byte	X			X	
3	Push Button 1 long: Push Buttons 1/2 long:	Status for toggle	1 Bit	X		X	X	X
3	Push Button 1 group extra long:	Blind Up/Down	1 Bit	X			X	
3	Push Buttons 1/2:	Status of percent value	1 Byte	X		X		X
3	Push Buttons 1/2:	Status of decimal value	1 Byte	X		X		X
4	Push Button 1 group extra long: Push Button 1/2 group extra long:	Switch	1 Bit	X			X	
4	Push Button 1 group extra long: Push Button 1/2 group extra long:	Percent value	1 Byte	X			X	
4	Push Button 1 group extra long: Push Button 1/2 group extra long:	Forcible control	2 Bit	X			X	
4	Push Button 1 group extra long: Push Button 1/2 group extra long:	Decimal value	1 Byte	X			X	
4	Push Button 1 group extra long: Push Button 1/2 group extra long:	Scene	1 Byte	X			X	
4	Push Button 1 group extra long: Push Button 1/2 group extra long:	Color temperature	2 Byte	X			X	
4	Push Button 1 group extra long: Push Button 1/2 group extra long:	Temperature	2 Byte	X			X	
4	Push Button 1 group extra long: Push Button 1/2 group extra long:	Brightness value	2 Byte	X			X	
4	Push Button 1 group extra long: Push Button 1/2 group extra long:	RGB value HSV value	3 Byte	X			X	

4	Push Button 1 group extra long:	Toggle	1 Bit	X			X	
4	Push Button 1 group extra long:	Slats/Stop	1 Bit	X			X	
4	Push Button 1/2 group extra long:	Blinds Up/Down	1 Bit	X			X	
4	Push Button 1/2 group extra long:	Stop/Slats Open/Close	1 Bit	X			X	
9	Push button 1: Push buttons 1/2:	Blocking object	1 Bit	X		X	X	X
+10	next Push Button							

Table 1: Communication objects – Push Buttons

Standard Settings – Slap-Button								
No.	Name	Function	Length	C	R	W	T	U
40	Slap-button short	Switch Off	1 Bit	X			X	
40	Slap-button short	Switch On	1 Bit	X			X	
40	Slap-button short	Toggle	1 Bit	X			X	
40	Slap-button short	Forcible control	2 Bit	X			X	
40	Slap-button short	Percent value Decimal value Scene	1 Byte	X			X	
40	Slap-button short	Temperature value Brightness value Color temperature	2 Byte	X			X	
40	Slap-button short	RGB value HSV value	3 Byte	X			X	
41	Slap-button short	Value for toggle	1 Bit	X		X	X	X
42	Slap-button long	Switch Off	1 Bit	X			X	
42	Slap-button long	Switch On	1 Bit	X			X	
42	Slap-button long	Toggle	1 Bit	X			X	
42	Slap-button long	Forcible control	2 Bit	X			X	
42	Slap-button long	Percent value Decimal value Scene	1 Byte	X			X	
42	Slap-button long	Temperature value Brightness value Color temperature	2 Byte	X			X	
42	Slap-button long	RGB value HSV value	3 Byte	X			X	
43	Slap-button long	Value for toggle	1 Bit	X		X	X	X
49	Slap-button	Blocking object	1 Bit	X		X	X	X

Table 2: Communication objects – Slap-Button

Standard Settings – Logic function									
No.	Name	Function	Length	C	R	W	T	U	
50	Logic 1	Input 1 A	1 Bit	X		X	X	X	
51	Logic 1	Input 1 B	1 Bit	X		X	X	X	
52	Logic 1	Output 1 Output 1 Value Output 1 Scene Output 1 Value	1 Bit 2 Bit 1 Byte 1 Byte	X	X		X		
+ 3	next Logic								

Table 3: Communication objects – Logic function

Standard Settings – Status LED									
No.	Name	Function	Length	C	R	W	T	U	
62	LED 1	Switch Percent value Decimal value	1 Bit 1 Byte 1 Byte	X		X	X	X	
+1	next LED								
66	LED 1 Priority	Switch	1 Bit	X		X	X	X	
+ 1	next LED Priority								
70	LED	Blocking object	1 Bit	X		X	X	X	
78	LED synchron	Blinking status as Slave	1 Bit	X		X			
78	LED synchron	Blinking status as Master	1 Bit	X			X		
79	Brightness	Input for dynamic brightness	2 Byte	X		X	X	X	
79	Brightness	Input for dynamic brightness	1 Byte	X		X	X	X	

Table 4: Communication objects – State LEDs

Standard Settings – Temperature Measurement									
No.	Name	Function	Length	C	R	W	T	U	
73	Temperature	Transmit temperature value	2 Byte	X	X		X		
74	Temperature	External sensor	2 Byte	X		X			
75	Message	Maximum temperature	1 Bit	X	X		X		
76	Message	Minimum temperature	1 Bit	X	X		X		

Table 5: Communication objects – Temperature setting

Standard Settings – General Objects									
No.	Name	Function	Length	C	R	W	T	U	
71	Day/Night	Day = 1 / Night = 0 Night = 1 / Day = 0	1 Bit	X		X	X	X	
72	Buttons activation	Output	1 Bit	X			X	X	
77	In operation	Output	1 Bit	X	X		X		

Table 6: Communication objects – General Objects

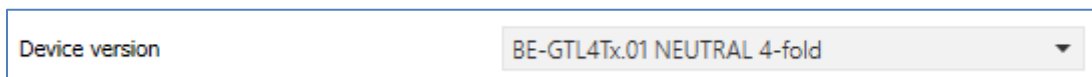
The table above shows the preset default settings. The priority of the individual communications objects and the flags can be adjusted by the user as required. The flags assign the communication objects their respective tasks in programming, where C stands for communication, R for read, W for write, T for transmit and U for update.

4 Reference-ETS-Parameter

4.1 General Settings

4.1.1 Device selection

Selection is not available for the Push Button Lite 55 Basic



A screenshot of a web interface showing a dropdown menu for device selection. The label "Device version" is on the left. The dropdown menu is open, showing the selected option "BE-GTL4Tx.01 NEUTRAL 4-fold".

Figure 3: Device selection

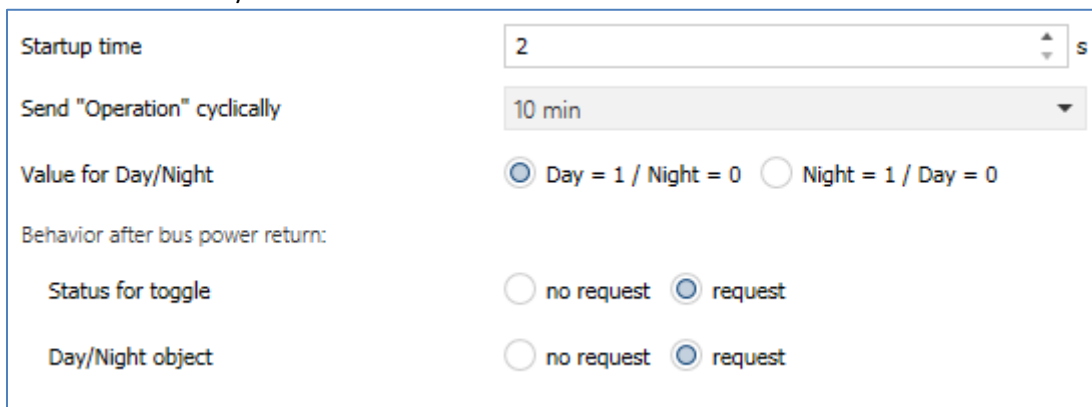
By selecting the used device, the database is adjusted. Depending on the version, the buttons are set to a suitable default setting.

Important:

Since 2-fold and 4-fold push buttons use the same application, both are set to the default setting "BE-xxxxxx NEUTRAL 2-fold". If a 4-fold push button is used, it has to be set accordingly in the device selection.

4.1.2 General Settings

The following picture shows the menu for the general settings for Glass Push Button II Lite and Push Button Lite 55/63:

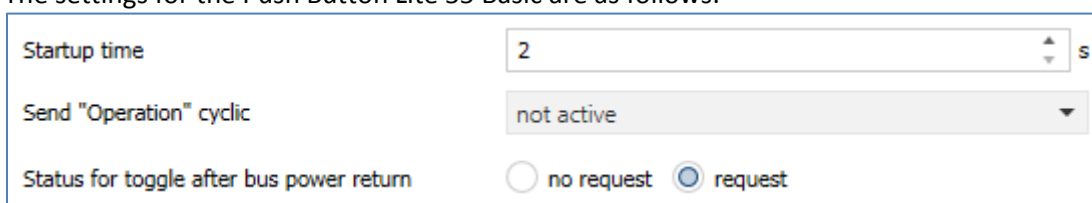


A screenshot of a web interface showing the general settings menu. The settings are as follows:

- Startup time: 2 s
- Send "Operation" cyclically: 10 min
- Value for Day/Night: Day = 1 / Night = 0 Night = 1 / Day = 0
- Behavior after bus power return:
 - Status for toggle: no request request
 - Day/Night object: no request request

Figure 4: General Settings 1

The settings for the Push Button Lite 55 Basic are as follows:



A screenshot of a web interface showing the general settings menu for the Push Button Lite 55 Basic. The settings are as follows:

- Startup time: 2 s
- Send "Operation" cyclic: not active
- Status for toggle after bus power return: no request request

Figure 5: General Settings 2

The following table shows the possible settings:

ETS-Text	Dynamic range [Default value]	Comment
Startup time	2 – 240 s [2 s]	Sets the time between restart and functional start-up of the device
Send „Operation“ cyclically	not active 1 min – 4 h	Setting whether a cyclic in-operation telegram is to be sent
Value for Day/Night	<ul style="list-style-type: none"> ▪ Day = 1 / Night = 0 ▪ Night = 1 / Day = 0 	Sets the polarity for day / night switching
Behavior after bus power return		
Status for toggle	<ul style="list-style-type: none"> ▪ no request ▪ request 	Setting whether the objects "Value for toggle" are to be requested
Day/Night object	<ul style="list-style-type: none"> ▪ no request ▪ request 	Setting whether the "Day/Night" object is to be requested

Table 7: General settings

The following table shows the available communication objects:

Number	Name	Length	Usage
71	Day/Night	1 Bit	Receiving the status for Day/Night
72	Buttons activation	1 Bit	Send out a 1 when a button is pressed, e.g. to switch on an orientation light. Info: A timeout of 30 sec. is started after each keystroke - no telegram is sent during this time!
77	Operation	1 Bit	Sending a cyclic "In-operation" telegram

Table 8: Communicationobjects – General settings

4.2 Basic settings “Push button functions”

First, basic settings are made.

In the menu "Push button functions", you can activate/deactivate the individual keys.

The following settings are available (in this example, for the Push Button Lite 4-fold):

Buttons orientation	<input checked="" type="radio"/> vertical (top, bottom) <input type="radio"/> horizontal (left, right)
Buttons 1/2 (left top/bottom)	two-button function
Buttons 3/4 (right top/bottom)	single function of push button (2 functions, top/bottom)
Slap / Cleaning function	<input type="radio"/> not active <input checked="" type="radio"/> active
Reaction time at the keypress	fast
Time for long keypress (Basic setting)	0,4 s

Figure 6: Basic settings – Push button functions

ETS-Text	Dynamic range [Default value]	Comment
Button orientation	<ul style="list-style-type: none"> ▪ vertical (top, bottom) ▪ horizontal (left, right) 	Setting the button orientation/assignment. Only available for BE-GTL4xx.01 and BE-TALxxx4.01
Buttons 1/2 – 3/4	<ul style="list-style-type: none"> ▪ not active ▪ Single-button function (2 functions, top/bottom) ▪ Single-button function (1 function, top/bottom together) ▪ Two-button function 	Operating mode of the respective buttons. If selected "vertical (top/bottom)"
	<ul style="list-style-type: none"> ▪ not active ▪ Single-button function ▪ Two-button function 	If selected "horizontal (left/right)"
Slap / Cleaning function	<ul style="list-style-type: none"> ▪ not active ▪ active 	Activation of the slap and cleaning function. Only for Glass Push Button
Reaction time on keypress	<ul style="list-style-type: none"> ▪ fast ▪ medium ▪ slow 	Setting the reaction time or debouncing time for the keys
Time for long keypress	0,1 s – 30,0 s [0,4 s]	Setting from when a long key press is detected

Table 9: Basic settings – Push button functions

With the **4-fold push-buttons**, the parameter "**button orientation**" can be used to select whether the respective rocker is oriented horizontally (next to each other) or vertically (below each other) in the case of a two-button function.

