07 B0 S2 On-off-toggle/Dim/Shu/Value 982302

Application program usage

Product family: Input
Product type: Binary input, 2-fold
Manufacturer: Siemens

Name: Push button interface UP 220/21
Order no.: 5WG1 220-2AB21

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1. Functional description

The push button interface UP 220/21 is a binary input and output device for installation in in-wall boxes (∅ 60 mm, depth: 40 mm).
Each of the two channels may be used either as input for potential-free switch / push button contacts or as output for control of a light emitting diode (LED). Each channel, which is configured as an output, can drive an output current of up to 2mA for controlling a light emitting diode (LED). The required scanning / control voltage is provided by the push button interface (requires no additional power supply).
The application program can be loaded with ETS3.0f or higher and supports a multitude of applications briefly described in the following text.
Note:
A device is without function after the application program has been "unloaded" with the ETS. The status of the inputs is also no longer displayed in this case.

Channel as input
A channel used as input allows for capturing both statuses (contact is closed or open resp. voltage is applied or not) and changes in status (contact becomes closed ore opened resp. voltage is incoming or outgoing). Therefore a push-button interface UP 220/21 can be used, for example, to record if a maintained or momentary contact switch is actuated, if it was actuated for a short or long period, if the contact was opened or closed by the actuation, if a device or system is switched on or off, if a malfunction or alarm is signalled, and to count pulses with a minimum contact closure duration of 100 ms and a maximum number of up to 5 pulses per second, with or without monitoring of the counter value (i.e. the number of counted pulses) until a predetermined threshold has been reached or exceeded.

Whereas most input functions only use one input and thus each input may be assigned a different function, the 2-button functions "Dimming with stop telegram", "Dimming with cyclical sending", and "solar protection control" each use two inputs. Therefore, via the parameter tab "Operation of channels A + B", for two channels each it must first be configured whether each is assigned an individual or joint input function or whether the first channel is configured as an input and the second as an LED output or whether both channels are assigned as LED outputs.

One of the following functions may be assigned to each single input channel:
- Switching status / binary value transmission
- Switching, edge-triggered

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- Switching, on short / long operation
- 1-button dimming
- 1/2-button dimming
- 1-button solar protection control
- 1/2-button solar protection control
- 1-button sequenced switching group control
- 1-button multi-touch control (multiple output control)
- 1-bit scene control
- 8-bit scene control
- 8-bit effect control
- 8-bit value, edge-triggered
- 8-bit value, short / long operation
- 16-bit value, edge-triggered
- 16-bit value, short / long operation
- 16-bit floating point value, edge-triggered
- 16-bit floating point value, short / long operation
- 32-bit value, edge-triggered
- 32-bit value, short / long operation
- 8-bit pulse counting without threshold check
- 8-bit pulse counting with threshold check
- 16-bit pulse counting without threshold check
- 16-bit pulse counting with threshold check
- 32-bit pulse counting without threshold check
- 32-bit pulse counting with threshold check.

Two consecutive channels (A and B resp. C and D) that were configured as a pair of inputs can be configured for one of these functions:
- 2-button dimming with stop telegram
- 2-button dimming with cyclical sending
- 2-button solar protection control

Channel as LED output
Via a channel used as LED output an LED may be always switched on (e.g. as orientation light) or via the bus it may be switched on statically or flashing (with selectable flash frequency) or switched off. If it is configured for "flashing with acknowledgement" then the LED changes from flashing to static light after reception of the acknowledgement. If the switched on LED is felt to be too bright the brightness can be adjusted via a parameter. Further an object for logical AND resp. OR function, an inhibit object and a status object can be added when needed.

2. Communication objects

Maximum number of group addresses: 120
Maximum number of assignments: 120

Note

Type and number of the available objects is determined by the parameters set with ETS, i.e. visible objects may vary. They are determined by the functions assigned with ETS to channels A to B.

No.	Object name	Function	Number of bits	Flags
1	Channel A, LED	On / Off	1 bit	CWT
2	Channel A, Confirmation	(On / Off)	1 bit	CWT
3	Channel A, Logic operation	On / Off	1 bit	CWT
4	Channel A, LED-Status	On / Off	1 bit	CRT
5	Channel A, Blocking	On / Off	1 bit	CWT
6	Channel B, LED	On / Off	1 bit	CWT
7	Channel B, Confirmation	(On / Off)	1 bit	CWT
8	Channel B, Logic operation	On / Off	1 bit	CWT
9	Channel B, LED-Status	On / Off	1 bit	CRT
10	Channel B, Blocking	On / Off	1 bit	CWT
21	Channel A, Status	On / Off	1 bit	CRT
	Channel A, Switching 1	On / Off	1 bit	CRT
	Channel A, Switching	Toggle	1 bit	CRT
	Channel A, Switching	On	1 bit	CRT
	Channel A, Switching	Off	1 bit	CRT
	Channel A, Solar protection	Up / Down	1 bit	CRT
	Channel A, Solar protection	Up	1 bit	CRT
	Channel A, Solar protection	Down	1 bit	CRT
	Channel A, Position of solar protection	8-bit value	8 bit	CRT
	Channel A, 8-bit value 1	send	8 bit	CRT
	Channel A, 16-bit value 1	send	16 bit	CRT
	Channel A, 16-bit Floating point value 1	send	16 bit	CRT
	Channel A, 32-bit value 1	send	32 bit	CRT
	Channel A, Scene 1 / 2	recall	1 bit	CRT
	Channel A, 8-bit Scene	recall / save	8 bit	CRT
	Channel A, 8-bit Effect	start / stop	8 bit	CRT
	Channel A, 8-bit Counter value	send	8 bit	CRWT
	Channel A, 16-bit Counter value	send	16 bit	CRWT
	Channel A, 32-bit Counter value	send	32 bit	CRWT
22	Channel A, Switching 2	On / Off	1 bit	CRT
	Channel A, Dimming	brighter / darker	4 bit	CRT
	Channel A, Dimming	brighter	4 bit	CRT
	Channel A, Dimming	darker	4 bit	CRT
	Channel A, Slats	Stop / Open / Close	1 bit	CRT
	Channel A, Slats	Stopp / Open	1 bit	CRT
	Channel A, Slats	Stopp / Close	1 bit	CRT
	Channel A, Position of slats	8-bit value	8 bit	CRT
	Channel A, 8-bit value 2	send	8 bit	CRT
	Channel A, 16-bit value 2	send	16 bit	CRT
	Channel A, 16-bit Floating point value 2	send	16 bit	CRT
	Channel A, 32-bit value 2	send	32 bit	CRT
	Channel A, Scene 1 / 2	save	1 bit	CRT
	Channel A, Counter value	reset	8 bit	CWT
23	Channel A, Switching 3	On / Off	1 bit	CRT
	Channel A, Dimming	Status	8 bit	CWT
	Channel A, Upper limit violation	On / Off	1 bit	CRT
24	Channel A, 8-bit Counter Threshold	read/write	8 bit	CRWT
	Channel A, 16-bit Counter Threshold	read/write	16 bit	CRWT
	Channel A, 32-bit Counter Threshold	read/write	32 bit	CRWT
25	Channel A, Blocking	On / Off	1 bit	CWT