With single-button functions, the alignment causes a change in the sequence. Button 1 is always at the top left, button 2 would be at the top right if the rocker was vertically aligned, but at the bottom left if it was horizontally aligned. Buttons 3 and 4 behave accordingly.

Important: The assignment of the status LEDs automatically adapts to the alignment. LED 1 always matches button 1, LED 2 matches button 2 etc.!

The **button settings** determine whether the buttons are assigned individually or in pairs. The standard setting is vertical, i.e. one below the other. Here it is possible to select two different models for the individual keys. For "**1 function, top/bottom together**" for example, only button 1 appears as a sub-menu for buttons 1/2. The setting made there automatically applies to button 2 as well. With "**2 functions, top/bottom**", sub-menus appear for both buttons which can be freely parameterised independently of each other.

The selection "**Two-key function**" is a classic rocker. Here, clear actions are assigned to both keys for each function. If, for example, "Switching" is selected, you can specify that one button sends an "On" signal and the other button sends an "Off" signal.

If the buttons are deactivated, i.e. selected as "not active", the buttons cannot be parameterised any further.

By activating the "**Slap / Cleaning function**" (*only for Glass Push Buttons*), an additional sub-menu is displayed in which this function can be further parameterised. You can also set the polarity here, i.e. whether the slap or cleaning function is to be activated by pressing the button briefly or long enough. The **slap function**, which is triggered by touching the push button across the entire surface, allows intuitive operation. This function allows, for example, the light to be switched on when entering the room without the operator having to search for the exact position of the individual buttons. In this case, a short keystroke is recommended to achieve a quick response.

The **cleaning function** makes it possible to clean the glass surface without triggering the functions of the buttons. By touching the entire surface for the appropriate time (e.g. long key, 0.4 seconds) the status LEDs start flashing. Cleaning can be carried out during this time. After a fixed time of 10 seconds, the LEDs go out and the push-button is back in normal operation.

The **reaction time** is the debouncing of the keys. It can be selected as slow, medium or fast and defines how long a button has to be pressed to generate a function call. In order to ensure that no undesirable functions are called up for the individual buttons when the slap or cleaning function is called up, it should be adapted to the user.

Note: A fast response time is recommended for the jog function.

With the aid of the parameter "**time for long keypress**", a fixed time value can be assigned to the button, from when the button recognises a key press as long. This parameter is important for objects which have both short and long key press functions.

4.3 Push Button Functions

4.3.1 Identical Parameter

4.3.1.1 Blocking Object

The blocking object can be activated for grouped push buttons, for the respective pair of push buttons, e.g. 1/2, as well as for individual push buttons, then for the respective pair of push buttons, e.g. button 1 or button 2. If the disable object is active, the communication object for the respective push-button appears, so up to 4 blocking objects can also be parameterised for a push-button with 4 push-button functions. If the blocking object is assigned a logical 1, the corresponding push-button is "blocked" and can therefore no longer be switched

The following table shows the corresponding communication object:

Number	Name	Length	Usage
9	Push Button 1: – Blocking object	1 Bit	locks the corresponding button or button pair

Table 10: Communication object – Blocking object

4.3.1.2 Description of Buttons/Objects

An identical text field is available for each button or button pair for free labelling:

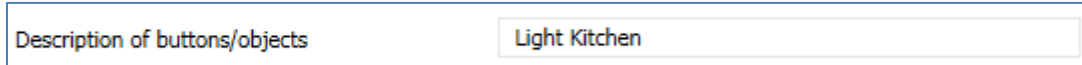
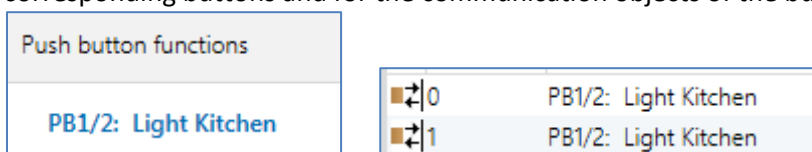


Figure 7: Identical text field – Description of Buttons/Objects

A text with up to 30 characters can be stored for the field.

The entered text for the **button/object description** appears both in the menu behind the corresponding buttons and for the communication objects of the buttons:



4.3.2 Switch (General)

- Single-Button function
- Two-Button function

The following figure shows the available settings, here with the two-button function:

Figure 8: General Settings – Switch

The following parameters are identical for all subfunctions of the "Switch" button function:

ETS-Text	Dynamic range [Default value]	Comment
Button assignment (1/2)	<ul style="list-style-type: none"> ▪ ON/OFF ▪ OFF/ON 	Only for two-button function. Defines the sending behaviour of the two buttons.
Subfunction	<ul style="list-style-type: none"> ▪ Switch ▪ Toggle ▪ Send status 	Only for single button function. Defines the subfunction and fades in further parameters if necessary
Value pushed button	<ul style="list-style-type: none"> ▪ OFF ▪ ON 	Only for single-button function, sub-function " Switch" and "Send status". Defines the sending behaviour of the button.
Value released button	<ul style="list-style-type: none"> ▪ OFF ▪ ON 	Only for single-button function, sub-function "Send status". Defines the sending behaviour of the button.
Delay for released button	<ul style="list-style-type: none"> ▪ Not active ▪ Active 	Only for single-button function, sub-function "Send status". Defines a delay of the telegram to be sent
Time delay	1 s – 60 min [1 s]	Defines the time by which the telegram is sent after the button is released.

Innovative group control		
Group long keypress	<ul style="list-style-type: none"> ▪ Not active ▪ Active 	Activating the group for long keypress
Group long sends	<ul style="list-style-type: none"> ▪ ON and OFF ▪ Only ON ▪ Only OFF 	<p>Only for two-button function and if "Group long keypress" is active.</p> <p>Defines the sending behaviour for long keystrokes.</p> <p>With single button functions, the sending behaviour is defined according to the subfunction.</p>
Group extra long keypress	<ul style="list-style-type: none"> ▪ Not active ▪ Active 	Activating the group for extra long keypress
Group extra long sends	<ul style="list-style-type: none"> ▪ ON and OFF ▪ Only ON ▪ Only OFF 	<p>Only for two-button function and if "Group long keypress" and "Group extra long keypress" are active.</p> <p>Defines the sending behaviour for extra long keystrokes.</p> <p>With single button functions, the sending behaviour is defined according to the subfunction</p>
Time for long keypress	<p>Basic setting 0,1 s – 30,0 s</p>	Setting from when a long keystroke is detected
Time for extra long keypress	<p>0,1 s – 30,0 s [2,0 s]</p>	Setting from when an extra long keystroke is detected

Table 11: General settings – Switch

With the **innovative group control**, it is possible to send to up to three different group addresses by pressing and holding a key. The time for the long and extra long keypress is set individually. With the two-button function, you can also set the sending behaviour for the long and extra long group. All groups are always sent one after the other.

Example:

Time long keypress: 2 s

Time extra long keypress: 4 s

If the key is now pressed for at least 4 seconds, the first value is transmitted immediately, after 2 seconds the value for "group long" and after 4 seconds the value for "Group extra long".

4.3.2.1 Switching with the two-button function

Two-Button function

With the two-button function, you can assign the respective value (On/Off) to the two buttons. Depending on the orientation of the button - horizontal or vertical - the upper/left or the lower/right button sends the set, fixed value.

The following figure shows the available settings for the two-button function "Switch":

Figure 9: Settings – Two-button function: Switch

Button assignment ON/OFF: Button 1 sends the value ON and Button 2 sends the value OFF.
Button assignment OFF/ON: Button 1 sends the value OFF and Button 2 sends the value ON.

Details of the **innovative group control** see 4.3.2 Switch (General).

The following table shows the available communications objects:

Number	Name	Length	Usage
0	Push buttons 1/2: – Switch	1 Bit	Switching function of the buttons
2	Push buttons 1/2 group long: – Switch	1 Bit	Switching function of the buttons with long keystroke
4	Push buttons 1/2 group extra long: – Switch	1 Bit	Switching function of the buttons with extra long keystroke

Table 12: Communication objects – Two-button function: Switch

4.3.2.2 Subfunction: Switch

Single-Button function

Here, the button sends the respective fixed value when pressed.

The following figure shows the available settings:

Figure 10: Settings – Single-button function: Switch - Subfunction: Switch

Details of the **innovative group control** see 4.3.2 Switch (General).

The following table shows the available communications objects:

Number	Name	Length	Usage
0	Push button 1: – Switch	1 Bit	Switching function of the button
2	Push button 1 group long: – Switch	1 Bit	Switching function of the button with long keystroke
4	Push button 1 group extra long: – Switch	1 Bit	Switching function of the button with extra long keystroke

Table 13: Communication objects – Single-button function: Switch - Subfunction: Switch

4.3.2.3 Subfunction: Toggle

Single-Button function

With the single button function: Switch - Sub-function: Toggle - the button sends the respective inverted value in relation to the last received status value.

For this purpose, the "Status for toggle" status object is linked to the status of the actuator to be controlled. If an ON signal was received as the last value, the push-button sends an OFF command to the "Switch" object the next time it is pressed.

The following figure shows the available settings:

Figure 11: Settings – Single-button function: Switch - Subfunction: Toggle

Details of the **innovative group control** see 4.3.2 Switch (General).

The following table shows the available communications objects:

Number	Name	Length	Usage
0	Push button 1: – Toggle	1 Bit	Switching function of the button
1	Push button 1: – Status for toggle	1 Bit	Status to update the push button; has to be connected to the status of the actuator to be switched so that the correct (inverted) value is always transmitted
2	Push button 1 group long: – Toggle	1 Bit	Switching function of the button with long keystroke
4	Push button 1 group extra long: – Toggle	1 Bit	Switching function of the button with extra long keystroke

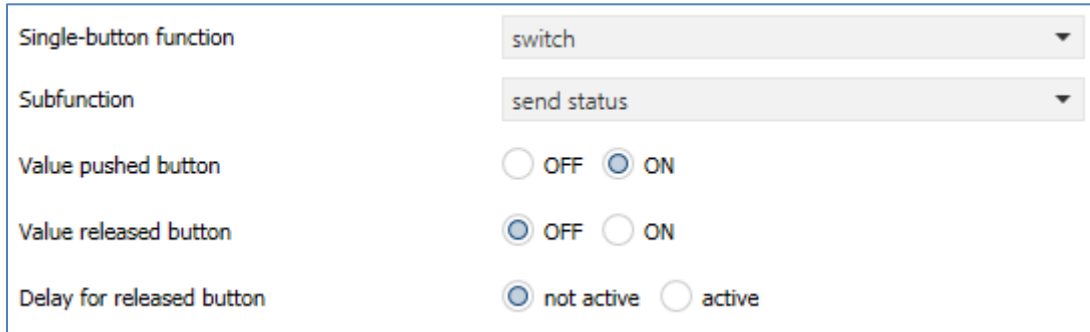
Table 14: Communication objects – Single-button function: Switch - Subfunction: Toggle

4.3.2.4 Subfunction: Send Status

Single-Button function

With the single button function: switch - subfunction: send status - fixed values can be sent for a button pressed (rising edge) and a button released (falling edge). This function can be used to implement triggering applications.

The following figure shows the available settings:



Single-button function	switch
Subfunction	send status
Value pushed button	<input type="radio"/> OFF <input checked="" type="radio"/> ON
Value released button	<input checked="" type="radio"/> OFF <input type="radio"/> ON
Delay for released button	<input checked="" type="radio"/> not active <input type="radio"/> active

Figure 12: Settings – Single-button function: Switch - Subfunction: Send Status

It is also possible to set a delay for the released button. This means that the value for the pressed key is transmitted immediately, but the value for the released button is transmitted only after the delay set accordingly.

For example, a light can be switched on when the button is pressed but remains on for a few seconds after the button is released. This time is then left, e.g. to leave a room without walking in the dark.

The following table shows the available communications objects:

Number	Name	Length	Usage
0	Push button 1: – Send Status	1 Bit	Switching function of the button

Table 15: Communication objects – Single-button function: Switch - Subfunction: Send Status

4.3.3 Send Values

4.3.3.1 Subfunction: Send Values

- Single-Button function
- Two-Button function

With this function different values of a datapoint type can be sent.

The following figure shows the available settings for the two-button function:

Figure 13: Settings – Send Values - Subfunction: Send Values

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Datapoint type	<ul style="list-style-type: none"> ▪ 1Bit DPT 1.001 Switch ▪ 2Bit DPT 2.001 Forcible control ▪ 1Byte DPT 5.001 Percent value (0...100%) ▪ 1Byte DPT 5.005 Decimal factor (0...255) ▪ 1Byte DPT 17.001 Scene number ▪ 2Byte DPT 7.600 Color temperature (Kelvin) ▪ 2Byte DPT 9.001 Temperature (°C) ▪ 2Byte DPT 9.004 Brightness (Lux) ▪ 3Byte DPT 232.600 RGB value 3x(0...255) 	Setting the type of datapoint to be sent
Value button 1-4	any value according to set datapoint type	Only for two-button function. Setting the values to be sent for the two buttons
Value	any value according to set datapoint type	Only for single-button function. Setting the value to be sent for the button

Special function	<ul style="list-style-type: none"> ▪ Innovative group control ▪ Additional object 	Selection of the possible special function
Special function: Innovative group control		
Group long keypress	<ul style="list-style-type: none"> ▪ Not active ▪ Active 	Activating a function with a long keystroke
Group long sends	<ul style="list-style-type: none"> ▪ Value for upper/left and lower/right button ▪ Only value for upper/left button ▪ Only value for lower/right button 	<p>Only for two-button function. Setting which key reacts to the long keystroke.</p> <p>** see note below table</p>
Group extra long keypress	<ul style="list-style-type: none"> ▪ Not active ▪ Active 	Activating a function with an extra long keystroke
Group extra long sends	<ul style="list-style-type: none"> ▪ Value for upper/left and lower/right button ▪ Only value for upper/left button ▪ Only value for lower/right button 	<p>Only for two-button function. Setting which key reacts to the extra long keystroke.</p> <p>** see note below table</p>
Time for long keypress	<p>Basic setting 0,1 s – 30,0 s</p>	Setting of an individual time from when a long keystroke is detected
Time for extra long keypress	<p>0,1 s – 30,0 s [2,0 s]</p>	Setting of an individual time from when an extra long keystroke is detected
Special function: Additional object		
Datapoint type (2. object)	<ul style="list-style-type: none"> ▪ 1Bit DPT 1.001 Switch ▪ 2Bit DPT 2.001 Forcible control ▪ 1Byte DPT 5.001 Percent value (0...100%) ▪ 1Byte DPT 5.005 Decimal factor (0...255) ▪ 1Byte DPT 17.001 Scene number ▪ 2Byte DPT 7.600 Color temperature (Kelvin) ▪ 2Byte DPT 9.001 Temperature (°C) ▪ 2Byte DPT 9.004 Brightness (Lux) ▪ 3Byte DPT 232.600 RGB value 3x(0...255) 	<p>Only available when additional object is selected. Setting the datapoint type to be sent for the additional object</p>
Value button 1-4	any value according to set datapoint type	Only for two-button function. Setting the values to be sent to the 2nd object
Value	any value according to set datapoint type	Only for single-button function. Setting the value to be sent to the 2nd object

Table 16: Settings – Send Values - Subfunction: Send Values

Details of the **innovative group control** see 4.3.2 Switch (General).

**** Please note:** Only with the 4-fold push buttons it is possible to set the button orientation either "horizontal (left, right)" or "vertical (top, bottom)". Accordingly, the settings for "Group long/extra long sends" can vary between "**value upper/lower or left/right button**".

If you select "**Additional object**", a further communication object appears. Here, it is possible to send different values to two separate objects when a key is pressed. For example, the first object can be used to send a dimming value in % to a dimming actuator and simultaneously send an RGB value to an LED controller.

The following table shows the available communications objects:

Number	Name	Length	Usage
0	Push button 1: Push buttons 1/2: – Forcible control, percent value...		Switching function of the button(s). DPT depending on the parameter setting
2	Push button 1: (2. Object) Push buttons 1/2: (2. Object) – Forcible control, percent value...		Switching function of the button(s). DPT depending on the parameter setting
2	Push button 1 group long: Push buttons 1/2 group long: – Forcible control, percent value...		Switching function with long keypress. DPT depending on the parameter setting
4	Push button 1 group extra long: Push buttons 1/2 group extra long: – Forcible control, percent value...		Switching function with extra long keypress. DPT depending on the parameter setting

Table 17: Communication objects – Send Values - Subfunction: Send Values

4.3.3.2 Subfunction: Toggle Values/Scenes (up to 4 values)

- Single-Button function
- Two-Button function

With the function: Send values - Toggle values/scenes you can switch between 4 different values of a datapoint type.

The following figure shows the available settings for the Two-button function:

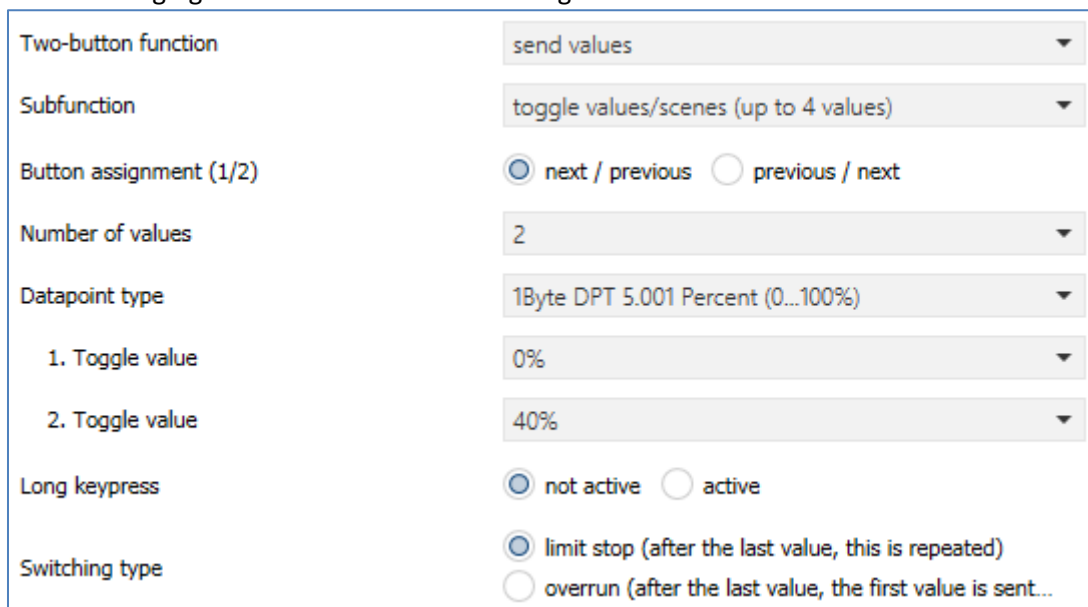


Figure 14: Settings – Send Values - Subfunction: Toggle Values/Scenes

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Button assignment (1/2) (3/4)	<ul style="list-style-type: none"> ▪ next / previous ▪ previous / next 	Only for two-button function. Setting in which direction to move when the two buttons are pressed
Number of values	<ul style="list-style-type: none"> ▪ 2 ▪ 3 ▪ 4 	Setting between how many values to be switched
Datapoint type	<ul style="list-style-type: none"> ▪ 2Bit DPT 2.001 Forcible control ▪ 1Byte DPT 5.001 Percent value (0...100%) ▪ 1Byte DPT 5.005 Decimal factor (0...255) ▪ 1Byte DPT 17.001 Scene number ▪ 2Byte DPT 7.600 Color temperature (Kelvin) ▪ 2Byte DPT 9.001 Temperature (°C) ▪ 2Byte DPT 9.004 Brightness (Lux) ▪ 3Byte DPT 232.600 RGB value 3x(0...255) 	Setting the type of datapoint to be sent
1.-4. Toggle value	any value according to set datapoint type	Setting the respective value for the toggle value

Time delay between value toggeling/ scene toggeling	No delay 1 s – 10 s [2 s]	Set a delay between sending the values/scenes. "Scene toggeling" only with DTP 17.001 "Scene number", otherwise "Value toggeling".
Long keypress	<ul style="list-style-type: none"> ▪ not active ▪ active 	Activating a function with a long keystroke
Button 1-4: Action with long keypress	<ul style="list-style-type: none"> • 1. – 4. toggle value • 4. toggle value if 1. toggle value was previously set, otherwise 1st toggle value • Send 0 • "OFF" to second object • "ON" to second object 	<p>Only for two-button function. Setting the action with long keystroke.</p> <p>Number of possible toggle values according to the selection "Number of values"</p>
Action with long keypress	<ul style="list-style-type: none"> • 1. – 4. toggle value • 4. toggle value if 1. toggle value was previously set, otherwise 1st toggle value • Send 0 • "OFF" to second object • "ON" to second object 	<p>Only for single-button function. Setting the action with long keystroke.</p> <p>Number of possible toggle values according to the selection "Number of values"</p>
Time for long keypress	Basic setting 0,1 s – 30,0 s	Setting from when a long key press is detected
Switching type	<ul style="list-style-type: none"> • Limit stop (after the last value, this is repeated) • Overrun (after the last value, the first value is sent again) 	Only for two-button function. Setting what should happen when the last switching value is reached

Table 18: Settings – Send Values - Subfunction: Toggle Values/Scenes

Functional principle:

The Toggle Values/Scenes function can send up to 4 different values or scenes when a button is pressed shortly. The values are toggled one after the other. Depending on the set parameters, for example, when the button is pressed, the 2nd toggle value is transmitted if the 1st toggle value was previously transmitted and the 3rd toggle value if the 2nd toggle value was previously transmitted.

The parameter "**Long keypress**" can be used to send a fixed value for a long keypress in addition to the changeover by a short keypress.

If you select "**1st - 4th toggle value**", a fixed toggle value (value corresponding to the assigned toggle values) is always transmitted when a long key is pressed.

The setting "**4. toggle value if 1. toggle value was previously set, otherwise 1st toggle value**" represents a toggle function which switches between the 1st and 4th toggle value. If the 1st toggle value was transmitted last, the 4th toggle value is transmitted; for every other value the 1st toggle value is transmitted.

The setting "**Send 0**" sends the value 0 to the toggle object. If, for example, the datapoint type is set to percentage, the value 0% is sent.

The settings "**ON to second object**", or "**OFF to second object**" display another communication object for the long button action. The fixed value ON or OFF are then transmitted on this 1 bit object.

With the setting "**Time delay between value toggling / scene toggling**", pressing the button delays the sending of the telegram by the set time. If you press the button again during the delay time, the next toggle value is activated immediately and the delay time is restarted. If, for example, you want to go directly from the first toggle value to the third toggle value without activating the second one - with a delay time of 2 seconds - press the button twice within 2 seconds.