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No.	Object name	Function	Number of bits	Flags
26	Channel B, Status	On / Off	1 bit	CRT
	Channel B, Switching 1	On / Off	1 bit	CRT
	Channel B, Switching	Um	1 bit	CRT
	Channel B, Switching	On	1 bit	CRT
	Channel B, Switching	Off	1 bit	CRT
	Channel B, Solar protection	Up / Down	1 bit	CRT
	Channel B, Solar protection	Up	1 bit	CRT
	Channel B, Solar protection	Down	1 bit	CRT
	Channel B, Position of solar protection	8-bit value	8 bit	CRT
	Channel B, 8-bit value 1	send	8 bit	CRT
	Channel B, 16-bit value 1	send	16 bit	CRT
	Channel B, 16-bit Floating point value 1	send	16 bit	CRT
	Channel B, 32-bit value 1	send	32 bit	CRT
	Channel B, Scene 1 / 2	recall	1 bit	CRT
	Channel B, 8-bit Scene	recall / save	8 bit	CRT
	Channel B, 8-bit Effect	start / stop	8 bit	CRT
	Channel B, 8-bit Counter value	send	8 bit	CRWT
	Channel B, 16-bit Counter value	send	16 bit	CRWT
	Channel B, 32-bit Counter value	send	32 bit	CRWT
27	Channel B, Switching 2	On / Off	1 bit	CRT
	Channel B, Dimming	brighter / darker	4 bit	CRT
	Channel B, Dimming	brighter	4 bit	CRT
	Channel B, Dimming	darker	4 bit	CRT
	Channel B, Slats	Stop / Open / Close	1 bit	CRT
	Channel B, Slats	Stopp / Open	1 bit	CRT
	Channel B, Slats	Stopp / Close	1 bit	CRT
	Channel B, Position of slats	8-bit value	8 bit	CRT
	Channel B, 8-bit value 2	send	8 bit	CRT
	Channel B, 16-bit value 2	send	16 bit	CRT
	Channel B, 16-bit Floating point value 2	send	16 bit	CRT
	Channel B, 32-bit value 2	send	32 bit	CRT
	Channel B, Scene 1 / 2	save	1 bit	CRT
	Channel B, Counter value	reset	8 bit	CWT
28	Channel B, Switching 3	On / Off	1 bit	CRT
	Channel B, Dimming	Status	8 bit	CWT
	Channel B, Upper limit violation	On / Off	1 bit	CRT
29	Channel B, 8-bit Counter Threshold	read/write	8 bit	CRWT
	Channel B, 16-bit Counter Threshold	read/write	16 bit	CRWT
	Channel B, 32-bit Counter Threshold	read/write	32 bit	CRWT
30	Channel B, Blocking	On / Off	1 bit	CWT

Objects LED Output

Obj	Object name	Function	Type	Flags
1 (6)	Channel A (B), LED	On / Off	1 bit	CWT
These objects are only visible with this name and function if the respective channel is assigned the function “LED output”. Via the group address linked to this object the LED output of the channel is controlled directly or via the selected logic.				
2 (7)	Channel A (B), Confirmation	(On / Off)	1 bit	CWT
These objects are only visible with this name and function if the respective channel is assigned the function “LED output”. Via the group address linked to this object the flashing of an LED can be acknowledged, with the flashing changing into a static light output.				
3 (8)	Channel A (B), Logic operation	On / Off	1 bit	CWT
These objects are only visible with this name and function if the respective channel is assigned the function “LED output”. Via the group address linked to this object the value for the second input of the selected logical function controlling the LED output is received.				
4 (9)	Channel A (B), LED-Status	On / Off	1 bit	CRT
These objects are only visible with this name and function if the respective channel is assigned the function “LED output”. Via the group address linked to this object the current status of the LED output is transmitted.				
5 (10)	Channel A (B), Blocking	On / Off	1 bit	CWT
These objects are only visible with this name and function if the parameter “Add blocking object” has been set to “Yes” for the respective channel. Via the group address linked to this object blocking of the respective channel output is enabled or disabled.				

Input Objects

Channels A and B can each be used as „Inputs, separately configurable“ or as „Inputs, jointly configurable“. Dependent on this setting the available functions and objects change.

For each input a blocking object can be selected, that is listed once for all functions.

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Obj	Object name	Function	Type	Flags
25 (30)	Channel A (B), Blocking	On / Off	1 bit	CWT
These objects are only visible with this name and function if for the respective channel the parameter "Add blocking object" is set to "Yes". Via the group address linked to this object blocking of the respective input channel is turned on or off. If an input is blocked status changes at this input are no longer transmitted. If the function "Send switching status / binary value" is assigned to the channel, then when the blocking ends it is examined if the contact status of the input changed while it was blocked. If this is the case the changed status is transmitted automatically.				

Objects for „Inputs, separately configurable "

Note:

The objects for channel A are also visible, if the parameter setting „A = input, B = LED output" is selected.

Function: Send switching status / binary value

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), Status	On / Off	1 bit	CRT
These objects are only visible with this name and function if the function "Send switching status / binary value" is assigned to the respective channel.				

Function: Switching edge

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), Switching 1	On / Off	1 bit	CRWT
These objects are only visible with this name and function if the function "Switching edge" or „Switch short / long" or "1-button dimming" is assigned to the respective channel.				

Function: Switch short / long

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), Switching 1	On / Off	1 bit	CRWT
These objects are only visible with this name and function if the function "Switching edge" or „Switch short / long" or "1-button group control (sequenced control)" or "1-button multiple output control (multi-touch control)" or "1-button dimming" is assigned to the respective channel.				

Obj	Object name	Function	Type	Flags
22 (27)	Channel A (B), Switching 2	On / Off	1 bit	CRWT
These objects are only visible with this name and function if for the function „Switch short / long" the second object "1-button group control (sequenced control)" or "1-button multiple output control (multi-touch control)" is assigned to the respective channel.				

Function: 1-button sequenced-switching group control
Function: 1-button multi-touch control (multiple output control)

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), Switching 1	On / Off	1 bit	CRWT
These objects are only visible with this name and function if the function "Switching edge" or „Switch short / long" or "1-button group control (sequenced control)" or "1-button multiple output control (multi-touch control)" or "1-button dimming" is assigned to the respective channel.				
22 (27)	Channel A (B), Switching 2	On / Off	1 bit	CRT
These objects are only visible with this name and function if the function "Switching edge" or „Switch short / long" or "1-button group control (sequenced control)" or "1-button multiple output control (multi-touch control)" or "1-button dimming" is assigned to the respective channel.				
23 (28)	Channel A (B), Switching 3	On / Off	1 bit	CRWT
These objects are only visible with this name and function if the function "1-button group control (sequenced control)" or "1-button multiple output control (multi-touch control)" is assigned to the respective channel.				

Function: 1-button dimming

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), Switching 1	On / Off	1 bit	CRWT
These objects are only visible with this name and function if the function "Switching edge" or „Switch short / long" or "1-button dimming" is assigned to the respective channel.				
22 (27)	Channel A (B), Dimming	brighter / darker	4 bit	CRT
These objects are only visible with this name and function if the function "1-button dimming" is assigned to the respective channel.				

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Obj	Object name	Function	Type	Flags
23 (28)	Channel A (B), Dimming	Status	1 Byte	CWT
These objects are only visible with this name and function if the function "1-button dimming" is assigned to the respective channel.				