Parameter "Switching type" (Only for two-button function):

Limit stop: With the switching type limit stop, the 4th switching value is sent again after sending the 4th switching value.

Overrun: With the overrun switching type, the 1st switching value is sent again after the 4th switching value.

For the single button function, this parameter is permanently set to overrun.

The following table shows the available communications objects:

Number	Name	Length	Usage
0	Push button 1: Push buttons 1/2: – Forcible control, percent value...	2 Bit 1 Byte 2 Byte 3 Byte	Transmission of the toggle value. DPT depending on the parameter setting.
1	Push button 1 Push buttons 1/2 – Status of percent value...	1 Byte 2 Byte	Receiving of the status. DPT depending on the parameter setting. Status for forcible control, scenes and RGB value not available.
2	Push button 1 long: Push buttons 1/2 long: – Switch	1 Bit	Switching function of the long button. Only appears with the setting "ON or OFF to second object".

Table 19: Communication objects – Send Values - Subfunction: Send Values/Scenes

4.3.3.3 Subfunction: Shift Value

Two-Button function

With the function Send values - Shift values, values can be shifted up or down within the set limits.

The following figure shows the available settings:

Figure 15: Settings – Send Values - Subfunction: Shift Values

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Buttons 1/2 shift the values	<ul style="list-style-type: none"> ▪ down / up ▪ up / down 	Setting the direction for the value shift
Datapoint type	<ul style="list-style-type: none"> ▪ 1 Byte (0...100%) ▪ 1 Byte (0...255) 	Setting the datapoint type for the value shift
Lower limit	0 – 100% / 0 – 255 [0%/0]	Setting the lower limit value for the value shift
Upper limit	0 – 100% / 0 – 255 [100%/255]	Setting the upper limit value for the value shift
Step width	1 – 100% / 1 – 255 [10%/10]	Setting the step width between two sending commands
Repeated sending on pressed key	<ul style="list-style-type: none"> ▪ not active ▪ active 	Activating the sending repetition while holding down the button
Repetition time	200 ms – 3 s [1 s]	Repetition time between two telegrams with pressed button

Table 20: Settings – Send Values - Subfunction: Shift Values

Functional principle:

The "Shift value" function shifts the set datapoint type within the set limits. When the "Down" key is pressed, the set step size is subtracted from the last value and when the "Up" key is pressed, the set step size is added to the last value.

Lower/Upper limit:

The value is shifted within these limits. The function never falls below the lower limit value and never exceeds the upper limit value.

Step Width:

The step width indicates the distance between two sent telegrams. If the value 10% was sent during the previous transmission, the value 20% is sent with the next "Up" command - with a set step size of 10%..

Repeated sending on pressed key:

Repeated sending while holding down the key allows the function to increase/decrease the value until the upper/lower limit is reached.

The following table shows the available communications objects:

Number	Name	Length	Usage
0	Push buttons 1/2 – Percent value, Decimal value	1 Byte	Transmission of the value to be shifted. DPT depending on the parameter setting
3	Push buttons 1/2 – Status of percent/decimal value	1 Byte	Receiving of the status value. DPT depending on the parameter setting

Table 21: Communication objects – Send Values - Subfunction: Shift Values

4.3.3.4 Subfunction: Send Value by State

Single-Button function

The function "Send values - send value by state" can send a fixed value according to the set datapoint type when the key is pressed and a fixed value according to the set datapoint type when the key is released.

The following figure shows the available settings:

Single-button function	send values
Subfunction	send values by state
Datapoint type	2Byte DPT 9.001 Temperature (°C)
Value pushed button	20 °C
Value released button	15 °C

Figure 16: Settings – Send values - Subfunction: Send value by state

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Datapoint type	<ul style="list-style-type: none"> ▪ 2Bit DPT 2.001 Switch Control ▪ 1Byte DPT 5.001 Percent (0...100%) ▪ 1Byte DPT 5.005 Decimal factor (0...255) ▪ 1Byte DPT 17.001 Scene number ▪ 2Byte DPT 7.600 Color Temperature (Kelvin) ▪ 2Byte DPT 9.001 Temperature (°C) ▪ 2Byte DPT 9.004 Brightness (Lux) ▪ 3Byte DPT 232.600 RGB Value 3x(0...255) 	Setting the type of data point to be sent
Value pushed / released button	any value according to set datapoint type	Setting the values to be sent

Table 22: Settings – Send values - Subfunction: Send value by state

The value to be sent can be set according to the set datapoint type for **pressing** as well as for **releasing** the button.

The following table shows the associated communications objects:

Number	Name	Length	Usage
0	Push button 1 – Forcible control, Percent value...		Transmission of the switching value. DPT depending on the parameter setting

Table 23: Communication objects – Send values - Subfunction: Send value by state

4.3.3.5 Subfunction: Multi-Tip Function (Send values after number of operations)

Single-Button function

Depending on how often the key is pressed, the multi-tip function can send a fixed value according to the set data point type.

Note: A fast response time is recommended for the tip function.

The following figure shows all available settings:

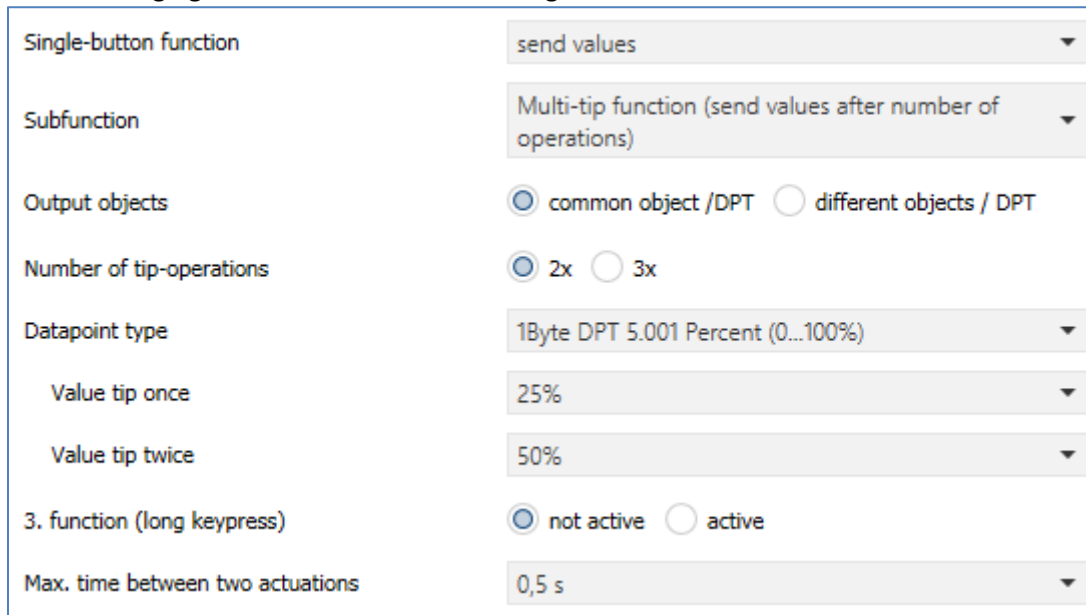


Figure 17: Settings – Send values - Subfunction: Multi-tip function

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Output objects	<ul style="list-style-type: none"> ▪ Common object / DPT ▪ Different objects / DPT 	Setting whether one DPT or several DPT are used for the tip-operations
Numbers of tip-operations	<ul style="list-style-type: none"> ▪ 2x ▪ 3x 	Settings of the possible tip-functions
Datapoint type	<ul style="list-style-type: none"> ▪ 1Bit DPT 1.001 Switch ▪ 2Bit DPT 2.001 Forcible control ▪ 1Byte DPT 5.001 Percent value (0...100%) ▪ 1Byte DPT 5.005 Decimal factor (0...255) ▪ 1Byte DPT 17.001 Scene number ▪ 2Byte DPT 7.600 Color temperature (Kelvin) ▪ 2Byte DPT 9.001 Temperature (°C) ▪ 2Byte DPT 9.004 Brightness (Lux) ▪ 3Byte DPT 232.600 RGB value 3x(0...255) 	Setting the datapoint type for the value to be sent. Available for selection: only one datapoint type if common object or: Datapoint type 1x/2x/3x pressed if different objects

Value/Scene number tip once/twice/triple	any value according to set datapoint type	Setting the respective value/scene for the switching value
3./4 Function (long keypress)	<ul style="list-style-type: none"> ▪ not active ▪ active 	Setting an additional function with a long keypress. "3 rd or 4 th Function" depends on setting "Number of tip-operations".
Datapoint type for long keypress	<ul style="list-style-type: none"> ▪ 1Bit DPT 1.001 Switch ▪ 2Bit DPT 2.001 Forcible control ▪ 1Byte DPT 5.001 Percent value (0...100%) ▪ 1Byte DPT 5.005 Decimal factor (0...255) ▪ 1Byte DPT 17.001 Scene number ▪ 2Byte DPT 7.600 Color temperature (Kelvin) ▪ 2Byte DPT 9.001 Temperature (°C) ▪ 2Byte DPT 9.004 Brightness (Lux) ▪ 3Byte DPT 232.600 RGB value 3x(0...255) 	Setting the action for a long keystroke
Value for long keypress	any value according to set datapoint type	Setting the respective value for the switching value
Time for long keypress	Basic setting 0,1 s – 30,0 s	Setting from when a long keypress is detected
Max. time between two operations	0,1 s – 30,0 s [0,5 s]	Setting an individual time between two button operations

Table 24: Settings – Send values - Subfunction: Multi-tip function

The value to be sent can be set according to the set datapoint type.

The following table shows the associated communications objects:

Number	Name	Length	Usage
0	Push button 1 – Forcible control, Percent value...		Sending the tip value if common object/DPT . DPT depending on the parameter setting
0	Push button 1, 1x tip:		Sending the tip value when different objects/DPT . DPT depending on the parameter setting and number of operations.
1	Push button 1, 2x tip:		
2	Push button 1, 3x tip:		
3	Push button 1 long: – Forcible control, Percent value...		Sending the value for long keystroke. DPT depending on the parameter setting

Table 25: Communication objects – Send values - Subfunction: Mult-tip function

4.3.4 Switch/Send Values short/long (with 2 Objects)

- Single-Button function
- Two-Button function

With the function "switch/send values short/long (with 2 objects)" 2 different values for the short and long button can be sent. The short and the long button have different objects which makes it possible to send different types of datapoints.

The following picture shows the available settings for the two-button function:

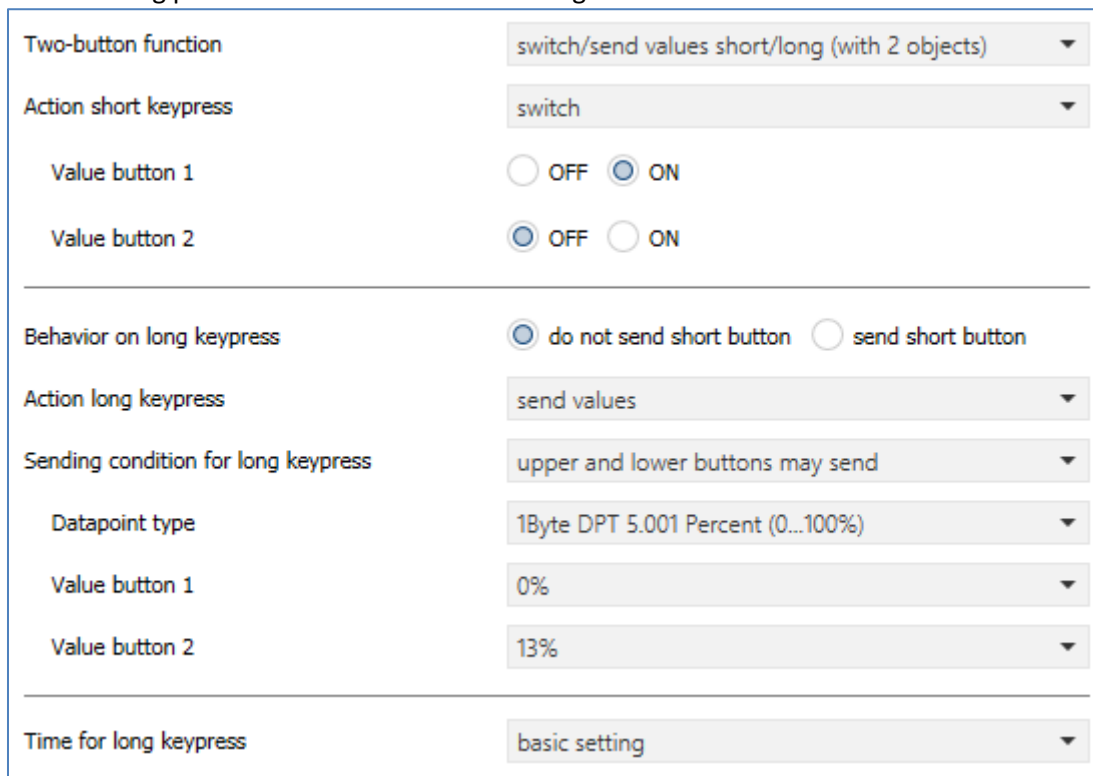


Figure 18: Settings – Switch/Send values short/long (with 2 objects)

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Action short/long keypress	<ul style="list-style-type: none"> ▪ Switch ▪ Switch OFF ▪ Switch ON ▪ Toggle ▪ Send values ▪ Not active 	Setting the function for the short/long button “Switch” only for two-button function “Switch OFF/ON” only for single-button function

Datapoint type	<ul style="list-style-type: none"> ▪ 2Bit DPT 2.001 Forcible control ▪ 1Byte DPT 5.001 Percent value (0...100%) ▪ 1Byte DPT 5.005 Decimal factor (0...255) ▪ 1Byte DPT 17.001 Scene number ▪ 2Byte DPT 7.600 Color temperature (Kelvin) ▪ 2Byte DPT 9.001 Temperature (°C) ▪ 2Byte DPT 9.004 Brightness (Lux) ▪ 3Byte DPT 232.600 RGB value 3x(0...255) 	<p>Setting only available if "Action for short/long button" is set to "Send values".</p> <p>Setting the datapoint type for the value to be sent</p>
Value button 1-4	any value according to set datapoint type	Only for two-button function. Setting the respective value on operation
Value	any value according to set datapoint type	Only for single-button function. Setting the respective value on operation
Colour control	<ul style="list-style-type: none"> ▪ RGB ▪ HSV 	Selection of the colour system. Only for "3Byte DPT...RGB"
Behavior on long keypress	<ul style="list-style-type: none"> ▪ do not send short button ▪ send short button 	Setting whether the value for the short button is also sent when a long button is pressed
Sending condition for long keypress	<ul style="list-style-type: none"> ▪ upper/left und lower/right buttons may send ▪ only upper/left button may send ▪ only lower/right button may send 	Only for two-button function. Setting the sending condition for the long button ** see note below table
Time for long keypress	Basic setting 0,1 s – 30,0 s	Setting from when a long keypress is detected

Table 26: Settings – Switch/Send values short/long (with 2 objects)

**** Please note:** Only with the 4-fold push buttons it is possible to set the button orientation either "horizontal (left, right)" or "vertical (up, down)". Accordingly, the settings for "Sending condition for long keypress" can vary between "**value upper/lower or left/right button**".

The following table shows the associated communications objects:

Number	Name	Length	Usage
0	Push button 1 short: Push buttons 1/2 short: – Forcible control, Percent value...		Transmission of the switching value for short button; DPT depending on the parameter setting
1	Push button 1 short: Push buttons 1/2 short – Status for toggle	1 Bit	Receiving the status for short button
2	Long: Push button 1 long: Long: Push buttons 1/2 long: – Forcible control, Percent value...		Transmission of the switching value for long button; DPT depending on the parameter setting
3	Push button 1 long: Push buttons 1/2 long: – Status for toggle	1 Bit	Receiving the status for long button

Table 27: Communication objects – Switch/Send values short/long (with 2 objects)

4.3.5 Scene

Single-Button function

The scene function allows you to call up and save scenes that cover several trades. If the memory function is activated, it can be activated by pressing and holding the button.

The following figure shows the available settings:

Figure 19: Settings – Scene

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Save scene	<ul style="list-style-type: none"> ▪ no save ▪ save 	Release of saving the scenes; the saving is carried out by a long keystroke
Time for long keypress	basic setting 0,1 s – 30,0 s [1,0 s]	Only visible when "Save scene" is active. Setting of an individual time for a long keystroke to save a scene
Scene number	1 – 64 [1]	Setting the respective scene number

Table 28 : Settings – Scene

To call up a scene or save a new value for the scene, the corresponding code is sent to the associated communication object for the scene:

Scene	Call		Save	
	Hex.	Dec.	Hex.	Dec.
1	0x00	0	0x80	128
2	0x01	1	0x81	129
3	0x02	2	0x82	130
4	0x03	3	0x83	131
5	0x04	4	0x84	132
6	0x05	5	0x85	133
7	0x06	6	0x86	134
8	0x07	7	0x87	135
9	0x08	8	0x88	136
10	0x09	9	0x89	137
11	0x0A	10	0x8A	138
12	0x0B	11	0x8B	139
13	0x0C	12	0x8C	140
14	0x0D	13	0x8D	141
15	0x0E	14	0x8E	142
16	0x0F	15	0x8F	143
17	0x10	16	0x90	144
18	0x11	17	0x91	145
19	0x12	18	0x92	146
20	0x13	19	0x93	147
21	0x14	20	0x94	148
22	0x15	21	0x95	149
23	0x16	22	0x96	150
24	0x17	23	0x97	151
25	0x18	24	0x98	152
26	0x19	25	0x99	153
27	0x1A	26	0x9A	154
28	0x1B	27	0x9B	155
29	0x1C	28	0x9C	156
30	0x1D	29	0x9D	157
31	0x1E	30	0x9E	158
32	0x1F	31	0x9F	159
....
64	0x3f	63	0xBF	191

Table 29: Codes for calling and saving of scenes

The following table shows the associated communications objects:

Number	Name	Length	Usage
2	Push button 1: – Scene	1 Byte	Calling / Saving of Scenes

Table 30: Communication object – Scene

4.3.6 Blinds/Shutter

- Single-Button function
- Two-Button function

The blind function is used to control blind actuators, which can be used to adjust and control blinds. The following figure shows the available settings for the two-button function:

Figure 20: Settings – Blinds/Shutter

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Button assignment (1/2)	<ul style="list-style-type: none"> ▪ Up/Down ▪ Down/Up 	Only for two-button function. Setting the key assignment (upper/left or lower/right button) for the up/down function
Operation function	<ul style="list-style-type: none"> ▪ Long=Up/Down / Short=Stop/Slats Open/Close ▪ Short=Up/Down / Long=Stop/Slats Open/Close ▪ Short=Up/Down/Stop (MDT Single Object Control) ▪ Short=Up/Down/Stop / Long=Central object (MDT Single Object Control) 	Only for two-button function. Setting the concept of how to operate with long/short buttons.
Operation function	<ul style="list-style-type: none"> ▪ Long=Move / Short=Stop/Slats Open/Close ▪ Short=Move / Long=Stop/Slats Open/Close 	Only for single-button function. Setting the concept of how to operate with long/short buttons.
Time for long keypress	Basic setting 0,1 s – 30 s	Setting from when a long keypress is detected
Innovative group control		
Group control extra long	<ul style="list-style-type: none"> ▪ Not active ▪ Active 	Activation of a further function with extra long keystroke
Time for extra long keypress	0,1 s – 30 s [2,0 s]	Setting from when an extra long keypress is detected

Table 31: Settings – Blinds/Shutter

Two communication objects are displayed for the "blind" function: the object "Stop/slat open/close" and the object "blinds up/down".

The moving object is used to move the blinds/shutters up and down. The stop/step object has two functions, firstly it stops the up or down movement if the end position has not yet been reached, and secondly it is used to adjust the slats.

In the case of the two-button function, the key assignment can be set; the table below shows the relationships:

Input	Function Up/Down		Function Down/Up	
	Button 1	Button 2	Button 1	Button 2
Moving object	Up	Down	Down	Up
Stop/Step object	Stop/slats open	Stop/slats close	Stop/slats close	Stop/slats open

Table 32: Two-button function – Blind function

With the single-button function, you can switch between up and down each time you press a key.

As blind actuators always use a 1 signal for down movement and a 0 signal for up movement, the push-button also outputs this signal.

It is also possible to swap the action for the long and short push-button action. Thus, it is possible to select whether a long or a short keystroke is to be used. The stop/step object then adopts the other operating concept.

Innovative group control:

By activating "Group control extra long", it is possible to execute another function with an extra long keystroke.

If the key is pressed extra long, the single blind starts moving after 0.5 s.

After another 1.5 s, the group starts with the same movement.

This activates the group function:

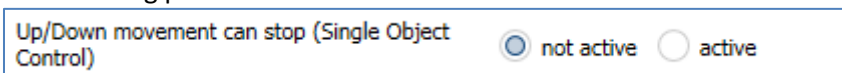
If Stop is then pressed briefly, all blinds stop. If the slat is adjusted with "short", the group also adjusts the slat.

After approx. 90 s the group function is deactivated again internally and a Stop only affects the individual channel.

MDT Single Object Control:

Two-Button function

MDT Single Object Control enables a new operating concept for controlling roller shutters. For use, the following parameter has to be set to "active" in the **MDT Shutter actuator** to be controlled:



Now it is possible to start the up/down movement with a short keystroke and also to stop an active up/down movement with a short keystroke.

With the setting "Short = Up/Down/Stop / Long = Central object (MDT Single Object Control)" an additional object is displayed, which can start the up/down movement with a long keystroke and can also stop an active up/down movement with a long keystroke. This function can be used, for example, to move a single shutter in a room with a short keystroke and to move the entire room with a long keystroke

The following table shows the associated communications objects:

Number	Name	Length	Usage
0	Push Button 1: Push Buttons 1/2: – Blinds Up/Down	1 Bit	Up/down command for the shutter actuator
0	Push Buttons 1/2 short:– Shutter Up/Down/Stop	1 Bit	MDT Single Object Control: Central object for up/down/stop function. Only with two-button function and for roller shutters
1	Push Button 1: Push Buttons 1/2: – Stop/Slats Open/Close	1 Bit	Open/close slats; stop command
1	Push Buttons 1/2 long:– Central Shutter Up/Down/Stop	1 Bit	MDT Single Object Control: Central object for up/down/stop function. Only with two-button function and for roller shutters
2	Push Button 1: – Value for change of direction	1 Bit	Only with single button function Receipt of the status with current information about the direction of the shutter actuator
3	Push Button 1 Group extra long: Push Buttons 1/2 Group extra long: – Blinds Up/Down	1 Bit	Up/down command for the shutter actuator
4	Push Button 1 Group extra long: Push Buttons 1/2 Group extra long: – Stop/Slats Open/Close	1 Bit	Open/close slats; stop command

Table 33: Communication objects – Blinds/Shutter

4.3.7 Dimming

- Single-Button function
- Two-Button function

The dimming function can be used to control dimming actuators.