Function: 1/2-button dimming

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), Switching	Toggle	1 bit	CRWT
21 (26)	Channel A (B), Switching	On	1 bit	CRT
21 (26)	Channel A (B), Switching	Off	1 bit	CRT
These objects are only visible with this name and function if the function "1/2-button dimming" is assigned to the respective channel.				
22 (27)	Channel A (B), Dimming	brighter	4 bit	CRT
22 (27)	Channel A (B), Dimming	darker	4 bit	CRT
These objects are only visible with this name and function if the function "1/2-button dimming" is assigned to the respective channel.				

Function: 1-button solar protection control

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), Solar protection	Up / Down	1 bit	CRWT
These objects are only visible with this name and function if the function "1-button solar protection control" is assigned to the respective channel.				
22 (27)	Channel A (B), Slats	Stop / Open / Close	1 bit	CRT
These objects are only visible with this name and function if the function "1-button solar protection control" is assigned to the respective channel.				

Function: 1/2-button solar protection control

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), Solar protection	Up	1 bit	CRT
21 (26)	Channel A (B), Solar protection	Down	1 bit	CRT
These objects are only visible with this name and function if the function "1/2-button solar protection control" is assigned to the respective channel.				
22 (27)	Channel A (B), Slats	Stop / Open	1 bit	CRT
22 (27)	Channel A (B), Slats	Stop / Close	1 bit	CRT
These objects are only visible with this name and function if the function "1/2-button solar protection control" is assigned to the respective channel.				

Function: 1-button solar protection / slat control

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), Position of solar protection	8-bit Value	1 Byte	CRT
These objects are only visible with this name and function if the function "1-button solar protection / slat control" is assigned to the respective channel.				
22 (27)	Channel A (B), Position of slats	8-bit Value	1 Byte	CRT
These objects are only visible with this name and function if the function "1-button solar protection / slat control" is assigned to the respective channel.				

Function: 8-bit value edge

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 8-bit Value 1	send	1 Byte	CRT
These objects are only visible with this name and function if the function "8-bit value edge" or "8-bit value short / long" is assigned to the respective channel.				

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Function: 8-bit value short / long

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 8-bit Value 1	send	1 Byte	CRT
These objects are only visible with this name and function if the function "8-bit value edge" or "8-bit value short / long" is assigned to the respective channel.				
22 (27)	Channel A (B), 8-bit Value 2	send	1 Byte	CRT
These objects are only visible with this name and function if the function "8-bit value edge" or "8-bit value short / long" is assigned to the respective channel.				

Function: 16-bit value edge

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 16-bit Value 1	send	2 Byte	CRT
These objects are only visible with this name and function if the function "16-bit value edge" or "16-bit value short / long" is assigned to the respective channel and sending the value is configured as "integer".				

Function: 16-bit value short / long

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 16-bit Value 1	send	2 Byte	CRT
These objects are only visible with this name and function if the function "16-bit value edge" or "16-bit value short / long" is assigned to the respective channel and sending the value is configured as "integer".				
22 (27)	Channel A (B), 16-bit Value 2	send	2 Byte	CRT
These objects are only visible with this name and function if for the function "16-bit value short / long" the second object is assigned to the respective channel.				

Function: 16-bit floating point value edge

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 16-bit Floating point value 1	send	2 Byte	CRT
These objects are only visible with this name and function if the function "16-bit value edge" or "16-bit value short / long" is assigned to the respective channel and sending the value is configured as "floating point value".				

Function: 16-bit floating point value short / long

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 16-bit Floating point value 1	send	2 Byte	CRT
These objects are only visible with this name and function if the function "16-bit value edge" or "16-bit value short / long" is assigned to the respective channel and sending the value is configured as "floating point value".				
22 (27)	Channel A (B), 16-bit Floating point value 2	send	2 Byte	CRT
These objects are only visible with this name and function if for the function "16-bit value short / long" the second object is assigned to the respective channel.				

Function: 32-bit value edge

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 32-bit Value 1	send	4 Byte	CRT
These objects are only visible with this name and function if the function "32-bit value edge" or "32-bit value short / long" is assigned to the respective channel.				

Function: 32-bit value short / long

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 32-bit Value 1	send	4 Byte	CRT
These objects are only visible with this name and function if the function "32-bit value edge" or "32-bit value short / long" is assigned to the respective channel.				
22 (27)	Channel A (B), 32-bit Value 2	send	4 Byte	CRT
These objects are only visible with this name and function if for the function "32-bit value short / long" the second object is assigned to the respective channel.				

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Function: 1-bit scene control

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), Scene 1 / 2	recall	1 bit	CRT
These objects are only visible with this name and function if the function "1-bit scene control" is assigned to the respective channel.				
22 (27)	Channel A (B), Scene 1 / 2	save	1 bit	CRT
These objects are only visible with this name and function if the function "1-bit scene control" is assigned to the respective channel.				

Function: 8-bit scene control

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 8-bit Scene	recall / save	1 Byte	CRT
These objects are only visible with this name and function if the function "8-bit scene control" is assigned to the respective channel.				

Function: 8-bit effect control

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 8-bit Effect	start / stop	1 Byte	CRT
These objects are only visible with this name and function if the function "8-bit effect control" is assigned to the respective channel.				

Function:
8-bit pulse counting without threshold monitoring

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 8-bit Counter value	send	1 Byte	CRT
These objects are only visible with this name and function if the function "8-bit pulse counting" is assigned to the respective channel.				
22 (27)	Channel A (B), Counter value	reset	1 bit	CWT
These objects are only visible with this name and function if one of the functions "pulse counting" is assigned to the respective channel.				

Function:
8-bit pulse counting with threshold monitoring

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 8-bit Counter value	send	1 Byte	CRWT
These objects are only visible with this name and function if the function "8-bit pulse counting" is assigned to the respective channel.				
22 (27)	Channel A (B), Counter value	reset	1 bit	CWT
These objects are only visible with this name and function if one of the functions "pulse counting" is assigned to the respective channel.				
23 (28)	Channel A (B), Upper limit violation	On / Off	1 bit	CRT
These objects are only visible with this name and function if the function "8-bit pulse counting" is assigned to the respective channel and the threshold is set „by parameter" or "by object".				
24 (29)	Channel A (B), 8-bit Threshold	read / write	1 Byte	CRWT
These objects are only visible with this name and function if the function "8-bit pulse counting" is assigned to the respective channel and the threshold is set "by object".				

Function:
16-bit pulse counting without threshold monitoring

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 16-bit Counter value	send	2 Byte	CRWT
These objects are only visible with this name and function if the function "16-bit pulse counting" is assigned to the respective channel.				
22 (27)	Channel A (B), Counter value	reset	1 bit	CWT
These objects are only visible with this name and function if one of the functions "pulse counting" is assigned to the respective channel.				

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Function:
16-bit pulse counting with threshold monitoring

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 16-bit Counter value	send	2 Byte	CRWT
These objects are only visible with this name and function if the function "16-bit pulse counting" is assigned to the respective channel.				
22 (27)	Channel A (B), Counter value	reset	1 bit	CWT
These objects are only visible with this name and function if one of the functions "pulse counting" is assigned to the respective channel.				
23 (28)	Channel A (B), Upper limit violation	On / Off	1 bit	CRT
These objects are only visible with this name and function if the function "16-bit pulse counting" is assigned to the respective channel and the threshold is set „by parameter" or "by object".				
24 (29)	Channel A (B), 16-bit Threshold	read / write	2 Byte	CRWT
These objects are only visible with this name and function if the function "16-bit pulse counting" is assigned to the respective channel and the threshold is set "by object".				

Function:
32-bit pulse counting without threshold monitoring

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 32-bit Counter value	send	4 Byte	CRWT
These objects are only visible with this name and function if the function "32-bit pulse counting" is assigned to the respective channel.				
22 (27)	Channel A (B), Counter value	reset	1 bit	CWT
These objects are only visible with this name and function if one of the functions "pulse counting" is assigned to the respective channel.				

Function:
32-bit pulse counting with threshold monitoring

Obj	Object name	Function	Type	Flags
21 (26)	Channel A (B), 32-bit Counter value	send	4 Byte	CRWT
These objects are only visible with this name and function if the function "32-bit pulse counting" is assigned to the respective channel.				
22 (27)	Channel A (B), Counter value	reset	1 bit	CWT
These objects are only visible with this name and function if one of the functions "pulse counting" is assigned to the respective channel.				
23 (28)	Channel A (B), Upper limit violation	On / Off	1 bit	CRT
These objects are only visible with this name and function if the function "32-bit pulse counting" is assigned to the respective channel and the threshold is set „by parameter" or "by object".				
24 (29)	Channel A (B), 32-bit Threshold	read / write	4 Byte	CRWT
These objects are only visible with this name and function if the function "32-bit pulse counting" is assigned to the respective channel and the threshold is set "by object".				

Objects for „inputs, jointly configurable"

Function: 2-button dimming with Stop telegram
Function: 2-button dimming with cyclical sending

Obj	Object name	Function	Type	Flags
21	Channel A, Switching 1	On / Off	1 bit	CRWT
These objects are only visible with this name and function if the function "2-button dimming with stop telegram" or "2-button dimming with cyclical sending" is assigned to the respective channel A (+B).				
22	Channel A, Dimming	brighter / darker	4 bit	CRT
These objects are only visible with this name and function if the function "2-button dimming with stop telegram" or "2-button dimming with cyclical sending" is assigned to the respective channel.				

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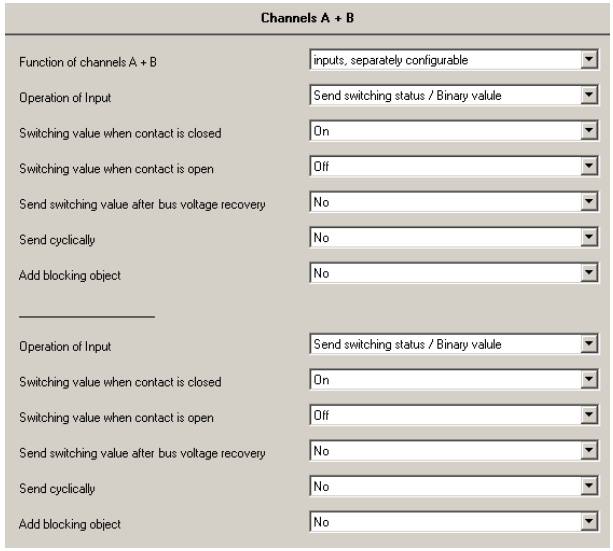
Function: 2-button solar protection control

Obj	Object name	Function	Type	Flags
21	Channel A, Solar protection	Up / Down	1 bit	CRWT
These objects are only visible with this name and function if the function "2-button solar protection control" is assigned to the respective channel A (+B) resp. C (+D).				
22	Channel A, Slats	Stop / Open / Close	1 bit	CRT
These objects are only visible with this name and function if the function "2-button solar protection control" is assigned to the respective channel.				

3. Parameters

Operation of channels A +B



Parameter	Settings
Function of channels A + B	**inputs, separately configurable;** inputs, jointly configured; A = input, B = LED output; LED outputs
This parameter is used to configure whether the two adjacent inputs (channels) are to be "separately configurable", so that different functions may be assigned to each input if necessary, or whether both inputs are to be "jointly configured" since the push buttons attached to them belong together functionally and are intended either for switching and dimming the lighting or for sun protection control, or whether channel A serves as an input and channel B as an output for LED control, or whether both channels serve as outputs for LED control. Depending on the selected setting for this parameter further parameters may become visible or hidden.	

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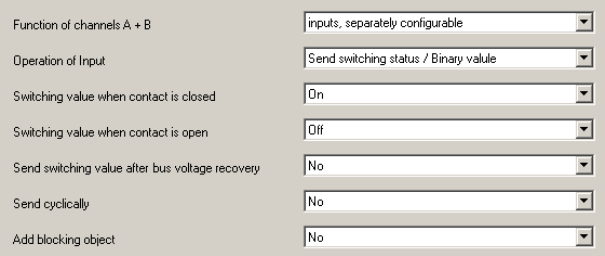
3.1 Separately configurable inputs

The following functions are visible when parameter „Function of channels A+ B" is set to "inputs, separately configurable". These functions are only assigned to one input and may be differently configured for each input.

Parameter	Settings
Function of input	**Send switching status / binary value;** Switching edge; Switch short / long; 1-button sequenced switching group control; 1- button multi-touch control (multiple output control); 1- button dimming; 1/2-button dimming; 1-button solar protection control; 1/2- button solar protection control; 1-button solar protection /slat control; 8-bit value edge; 8-bit value short / long; 16-bit value edge; 16-bit value short / long; 32-bit value edge; 32-bit value short / long; 1-bit scene control; 8-bit scene control; 8-bit effect control; 8-bit pulse counting; 16-bit pulse counting; 32-bit pulse counting
This parameter is used to assign the desired function to an input. Depending on the function selected the display of subsequent parameters changes.	

3.1.1 Send switching status / binary value



This function is used, for example, to query and transmit the switching status of a signaling contact or the voltage level present at a channel input. Adjustment via this parameter defines which binary value is to be sent after a status change, whether the switching status / binary value is to be sent cyclically in addition and whether the current switching status / binary value is to be sent automatically even after bus or mains voltage recovery.

The following object is inserted automatically:

Obj	Object name	Function	Type	Flag
21	Channel A, Status	On / Off	1 bit	CRT
The switching status / binary value is sent via the group address linked with this object.				

Parameter	Settings
Switching value when contact is closed	**On**; Off; no reaction
This parameter determines the switching value to be sent when the contact is closed. „On": when the contact is closed the switching value „on" is sent. „Off": when the contact is closed the switching value „off" is sent. „no reaction": when the contact is closed a telegram is not sent.	
Switching value when contact is open	On; **Off**; no reaction
This parameter determines the switching value to be sent when the contact is open. „On": when the contact is open the switching value „on" is sent. „Off": when the contact is open the switching value „off" is sent. „no reaction": when the contact is open a telegram is not sent.	