The following figure shows the available settings for the two-button function:

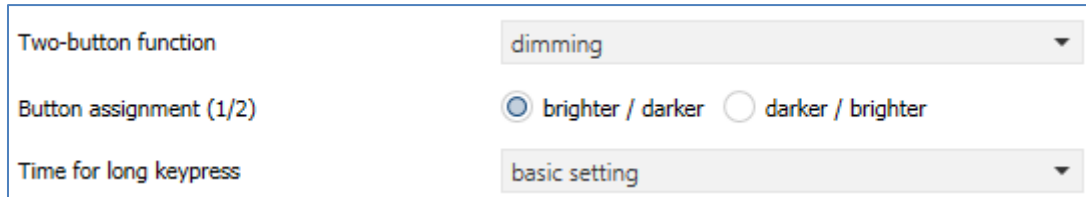


Figure 21: Setting – Dimming

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Button assignment (Button 1/2))	<ul style="list-style-type: none"> ▪ brighter/darker ▪ darker/brighter 	Only with two-button function! Setting the button assignment for the direction (brighter/darker)
Time for long keypress	Basic setting 0,1 s – 30,0 s	Setting an individual time from when a long key press is detected

Table 34: Setting – Dimming

If a push-button is parameterised as a dimming function, two communication objects appear for this push-button, firstly the function for a short push-button action, the "Dimming On/Off" switch object, and secondly the function for a long push-button action, the dimming object "Dimming relative".

The two-pushbutton function dimming can be parameterised either as brighter/darker or as darker/brighter. The relationships are shown in the following table:

	Function brighter/darker		Function darker/brighter	
	Button 1	Button 2	Button 1	Button 2
Button - Input	Button 1	Button 2	Button 1	Button 2
Dimming function	brighter	darker	darker	brighter
Switching function	ON	OFF	OFF	ON

Table 35: Functionality – Two-button dimming

With the one-button function dimming, the direction (brighter/darker) is reversed depending on the communication object "Status for toggle".

The dimming function is a start-stop dimming function, i.e. as soon as the dimming function becomes active, a brighter or darker command is assigned to the input until it is released. After the command is released, a stop telegram is sent which ends the dimming process

The following table shows the associated communications objects:

Number	Name	Length	Usage
0	Push button 1: Push buttons 1/2: – Dimming On/Off	1 Bit	Switching command for the dimming function
1	Push button 1: Push buttons 1/2: – Dimming relative	4 Bit	Command for relative dimming
2	Push button 1: – Status for toggle	1 Bit	Only for single button function. Receipt of the status with current information about the status of the actuator to be controlled

Table 36: Communication objects – Dimming

4.3.8 Slap-/Cleaning function

The following figure shows the settings for the submenu of the Slap / Cleaning function:

Cleaning function	cleaning = long button, slap = short button ▼
Slap function for short keypress	toggle ▼
Time for long keypress	basic setting ▼
Display behavior of LEDs	blue ▼
Blocking Object <input type="radio"/> not active <input checked="" type="radio"/> active	

Figure 22: Settings – Slap-/cleaning function

The following table shows the available settings:

ETS-Text	Dynamic range [Default value]	Comment
Cleaning function	<ul style="list-style-type: none"> ▪ Cleaning not active, slap active ▪ Cleaning = long button, Slap = short button ▪ Cleaning = short button Slap = long button 	Activation of the Cleaning-/ Slap function and setting if activation via short or long keystroke
Slap function for short/long push of button	<ul style="list-style-type: none"> ▪ switch Off ▪ switch On ▪ toggle ▪ send value ▪ nothing 	Setting the slap function. Short/long key depending on the selected concept.
Send value	<ul style="list-style-type: none"> ▪ 2Bit DPT 2.001 Switch Control ▪ 1Byte DPT 5.001 Percent (0...100%) ▪ 1Byte DPT 5.005 Decimal factor (0...255) ▪ 1Byte DPT 17.001 Scene number ▪ 2Byte DPT 7.600 Color Temperature (Kelvin) ▪ 2Byte DPT 9.001 Temperature (°C) ▪ 2Byte DPT 9.004 Brightness (Lux) ▪ 3Byte DPT 232.600 RGB Value 3x(0...255) 	Setting the data point type. Depending on the selected DPT, a parameter for the corresponding value to be sent is displayed.
Time for long keypress	Basic setting 0,1 s – 30,0 s	Setting an individual time from when a long keystroke is detected
Display behavior of LEDs	Off, red, green, yellow, blue , pink, cyan, white, no signal slap function over LEDs	Display behavior of the LEDs when the slap function is active
Blocking object	<ul style="list-style-type: none"> ▪ not active ▪ active 	Activation of the blocking function for the slap function

Table 37: Settings – Slap-/cleaning function

The **Slap-/Cleaning function** will be executed by pressing 3 or more buttons simultaneously.

The **cleaning function** blocks the push button against further operation or sending out a telegram for 10 seconds. If further keys are pressed within these 10 seconds, e.g. when cleaning the glass surface, the device remains locked. The cleaning function is indicated by a white flashing of all status LEDs.

The **slap function** can be used as a further key. This allows the sending of a particular command by simply "slapping" on the button, e.g. when entering a room to turn the light on / off. The slap function is executed when 3 or more keys are pressed simultaneously. The parameter "slap function" can be used to set the value to be transmitted. An active slap function can be signaled with a freely adjustable color via the status LEDs. The status LEDs flash briefly in the set color.

If the cleaning function is deactivated, the slap function can send values for a long keystroke as well as for a short keystroke.

The following table shows the available communication objects for the Slap / Cleaning function:

Number	Name	Length	Usage
40	Slap-button short – Percent value, Decimal value...		Sending the value for the slap button. DPT according to settings in the parameters
41	Slap-button short – Value for toggle	1 Bit	Only for "toggle" function. Receives the current state of the actuator to be controlled
42	Slap-button long – Percent value, Decimal value...		Sending the value for the slap button. DPT according to settings in the parameters
43	Slap-button long – Value for toggle	1 Bit	Only for "toggle" function. Receives the current state of the actuator to be controlled
49	Slap-button – Blocking object	1 Bit	Blocking of the slap function

Table 38: Communication objects – Slap-/cleaning function

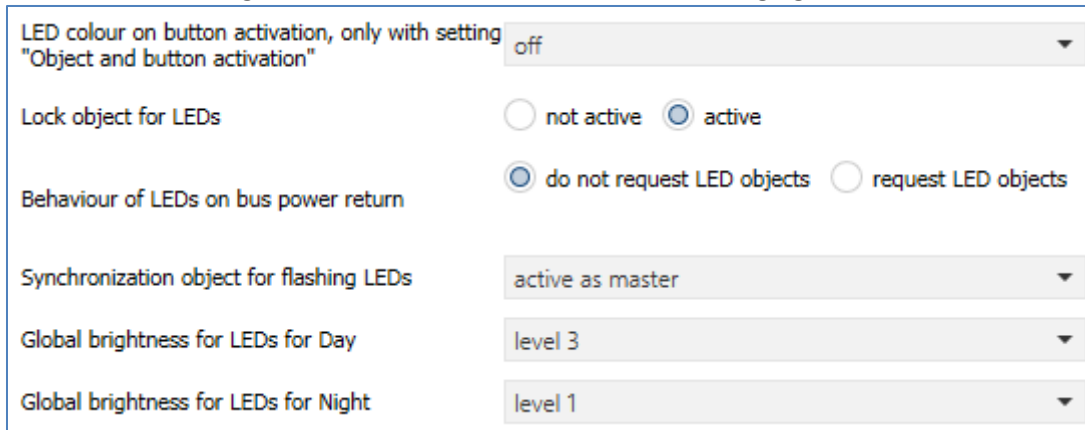
4.4 Status LED

Not available for Push Button Lite 55 Basic!

Depending on the button and its configuration, up to 4 status LEDs can be configured. One LED per function can be configured, which are then marked with LED1-4 in the parameters.

4.4.1 LED Basic Settings

The LED basic settings affect all active status LEDs. The following figure shows the available settings:



The screenshot shows a settings panel for status LEDs. It includes the following controls:

- LED colour on button activation, only with setting "Object and button activation"**: A dropdown menu set to "off".
- Lock object for LEDs**: Radio buttons for "not active" and "active", with "active" selected.
- Behaviour of LEDs on bus power return**: Radio buttons for "do not request LED objects" and "request LED objects", with "do not request LED objects" selected.
- Synchronization object for flashing LEDs**: A dropdown menu set to "active as master".
- Global brightness for LEDs for Day**: A dropdown menu set to "level 3".
- Global brightness for LEDs for Night**: A dropdown menu set to "level 1".

Figure 23: Basic Settings – Status LED

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
LED-colour on button activation, only with setting "Object and button activation"	off , red, green, yellow, blue, pink, cyan, white	Parameter is only used for double assignment: "Keystroke + internal / external object"
Lock object for LEDs	<ul style="list-style-type: none"> ▪ not active ▪ active 	Activates a lock object which can disable (= switch off) all LEDs. Cleaning and programming LEDs are excluded
Behaviour of LEDs on bus power return	<ul style="list-style-type: none"> ▪ do not request LED objects ▪ request LED objects 	Setting whether to actively request the objects after a reset. Only active when "LED reacts to external object"
Synchronization object for flashing LEDs	<ul style="list-style-type: none"> ▪ not active ▪ active as Master ▪ active as Slave 	Setting whether the synchronous LED object is active and whether it is used as master or slave. This function can be used to synchronise the flashing of several buttons.
Global brightness for LEDs for Day	<ul style="list-style-type: none"> ▪ not active ▪ level 1 – 5 ▪ dynamic <p style="text-align: center;">[level 3]</p>	Setting the brightness of the LEDs during "Day".

Global brightness for LEDs for Night	<ul style="list-style-type: none"> ▪ not active ▪ level 1 – 5 ▪ dynamic <p style="text-align: center;">[level 1]</p>	Setting the brightness of the LEDs during “Night”.
Datapoint type for dynamic brightness	<ul style="list-style-type: none"> ▪ 2Byte DPT 9.004 Ambient Brightness (Lux) ▪ 1Byte DPT 5.001 Percent (0...100%) 	Only visible when global brightness is set to dynamic. Setting of the DPT for brightness control of the LED
Threshold for minimum brightness (level 1)	0 ... 1000 Lux [50 Lux]	Only visible when global brightness is set to dynamic and DPT 9.004. Setting the Lux value from which level 1 is active
Threshold for maximum brightness (level 5)	0 ... 1000 Lux [500 Lux]	Only visible when global brightness is set to dynamic and DPT 9.004. Setting the Lux value from which level 5 is active

Table 39: Basic Settings – Status LED

The parameter "LED colour on button activation" defines the colour change of all status LEDs when a button is activated, if they are assigned twice by the setting "LED reacts to "external/internal object and button activation". In this case, the settings in the menus LED 1-4 refer to control via the object. The basic setting "LED colour on button activation" defines the behaviour when button is pressed. The brightness of the LEDs can be set either fixed or dynamic. If the brightness is to be adjusted dynamically, a lux or percentage value is used to control the brightness, depending on the parameterisation. Brightness control is not infinitely variable but is regulated in 5 brightness levels. If a lux value is used, the minimum and maximum brightness levels are used to calculate the 5 brightness thresholds.