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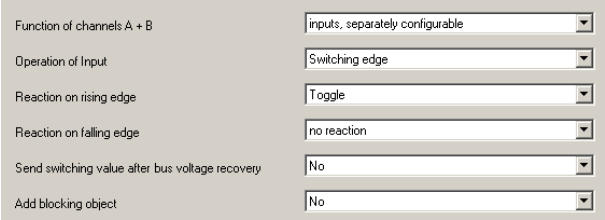
Parameter	Settings
Send switching value after bus voltage recovery	**No**; always; if input status changed
This parameter determines if and when a switching value is sent after bus voltage recovery. „No“: After bus voltage recovery the current switching value is not sent. „always“: After bus voltage recovery the current switching value is always sent. „if input status changed“: After bus voltage recovery the current switching status is sent if the switching status changed during the bus voltage failure.	
Send cyclically	**No**; always; send only On value; send only Off value;
This parameter determines if and when a switching value is sent cyclically via the corresponding communication object. „No“: The value is not sent cyclically. „always“: Additionally to the event-driven transmission on change of value the status is sent cyclically. „send only On value“: Only an “On” value is sent cyclically. „ send only On value “: Only an “Off” value is sent cyclically.	
Cycle time in minutes (1...255)	**1** ... 255
This parameter determines the desired cycle time in minutes.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.1.2 Switching edge



This function is used, for binary inputs to which a switch or a push button is attached, to send a switching telegram (ON, OFF or TOGGLE) as a reaction to a rising and / or falling signal edge at this input. Each time when the push button is pressed and / or released resp. when the contact is closed and / or opened a telegram is sent, i.e. this function can be used e.g. to implement the behavior of a bell switch.

The following object is inserted automatically:

Obj	Object name	Function	Type	Flag
21	Channel A, Switching 1	On / Off	1 bit	CRWT
Switching telegrams are sent via the group address linked with this object.				

Parameter	Settings
Reaction on rising edge	no reaction On Off **Toggle**
Here an adjustment is made to define which switching value is written into the storage cell of the communication object and sent after a rising edge in the signal status at the channel (input). The rising edge corresponds to a change in the signal status at the input from logical “0” to “1”. “no reaction”: An edge change at the input does not change the object value and also does not lead to the sending of a telegram. “On”: In the event of a rising edge the switching value “ON” (binary value „1“) is transferred into the communication object and sent. “Off”: In the event of a rising edge the switching value “OFF” (binary value „0“) is transferred into the communication object and sent. “Toggle”: In the event of a rising edge, the switching value stored in the communication object is inverted and the new value is sent.	

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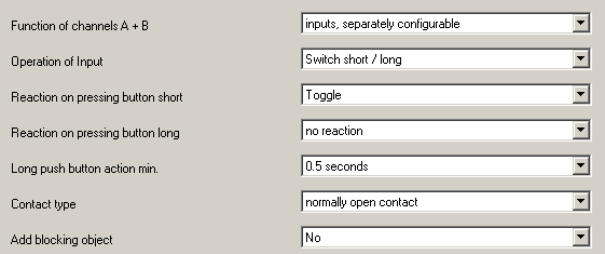
Parameter	Settings
Reaction on falling edge	**no reaction** On Off Toggle
Here an adjustment is made to define which switching value is written into the storage cell of the communication object and sent after a falling edge in the signal status at the channel (input). The falling edge corresponds to a change in the signal status at the input from logical "1" to "0". "no reaction": An edge change at the input does not change the object value and also does not lead to the sending of a telegram. "On": In the event of a falling edge the switching value "ON" (binary value „1") is transferred into the communication object and sent. "Off": In the event of a falling edge the switching value "OFF" (binary value „0") is transferred into the communication object and sent. "Toggle": In the event of a rising edge, the switching value stored in the communication object is inverted and the new value is sent.	
Send switching value after bus voltage recovery	**No**; if input status changed
This parameter determines if and when a switching value is sent after bus voltage recovery. „No": After bus voltage recovery the current switching value is not sent. „if input status changed": After bus voltage recovery the current switching status is sent if the switching status changed during the bus voltage failure.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.1.3 Switching short / long



This function is used, for binary inputs to which a switch or a push button is attached, to send a switching telegram (ON, OFF or TOGGLE) as a reaction to a short or long push button action.

The following object is inserted automatically:

Obj	Object name	Function	Type	Flag
21	Channel A, Switching 1	On / Off	1 bit	CRWT
Switching telegrams are sent via the group address linked with this object.				
22	Channel A, Switching 2	On / Off	1 bit	CRWT
Switching telegrams for long push button press are sent via the group address linked with this object if the parameter "send on long push button press via" is set to "second object".				

Parameter	Settings
Reaction on pressing button short	no reaction On; Off; **Toggle**
Here an adjustment is made to define which switching value is written into the storage cell of the communication object and sent after short pressing of the push button attached to the channel (input). "no reaction": A short push button action does not change the object value and also does not lead to the sending of a telegram. "On": After a short push button action, the switching value "ON" is transferred into the communication object and sent. "Off": After a short push button action, the switching value "OFF" is transferred into the communication object and sent. "Toggle": After a short push button action, the switching value stored in the communication object is inverted and the new value is sent.	
Reaction on pressing button long	**no reaction** On; Off; Toggle
Here an adjustment is made to define which switching value is written into the storage cell of the communication object and sent after long pressing of the push button attached to the	

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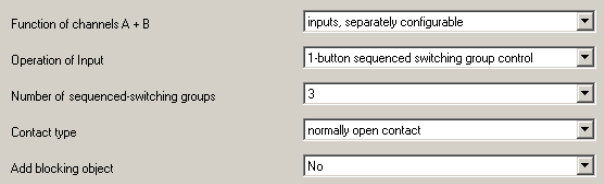
Parameter	Settings
channel (input). "no reaction": A long push button action does not change the object value and also does not lead to the sending of a telegram. "On": After a long push button action, the switching value "ON" is transferred into the communication object and sent. "Off": After a long push button action, the switching value "OFF" is transferred into the communication object and sent. "Toggle": After a long push button action, the switching value stored in the communication object is inverted and the new value is sent.	
Send on long push button press via	**the same object as on short push button press;** second object
This parameter is only visible when the parameter "reaction on long pressing" is not set to „no reaction". This parameter determines whether the switching value on long push button press is sent via the same object (Switching 1) or via a second object (Switching 2).	
Long push button action min.	0.3 Seconds 0.4 Seconds **0.5 Seconds** 0.6 Seconds 0.8 Seconds 1.0 Seconds 1.2 Seconds 1.5 Seconds 2.0 Seconds 2.5 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.1.4 1-button sequenced switching group control



The "1-button sequenced switching group control" function enables, for example, the bulbs of one luminaire with two or three groups of bulbs to be switched on and off successively, as a group, by pressing a single push button several times. The number of groups that can be switched is adjusted via a parameter. The switching sequence is predetermined and cannot be modified by the user. If these same groups are controlled by several push buttons with sequenced switching group control, then this occurs from every push button independently from the other push buttons, i.e. every push button only notes which switching command combination it last sent and sends what is, for it, the next subsequent switching order combination.

The following objects are inserted automatically if 3 sequenced switching groups are chosen (for 2 sequenced switching groups only the first two objects are inserted):

Obj	Object name	Function	Type	Flags
21	Channel A, Switching 1	On / Off	1 bit	CRWT
22	Channel A, Switching 2	On / Off	1 bit	CRWT
23	Channel A, Switching 3	On / Off	1 bit	CRWT
Switching telegrams are sent via the group addresses linked with these objects.				

Parameter	Settings
Number of sequenced switching groups	**2** 3
The number of groups that can be switched is adjusted via this parameter. „2": 2 groups are controlled via 2 switching command telegrams per push button activation in such a way that the following switching sequence can be seen (0= group switched off, 1= group switched on): 00-01-11-10-00 „3": 3 groups are controlled via 3 switching command telegrams per push button activation in such a way that the following switching sequence can be seen (0= group switched off, 1= group switched on):	

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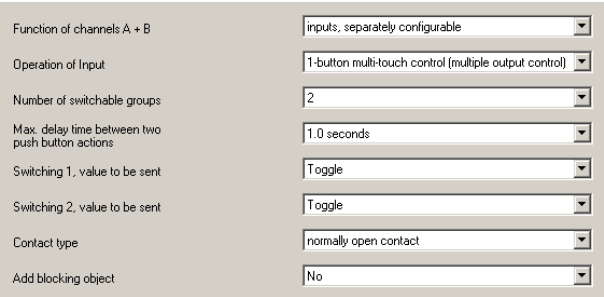
Parameter	Settings
000-001-010-011-111-110-101-100-000 After power recovery the sequence always starts with the switching telegrams Off / On for objects Switching 2 / Switching 1 resp. Off / Off / On for objects Switching 3 / Switching 2 / Switching 1.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.1.5 1-button multi-touch control (multiple output control)



The function "1-button multi-touch control (multiple output control)" enables targeted switching of up to 2 resp. 3 load groups using just one push button. The number of push button switching actions immediately following each other determines, which load group is switched: 1x switching action = switch group 1, 2x switching action = switch group 2, 3x switching action = switch group 3.

The following objects are inserted automatically if 3 switching groups are chosen (for 2 switching groups only the first two objects are inserted):

Obj	Object name	Function	Type	Flags
21	Channel A, Switching 1	On / Off	1 bit	CRWT
22	Channel A, Switching 2	On / Off	1 bit	CRWT
23	Channel A, Switching 3	On / Off	1 bit	CRWT
Switching telegrams are sent via the group addresses linked with these objects.				

Parameter	Settings
Number of switched groups	**2**, 3
This parameter determines the number of switchable groups. „2": 2 groups can be controlled via 2 switching objects. „3": 3 groups can be controlled via 3 switching objects.	
Max. delay time between two push button actions	0.5 s; 0.75 s; **1.0 s**
This parameter determines the maximum permissible delay between two push button actions. If there is no other push button action within this period then the switching object is sent, which corresponds with the number of successive push button actions.	

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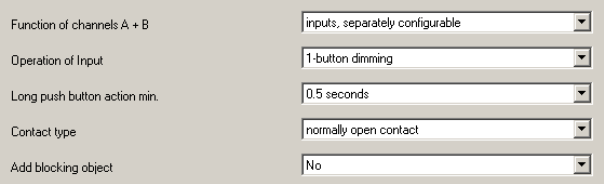
Parameter	Settings
Switching 1, value to be sent	On; Off; **Toggle**
This parameter determines the value to be sent via the object Switching 1. „On“: The value „ON“ is sent. „Off“: The value „OFF“ is sent. „Toggle“: The switching value sent last is toggled and the new value is sent.	
Switching 2, value to be sent	On; Off; **Toggle**
This parameter determines the value to be sent via the object Switching 2. „On“: The value „ON“ is sent. „Off“: The value „OFF“ is sent. „Toggle“: The switching value sent last is toggled and the new value is sent.	
Switching 3, value to be sent	On; Off; **Toggle**
This parameter determines the value to be sent via the object Switching 3. „On“: The value „ON“ is sent. „Off“: The value „OFF“ is sent. „Toggle“: The switching value sent last is toggled and the new value is sent.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. “normally open contact”: the contact of the push button used is closed when activated, open when not activated. “normally closed contact”: the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.1.6 1-button dimming



The channel can be used for 1-button dimming. A distinction is made between short and long push button action.
- TOGGLE switching (short push button action)
When the push button is pressed briefly the value currently stored in the switching object (TOGGLE switching) is inverted and then sent. An ON or OFF telegram is only generated when the push button is released (= falling edge).
- Dim brighter / darker (long push button action)
With the long push button action (the duration can be adjusted via the “General” parameter window), the light becomes brighter or darker depending on the object value and the last controlled dimming direction. If the dimming actuator had been switched off, then a long push button action switches it on and brightens. If the dimming actuator was switched on by a short push button action, then it is dimmed darker by the first long push button action. If the dimming actuator is at a dimming value between 1 and 99%, the dimming direction last activated is inverted and then dimmed in the new direction. A long push button action sends the command “100 % dimming” via the dimming object, while releasing the push button (= falling edge) sends the command “Stop”. If a stop command is received before the 100% value is reached, the dimming process is finished and maintained at the brightness obtained.
The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, Switching 1	On / Off	1 bit	CRWT
Switching telegrams are sent to the dimming actuator via the group address linked with this object. In the process, a short push button action produces an ON or OFF telegram, while the last controlled switching direction is reversed respectively.				
22	Channel A, Dimming	Brighter / Darker	4 bit	CRT
The dimming telegrams are sent to the dimming actuator via the group address linked with this object. In the process, a long push button action produces a “100 % dimming” telegram. A stop command is sent when the push button is released. Since the last controlled dimming direction is reversed in the process, dimming in the opposite direction is effected on the next long push button action.				

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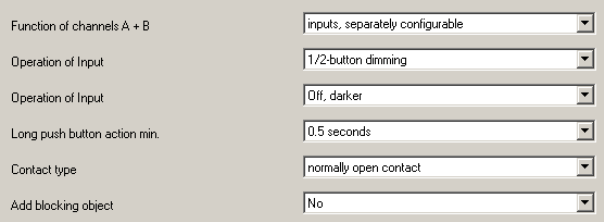
23	Channel A, Dimming	Status	1 Byte	CWT
The dimming status telegrams are received from the dimming actuator via the group address linked with this object. If the dimming actuator is at a dimming value between 1 and 99%, the dimming direction last activated is inverted and then dimmed in the new direction. This allows for several operation locations to synchronize and to always invert the last applied dimming direction. Note: If this object is not linked with a group address or the latest dimming status has not been received when the push button is pressed then the dimming direction is not influenced by the dimming status.				

Parameter	Settings
Long push button action min.	0.3 Seconds 0.4 Seconds **0.5 Seconds** 0.6 Seconds 0.8 Seconds 1.0 Seconds 1.2 Seconds 1.5 Seconds 2.0 Seconds 2.5 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.1.7 1/2-button dimming



This function allows 2-button dimming with any two inputs with each input providing the function of one push button:
Off, darker
On, brighter
Toggle, darker
Toggle, brighter
The combination of two push buttons provides switching a light or group of lights on and off as well as dimming them brighter and darker.
With the two buttons connected to independent inputs a short button press action switches on respectively off and a long button press action dims brighter resp. darker.