When using the percentage value, the thresholds are fixed:

Without a valid object value, the brightness is set to level 3 by day and level 1 by night

Level 1: 0-20%; Level 2: 21-40%; Level 3: 41-60%; Level 4: 61-80%; Level 5: 81-100%

Figure 24: LED brightness levels for control via percentage value

The following table shows the associated communications objects:

Number	Name	Length	Usage
70	LED – Blocking object	1 Bit	Blocking of all LEDs
78	Synchron LED – Blinking status as master/slave	1 Bit	Shows the blinking status for master or slave
79	Brightness – Input for dynamic brightness	2 Byte 1 Byte	Only visible when brightness is set to dynamic. Reception of the brightness for dynamic adjustment. DPT dependent on the parameter setting

Table 40: Communication objects – LED basic settings

4.4.2 LED 1-4

Number of LEDs depending on device type

The following figure shows the available settings for each of the active LEDs:

LED active	<input type="radio"/> no <input checked="" type="radio"/> yes
LED reacts to:	buttons activation ▼
Brightness for Day (global)	level 3
Brightness for Night (global)	level 1
LED display behavior	
Colour for Day (value ON)	white ▼
Colour for Day (value OFF)	off ▼
Behavior for Day (value ON)	<input checked="" type="radio"/> permanent <input type="radio"/> blinking

Colour for Night (value ON)	white ▼
Colour for Night (value OFF)	off ▼
Behavior for Night (value ON)	<input checked="" type="radio"/> permanent <input type="radio"/> blinking

Object for priority	not active ▼

Figure 25: Settings – LED 1-4

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
LED active	<ul style="list-style-type: none"> ▪ no ▪ yes 	Activating the LED
LED reacts to	<ul style="list-style-type: none"> ▪ external object ▪ internal object ▪ button activation ▪ external object and button activation ▪ internal object and button activation 	Setting how LED is to be controlled
Datapoint type	<ul style="list-style-type: none"> ▪ 1Bit DPT 1.001 Switch ▪ 1Byte DPT 5.001 Percent (0...100%) ▪ 1Byte DPT 5.005 Decimal factor (0...255) 	Parameter only available if LED reacts to external object. Linkage to external object
ON if greater than	0 – 100 % [50 %]	Only available with setting "1Byte DPT... Percent". Defines the value at which the LED switches on
Selection of object number	any object	Parameters only available if LED reacts to internal object. Linkage to internal object
Brightness Day (global)	Fixed value (value cannot be changed)	Brightness of the LED for Day. Displayed value according to the setting in the menu "LED basic settings".
Brightness Night (global)	Fixed value (value cannot be changed)	Brightness of the LED for Night. Displayed value according to the setting in the menu "LED basic settings".
LED display behaviour		
Color for Day (value ON)	off, red, green, yellow, blue, pink, cyan, white	Color for the object value ON or activated button in Day mode
Color for Day (value OFF)	off , red, green, yellow, blue, pink, cyan, white	Color for the object value OFF or non-activated button in Day mode
Behavior for Day (value ON)	<ul style="list-style-type: none"> ▪ permanent ▪ blinking 	Setting the lighting behavior when LED has the object value ON or the key is pressed during Day mode
Color for Night (value ON)	off, red, green, yellow, blue, pink, cyan, white	Color for the object value ON or activated button in Night mode
Color for Night (value OFF)	off , red, green, yellow, blue, pink, cyan, white	Color for the object value OFF or non-activated button in Night mode
Behavior for Night (value ON)	<ul style="list-style-type: none"> ▪ permanent ▪ blinking 	Setting the lighting behavior when LED has the object value ON or the key is pressed during Night mode

Table 41: Settings – LEDs 1 - 4

Each LED can react either to any external object, such as the status of an actuator, **or** an internal object **or** the activation of a button.

In addition, an LED can also react to an external or internal object **and** the push-button operation. With this setting, the settings in menu LED 1-4 refer to the control of the LED via the object. In this case the behaviour of the button operation is set globally for all LEDs and is described in menu 4.4.1 LED Basic Settings. The behaviour for key operation has priority.

If the setting **LED reacts to "internal object"** is selected, the object number to which the LED is to be linked is selected. If, for example, the LED is to switch on when "Object 1 - Status for toggle" has the value 1 (when button 1 is set to toggle), enter object number 1. In this case the status LED would be switched on if the object has a 1 and switched off if the object has a 0.

If the LED is linked to an object which does not have the size 1 bit, the LED is switched off if the object has the value 0 and switched on if the value of the object is not 0. For an object of the DPT 5.001 - percent this would mean that the LED is switched off at 0% and switched on at all other values.

With the setting **LED reacts to "external object"**, different DPTs can be selected.

If the LED reacts to **1Bit switching**, the values for ON and OFF can be set.

If the LED reacts to the DPT **1Byte percent value**, the value can be specified here from which the LED is considered ON. For example, if a preset value of 50% is entered, this means that the LED is switched on from a value of 50% and switched off at values <50%.

If the LED reacts to a **1Byte decimal value**, the following colours apply to the following values:

Note: Selection of colours via object value: 0 = Off(Black), 1 = White, 2 = Red, 3 = Green, 4 = Blue; 5 = Yellow; 6 = Pink; 7 = Cyan

Each LED can assume different colours and behaviour for day and night operation and switches depending on the object 71-day/night.

The following table shows the associated communications objects:

Number	Name	Length	Usage
62	LED 1	1 Bit 1 Byte	Control of the LED. Object is only displayed if LED reacts to external object

Table 42: Communication objects – LEDs 1 – 4

4.4.2.1 Priority

The LED priority can force the status LED into a defined state and thus exceed the control via an external / internal object or the key actuation.

The following figure shows the available settings for each of the active LEDs:

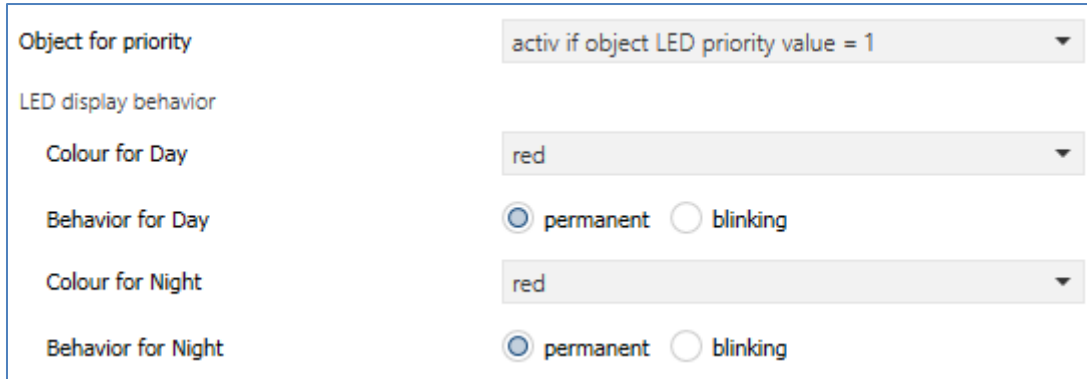


Figure 26: Settings – LED Priority

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Object for priority	<ul style="list-style-type: none"> ▪ not active ▪ active if object LED priority value = 1 ▪ active if object LED priority value = 0 	Sets the polarity of the LED priority
LED display behavior		
Colour for Day	off, red , green, yellow, blue, pink, cyan, white	Color for an active LED priority in Day mode
Behaviour for Day	<ul style="list-style-type: none"> ▪ permanent ▪ blinking 	Setting the lighting behavior for an active LED priority in Day mode
Colour for Night	off, red , green, yellow, blue, pink, cyan, white	Color for an active LED priority in Night mode
Behaviour for Night	<ul style="list-style-type: none"> ▪ permanent ▪ blinking 	Setting the lighting behavior for an active LED priority in Night mode

Table 43: Settings – LED Priority

As long as the LED priority is active, the parameterized state for the LED priority is kept and the LED does not react to the "normal" control as described in 4.4.2 LED 1-4.

The following table shows the associated communications objects:

Number	Name	Length	Usage
66	LED 1 Priority	1 Bit	Control of the LED Priority

Table 44: Communication object – LED Priority

4.5 Logic

4.5.1 Logic basic settings

The following figure shows the activation and basic functions of the logic functions:

Setting Logic 1	not active
Setting Logic 2	not active
Setting Logic 3	not active
Setting Logic 4	not active
Behaviour on bus power return	<input checked="" type="radio"/> do not request ext. logic objekts <input type="radio"/> request ext. logic objects

Figure 27: Basic settings – Logic

Additional parameters are then displayed for an activated logic.

4.5.2 Logic 1-4

If a “Logic” is activated, the following settings are possible:

Setting Logic 1	And
Description of function	
Additional text	
Object type 1	switch
Sending condition	on change output
Invert output	<input checked="" type="radio"/> no <input type="radio"/> yes

Figure 28: Settings – Logic 1-4

There are 2 text fields available:

Description of function	Logic lighting
Additional text	Outdoor lighting, terrace

Figure 29: Settings – Textfields Logic

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

The text entered to "**Description of function**" appears both in the menu behind the corresponding logic and with the communication objects of the logic:

Logic basic setting	
Logic 1 Logic lighting	<input type="text" value="52"/> Logic 1 Logic Lighting <input type="text" value="Output 1"/>

The **additional text** is just additional information on the logic. It is not visible anywhere else.

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Setting Logic 1-4	<ul style="list-style-type: none"> ▪ not active ▪ And ▪ Or ▪ send value when button is pressed 	Activates the logic function and set the logical operation
Behaviour on bus power return	<ul style="list-style-type: none"> ▪ do not request ext. logic objects ▪ request ext. logic objects 	Defines whether the external objects should be requested after a bus voltage recovery or not
Object type 1-4	<ul style="list-style-type: none"> ▪ switch ▪ scene ▪ value ▪ forcible control 2 Bit 	Sets the object type for sending a value when the logic operation is fulfilled
Scene number/ 1Byte Value/ Forcible control	any value according to DPT	Setting the value which is sent when the logic operation is fulfilled. Only available with Object type Scene/Value/Forcible control 2Bit
Sending condition	<ul style="list-style-type: none"> ▪ not automatic ▪ on input telegram ▪ on change output ▪ on change output (send only 0) ▪ on change output (send only 1) 	Only for object type "Switch" . The transmission condition can be defined as well as a transmission filter
Invert output	<ul style="list-style-type: none"> ▪ no ▪ yes 	Only for object type "Switch" . Determines whether the output signal should be inverted or not

Table 45: Settings – Logic 1-4

The corresponding communication object is displayed depending on the object type of the logic operation:

Number	Name	Length	Usage
52	Logic – Output 1	1 Bit 2 Bit 1Byte	Output of the logic operation

Table 46: Communication objects – Logic 1-4 Output

If a logic operation is fulfilled, the corresponding value is transmitted.

For the object type "Switch", a send condition or a send filter for the output can be defined. The logic operation may e.g. at each input telegram, send only when the output of the logic operation changes, or only 1 or 0 are sent out. In addition, the output can be inverted with the object type "Switching", thus making a 0 to a 1 and a 1 to a 0.

4.5.2.1 Logic 1-4 submenu

A submenu is displayed for each activated logic.
The following figure shows the corresponding settings:

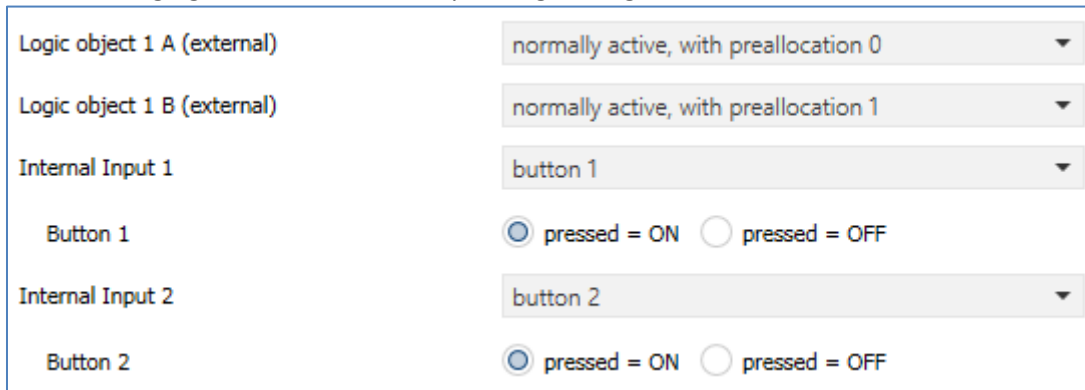


Figure 30: Settings – Logic 1-4 – Submenu

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Logical object 1 A/B (external)	<ul style="list-style-type: none"> ▪ not active ▪ normally active, with preallocation 0 ▪ inverted active, with preallocation 0 ▪ normally active, with preallocation 1 ▪ inverted active, with preallocation 1 	Activation of the external logic object, the preallocation value defines the value of the external logic object after a bus voltage recovery if no value has yet been sent to the communication object
Internal Input 1/2	<ul style="list-style-type: none"> ▪ not active ▪ Push Button 1-4 	Activation of the buttons for the logic function
Button 1-4	<ul style="list-style-type: none"> ▪ pressed = ON ▪ pressed = OFF 	Setting the value that is sent when the button is pressed. Only shown if "Internal input" is active for a key
Button selection	<ul style="list-style-type: none"> ▪ not active ▪ Push Button 1-4 	Select the button which is sending. Only with the setting "Send value when button is pressed". (Logic basic setting)

Table 47: Settings – Logic 1-4 - Submenu

Depending on the activated inputs of the logic operations, the corresponding communication objects are displayed:

Number	Name	Length	Usage
50	Logic – Input 1 A	1 Bit	external input for the logic function
51	Logic – Input 1 B	1 Bit	external input for the logic function

Table 48: Communication objects – Logic 1-4 - Inputs

4.6 Temperature Setting

Only available for Glass Push Button II Lite and Push Button Lite 55/63 with temperature sensor

The following figure shows the menu for temperature measurement:

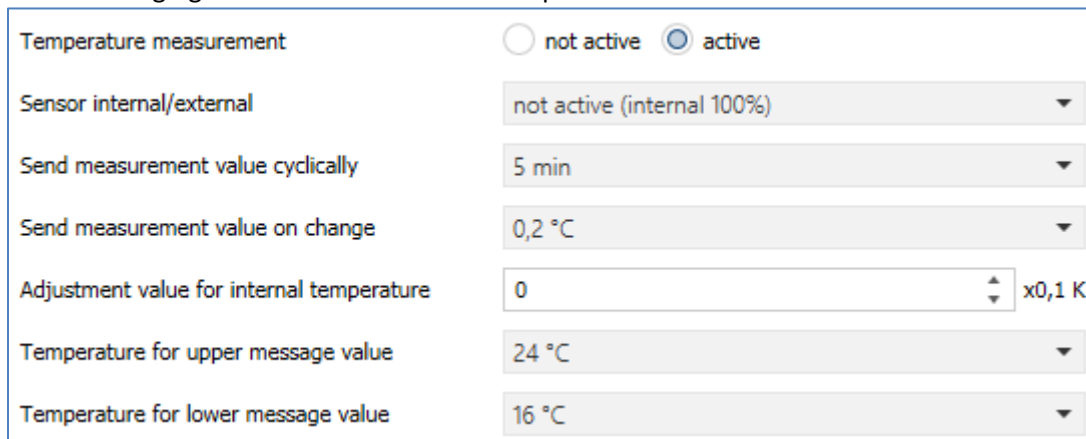


Figure 31: Settings – Temperature measurement

The following table shows all available settings:

ETS-Text	Dynamic range [Default value]	Comment
Temperature measurement	<ul style="list-style-type: none"> ▪ not active ▪ active 	Activation of temperature measurement
Sensor internal/external	<ul style="list-style-type: none"> ▪ not active (internal 100%) ▪ external 10% (internal 90%) ▪ external 20% (internal 80%) ▪ ... ▪ external 100% 	Activation of an external sensor and adjustment of the weighting between internal and external sensor
Send measurement value cyclically	not active 1 min – 4 h [5 min]	Activation of the cyclic sending for the temperature measurement value
Send measurement value on change	not send 0,1°C – 5°C [0,2 °C]	Activates the sending of the current temperature value from a certain change
Adjustment value for internal temperature	-50 ... 50 x0,1K [0]	Increase / decrease the internal temperature to correct the measured temperature
Temperature for upper message value	not active 20°C – 45°C	Activation of a message when a certain temperature is reached
Temperature for lower message value	not active 3°C – 30°C	Activation of a message if the temperature falls below a certain temperature

Table 49: Settings – Temperature measurement

The setting "**Send measured value on change**" can be used to set the change on which the sensor sends its current temperature value. If set to "do not send", the sensor does not send a value, regardless of the size of the change.

The setting "**Send measured value cyclically**" can be used to set the intervals at which the sensor sends its current temperature value. The cyclical transmission function can be activated or deactivated independently of the setting "Send measured value on change". Measured values are also sent if the sensor has not detected a change. If both parameters are deactivated, a value is never sent.

In addition, a correction value can be parameterised for the internal sensor under the setting "**Calibration value for internal sensor**". This correction value serves to increase/decrease the actual measured value. The adjustment range is from -50 to 50 x0,1K, i.e. the measured value can be lowered by -5 Kelvin and raised to a maximum of 5 Kelvin. For example, if a value of 20 is set, the measured temperature value is raised by 2 Kelvin. This setting makes sense if the sensor is installed in an unfavourable location, such as above a radiator or in a draught area. The temperature sensor sends the corrected temperature value when this function is activated.

Important: After initial installation/programming the measured value is stable after approx. 30 minutes.

An external sensor can be activated or deactivated via the weighting "**Sensor internal/external**". If the weighting is set to 100% internal, no external sensor is activated and no communication objects appear for the external sensor. With any other weighting, an external sensor is activated and the associated communication objects are also displayed. The "External temperature sensor" object receives the temperature currently measured by the sensor. The "mixed" temperature is shown in the display, and this measured temperature value is transmitted via object 80.

Example:

Weighting: 50% internal / 50% external, internal sensor 25°C, external temperature 15°C
=> transmitted temperature 20°C.

If the "**Messages**" function is activated, two messages can be parameterised. One is the message function for the lower response value, the "lower message value", and the other is the upper response value, the "upper message value".

The two message functions each have a separate communication object.

Principle:

If the maximum value is exceeded, a "1" is transmitted. If the value falls below it, a "0" is transmitted. If the value falls below the minimum value, a "1" is transmitted. If it is exceeded, a "0" is transmitted.

The following table shows the associated communications objects:

Number	Name	Length	Usage
73	Temperature – Transmit temperature value	2 Byte	Sends the current temperature
74	Temperature – External sensor	2 Byte	Receipt of an externally measured temperature
75	Message – Maximum temperature	1 Bit	Sends a message if the upper message value is exceeded
76	Message – Minimum temperature	1 Bit	Sends a message when the value falls below the lower message value.

Table 50: Communication objects – Temperature measurement

5 Index

5.1 Register of illustrations

Figure 1: Exemplary Circuit Diagram	7
Figure 2: Structure & Handling	7
Figure 3: Device selection	18
Figure 4: General Settings 1	18
Figure 5: General Settings 2	18
Figure 6: Basic settings – Push button functions.....	20
Figure 7: Identical text field – Description of Buttons/Objects.....	22
Figure 8: General Settings – Switch.....	23
Figure 9: Settings – Two-button function: Switch	25
Figure 10: Settings – Single-button function: Switch - Subfunction: Switch	25
Figure 11: Settings – Single-button function: Switch - Subfunction: Toggle	26
Figure 12: Settings – Single-button function: Switch - Subfunction: Send Status.....	27
Figure 13: Settings – Send Values - Subfunction: Send Values.....	28
Figure 14: Settings – Send Values - Subfunction: Toggle Values/Scenes	31
Figure 15: Settings – Send Values - Subfunction: Shift Values.....	34
Figure 16: Settings – Send values - Subfunction: Send value by state.....	36
Figure 17: Settings – Send values - Subfunction: Multi-tip function.....	37
Figure 18: Settings – Switch/Send values short/long (with 2 objects)	39
Figure 19: Settings – Scene	41
Figure 20: Settings – Blinds/Shutter.....	43
Figure 21: Setting – Dimming	46
Figure 22: Settings – Slap-/cleaning function	47
Figure 23: Basic Settings – Status LED	49
Figure 24: LED brightness levels for control via percentage value	50
Figure 25: Settings – LED 1-4	51
Figure 26: Settings – LED Priority.....	54
Figure 27: Basic settings – Logic	55
Figure 28: Settings – Logic 1-4.....	55
Figure 29: Settings – Textfields Logic	55
Figure 30: Settings – Logic 1-4 – Submenu	57
Figure 31: Settings – Temperature measurement.....	58

5.2 List of tables

Table 1: Communication objects – Push Buttons.....	14
Table 2: Communication objects – Slap-Button	15
Table 3: Communication objects – Logic function	16
Table 4: Communication objects – State LEDs	16
Table 5: Communication objects – Temperature setting.....	16
Table 6: Communication objects – General Objects.....	17
Table 7: General settings.....	19
Table 8: Communicationobjects – General settings	19
Table 9: Basic settings – Push button functions.....	20
Table 10: Communication object – Blocking object.....	22
Table 11: General settings – Switch.....	24
Table 12: Communication objects – Two-button function: Switch	25
Table 13: Communication objects – Single-button function: Switch - Subfunction: Switch.....	26
Table 14: Communication objects – Single-button function: Switch - Subfunction: Toggle	26
Table 15: Communication objects – Single-button function: Switch - Subfunction: Send Status.....	27
Table 16: Settings – Send Values - Subfunction: Send Values.....	29
Table 17: Communication objects – Send Values - Subfunction: Send Values.....	30
Table 18: Settings – Send Values - Subfunction: Toggle Values/Scenes	32
Table 19: Communication objects – Send Values - Subfunction: Send Values/Scenes.....	33
Table 20: Settings – Send Values - Subfunction: Shift Values	34
Table 21: Communication objects – Send Values - Subfunction: Shift Values	35
Table 22: Settings – Send values - Subfunction: Send value by state.....	36
Table 23: Communication objects – Send values - Subfunction: Send value by state.....	36
Table 24: Settings – Send values - Subfunction: Multi-tip function	38
Table 25: Communication objects – Send values - Subfunction: Multitip function	38
Table 26: Settings – Switch/Send values short/long (with 2 objects)	40
Table 27: Communication objects – Switch/Send values short/long (with 2 objects)	40
Table 28 : Settings – Scene	41
Table 29: Codes for calling and saving of scenes	42
Table 30: Communication object – Scene.....	42
Table 31: Settings – Blinds/Shutter.....	43
Table 32: Two-button function – Blind function	44
Table 33: Communication objects – Blinds/Shutter.....	45
Table 34: Setting – Dimming	46
Table 35: Functionality – Two-button dimming	46
Table 36: Communication objects – Dimming	46
Table 37: Settings – Slap-/cleaning function.....	47
Table 38: Communication objects – Slap-/cleaning function	48
Table 39: Basic Settings – Status LED.....	50
Table 40: Communication objects – LED basic settings.....	50
Table 41: Settings – LEDs 1 - 4	52
Table 42: Communication objects – LEDs 1 - 4.....	53
Table 43: Settings – LED Priority	54
Table 44: Communication object – LED Priority	54
Table 45: Settings – Logic 1-4	56
Table 46: Communication objects – Logic 1-4 Output	56
Table 47: Settings – Logic 1-4 - Submenu.....	57
Table 48: Communication objects – Logic 1-4 - Inputs.....	57
Table 49: Settings – Temperature measurement	58
Table 50: Communication objects – Temperature measurement	59

6 Attachment

6.1 Statutory requirements

The above-described devices must not be used with devices, which serve directly or indirectly the purpose of human, health- or lifesaving. Further the devices must not be used if their usage can occur danger for humans, animals or material assets.

Do not let the packaging lying around careless, plastic foil/ -bags etc. can be a dangerous toy for kids.

6.2 Disposal routine

Do not throw the waste equipment in the household rubbish. The device contains electrical devices, which must be disposed as electronic scrap. The casing contains of recyclable synthetic material.

6.3 Assemblage



Danger to life from electric current!

All activities on the device should only be done by an electrical specialist. The county specific regulations and the applicable KNX-directives have to be observed.

6.4 Revision History

V 1.0	First version		
V 1.1	Adaptation of texts and DB	DB V1.1	- State 08/2019
V 1.2	Extension: 4-fold push-button and 55 Basic	DB V1.3	- State 10/2020
V 1.3	General adaptations; Slap/cleaning function extended		- State 01/2021