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, Switching	Off	1 bit	CRT
21	Channel A, Switching	On	1 bit	CRT
21	Channel A, Switching	Toggle	1 bit	CRWT
Switching telegrams are sent to the dimming actuator via the group address linked with this object. A short push button action produces an ON or OFF telegram.				
22	Channel A, Dimming	darker	4 bit	CRT
22	Channel A, Dimming	brighter	4 bit	CRT
The dimming telegrams are sent to the dimming actuator via the group address linked with this object. A long push button action produces a "100 % dimming" telegram. A stop command is sent when the push button is released.				

Parameter	Settings
Operation of input	**Off, darker** On, brighter Toggle, darker Toggle, brighter
This parameter determines the operation of the input.	

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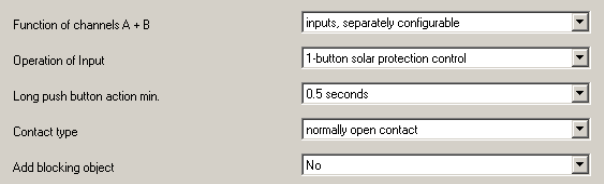
Parameter	Settings
Long push button action min.	0.3 Seconds 0.4 Seconds **0.5 Seconds** 0.6 Seconds 0.8 Seconds 1.0 Seconds 1.2 Seconds 1.5 Seconds 2.0 Seconds 2.5 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.1.8 1-button-solar protection control



This function allows using just one push button for moving solar protection up and down, stopping of the motion and opening and closing of the slats. To achieve this a distinction is made between short and long push button action.

- Solar protection Up / Down (long push button action)

Depending on the last movement direction stored in the "Solar protection Up / Down" object, using the long push button action (the duration is configurable via the parameter "Long push button action min.") this direction is inverted and the solar protection lowered or raised until the respective final position has been reached and the drive is disconnected via the limit switch.

If a stop command is received before a final position is reached and the limit switch is activated, the movement is terminated immediately, the position arrived at is maintained and the last movement direction is stored.

- Stop or Slats Open / Close (short push button action)

A short push button action sends a telegram that stops the drive when the solar protection is in motion; when the solar protection is not in motion the telegram leads to a brief movement in the opposite direction to the previous one stored in the movement object. In closed Venetian blinds, for example, this would lead to the slats opening by one step. The STOP or Slats OPEN or CLOSE telegram is only generated when the push button is released (= falling edge). Each further push button action sends another "Slats Open / Close" telegram, while the direction of movement remains unchanged. The software of the solar protection actuator defines whether and how a number of successive "Slats Open / Close" telegrams are interpreted and executed.

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, Solar protection	Up / Down	1 bit	CRWT
The movement commands Up / Down are sent via the group address linked with this object in order to raise / lower the solar protection. In the process, a long push button action always produces a movement command in the direction opposing the last direction of movement.				

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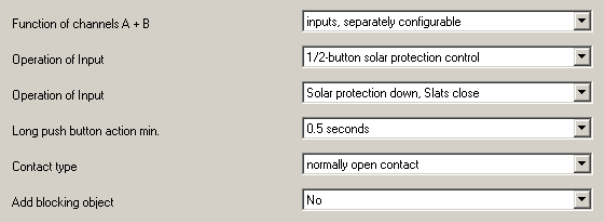
Obj	Object name	Function	Type	Flags
22	Channel A, Slats	Stop / Open / Close	1 bit	CRT
The commands "STOP" or "Slats OPEN / CLOSE" are sent via the group address linked with this object. In the process, a short push button action always produces a command to stop the movement or adjust the slats by one step in the direction opposing the last direction of movement.				

Parameter	Settings
Long push button action min.	0.3 Seconds 0.4 Seconds **0.5 Seconds** 0.6 Seconds 0.8 Seconds 1.0 Seconds 1.2 Seconds 1.5 Seconds 2.0 Seconds 2.5 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.1.9 1/2-button-solar protection control



This function allows 2-button solar protection control with any two inputs with each input providing the function of one push button:
Blind down, close slats
Blind up, open slats
With the combination of two push buttons, the solar protection can be lowered or raised to the respective final position with a long push button action, while a short push button action ends the movement or adjusts the slats by one step. An adjustment can be made to define which push button (or channel) is used to lower the solar protection and close the slats by one step where necessary, and which is used to raise the solar protection and open the slats by one step where necessary.

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, solar protection	Down	1 bit	CRT
21	Channel A, solar protection	Up	1 bit	CRT
The movement commands Up or Down are sent via the group address linked with this object in order to raise respectively lower the solar protection. The parameter "Operation of input" determines whether a channel generates an Up or Down telegram on a long button press action.				
22	Channel A, Slats	Stop / Close	1 bit	CRT
22	Channel A, Slats	Stop / Open	1 bit	CRT
The movement commands Stop / Close or Stop / Open are sent via the group address linked with this object in order to close respectively open the slats of the solar protection. A short push button action always produces a command to stop the movement or to adjust the slats by one step. Together with the assignment for lowering and raising the solar protection, adjustment via the "Operation of input" parameter defines which of the two channels generates an Open or Close telegram on short push button action.				

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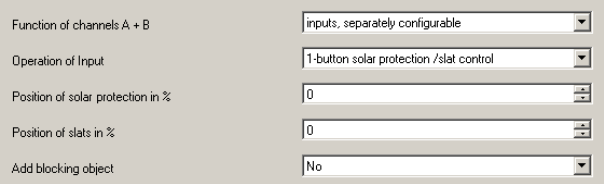
Parameter	Settings
Operation of input	**Solar Protection Down, Slats Close**; Solar Protection Up, Slats Open
This parameter determines which telegram is sent on long respectively short push button press action.	
Long push button action min.	0.3 Seconds 0.4 Seconds **0.5 Seconds** 0.6 Seconds 0.8 Seconds 1.0 Seconds 1.2 Seconds 1.5 Seconds 2.0 Seconds 2.5 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.1.10 1-button solar protection / slat control



With this function a single push button press action triggers sending two telegrams with a delay of approximately 1 second. The first telegram contains the predetermined solar protection position in percent, the second telegram contains the pre-determined slat position in percent.

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, position of solar protection	8-bit value	1 Byte	CRT
The pre-determined position of the solar protection is sent as a percentage value (0...100%) via the group address linked with this object.				
22	Channel A, position of slats	8-bit value	1 Byte	CRT
The pre-determined position of the slats is sent as a percentage value (0...100%) via the group address linked with this object.				

Parameter	Settings
Position of solar protection in %	**0** (0...100)
This parameter determines the value of position of the solar protection to be sent.	
Position of slats in %	**0** (0...100)
This parameter determines the value of the position of the slats to be sent.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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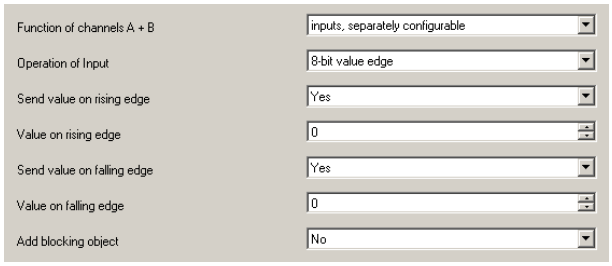
3.1.11 8-bit value edge



This function is used to send 8-bit integer values (EIS 6) ranging from 0...255. An adjustment can be made as to whether a value telegram is sent as a reaction to a rising and / or falling signal edge on the channel (input) (i.e. on pressing and / or releasing a button, for example). Using this function, for example, a dimming value can be assigned to a button in order to dim the corresponding lights to the configured value with one push button action; or different values can be assigned to several buttons, for example, in order to be able control the revolutions of a fan.

The following object is inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, 8-bit Value 1	Send	1 Byte	CRT
The configured 8-bit integer value (EIS 6) is sent via the group address linked with this object.				

Parameter	Settings
Send value on rising edge	No; **Yes**
Here an adjustment is made as to whether or not the configured 8–bit value is to be written into the storage cell of the communication object and sent after a rising edge in the signal status at the input. The rising edge corresponds to a change in the signal status at the input from logical “0” to “1”.	
Value on rising edge (0...255)	**0**
Here an adjustment is made to define which value (0...255) is written into the storage cell of the communication object and sent after a rising edge in the signal status at the input. The rising edge corresponds to a change in the signal status at the input from logical “0” to “1”.	
Send value on falling edge	No; **Yes**
Here an adjustment is made as to whether or not the 8–bit value is to be written into the storage cell of the communication object and sent after a falling edge in the signal status at the input. The falling edge corresponds to a change in the signal status at the input from logical “1” to “0”.	

Parameter	Settings
Value on falling edge (0...255)	**0**
Here an adjustment is made to define which value (0...255) is written into the storage cell of the communication object and sent after a falling edge in the signal status at the input. The falling edge corresponds to a change in the signal status at the input from logical “1” to “0”.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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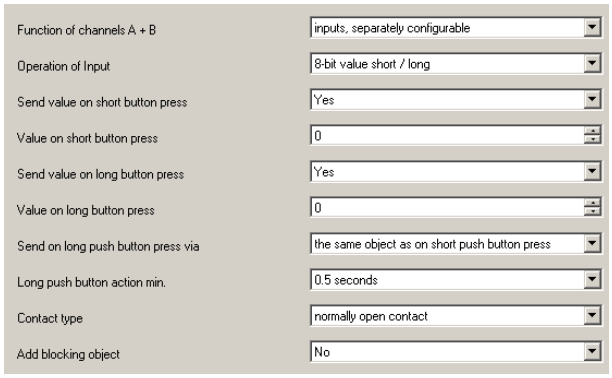
3.1.12 8-bit value short / long



This function is used to send 8-bit integer values (EIS 6) ranging from 0...255. An adjustment can be made as to whether a value telegram is sent as a reaction to short and / or long push button action. Additionally, it is possible to configure whether the value associated with the long button press action is sent via the same object used for the shirt button press action or via a second object.

The following object is inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, 8-bit Value 1	Send	1 Byte	CRT
The configured 8-bit integer value (EIS 6, DPT 5.010) is sent via the group address linked with this object.				
22	Channel A, 8-bit Value 2	Send	1 Byte	CRT
The configured 8-bit integer value (EIS 6, DPT 5.010) is sent on a long button press via the group address linked with this object if sending via a second object is configured.				

Parameter	Settings
Send value on short button press	No; **Yes**
Here an adjustment is made as to whether or not the configured 8–bit value is to be written into the storage cell of the communication object and sent after short pressing of the push button attached to the input.	
Value on short button press	**0** (0...255)
Here an adjustment is made to define which value (0...255) is written into the storage cell of the communication object and sent after short pressing of the push button attached to the input.	

Parameter	Settings
Send value on long button press	No; **Yes**
Here an adjustment is made as to whether or not the configured 8–bit value is to be written into the storage cell of the communication object and sent after long pressing of the push button attached to the input.	
Value on long button press	**0** (0...255)
Here an adjustment is made to define which value (0...255) is written into the storage cell of the communication object and sent after long pressing of the push button attached to the input.	
Send on long push button press via	**the same object as on short push button press;** second object
This parameter is only visible when the parameter "reaction on long pressing" is not set to „no reaction". This parameter determines whether the 8-bit value on long push button press action is sent via the same object (8-bit value 1) or via a second object (8-bit value 2).	
Long push button action min.	0.3 Seconds 0.4 Seconds **0.5 Seconds** 0.6 Seconds 0.8 Seconds 1.0 Seconds 1.2 Seconds 1.5 Seconds 2.0 Seconds 2.5 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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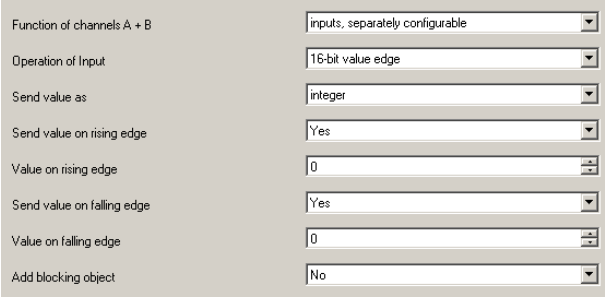
3.1.13 16-bit value edge



This function is used to send 16-bit integer values (DPT 7.001) ranging from 0...65535 or 16-bit floating point values (DPT 9.000) ranging from -3276.8 to 3276.7 (with one decimal place). The exponent of the 16-bit floating point value is automatically generated. An adjustment can be made as to whether a value telegram is to be sent as a reaction to a rising and / or falling signal edge on the channel input (i.e. when a push button is pressed and / or released).
Using this function it is possible, for example, to switch between a day and a night set point for room temperature control via one switch.

Depending on the selected data type (integer or floating point) either the object for sending an integer value or for sending a floating point value is inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, 16-bit value 1	send	2 Byte	CRT
The configured 16-bit integer value (DPT 7.001) is sent via the group address linked with this object.				
21	Channel A, 16-bit floating point value 1	send	2 Byte	CRT
The configured 16-bit floating point value (DPT 9.000) is sent via the group address linked with this object.				

Parameter	Settings
Send value as	**integer**; floating point value
This parameter determines whether an integer in the range 0...65535 or a floating point value (with one decimal place) in the range -3276.8 to +3276.7 is sent.	

Parameter	Settings
Send value on rising edge	No; **Yes**
Here an adjustment is made as to whether the configured 16–bit FP value is to be written into the storage cell of the communication object and sent after a rising edge in the signal status at the input. The rising edge corresponds to a change in the signal status at the input from logical “0” to “1”.	
Value on rising edge	**0** (0... 65535)
This parameter is only visible when an “integer” shall be sent. Here an adjustment is made to define which integer value (0...65535) is written into the storage cell of the communication object and sent after a rising edge in the signal status at the input. The rising edge corresponds to a change in the signal status at the input from logical “0” to “1”.	
Value on rising edge in tenth part	**0** (-32768...+32767)
This parameter is only visible when “floating point value” shall be sent. Here an adjustment is made to define which FP value (-32768...+32767) is written into the storage cell of the communication object and sent after a rising edge in the signal status at the input. The FP value to be sent should be entered (where necessary with a plus/minus sign) as tenfold the desired FP value (i.e. including decimal place, but excluding point). The rising edge corresponds to a change in the signal status at the input from logical “0” to “1”.	
Send value on falling edge	No; **Yes**
Here an adjustment is made as to whether the configured 16–bit FP value is to be written into the storage cell of the communication object and sent after a falling edge in the signal status at the input. The falling edge corresponds to a change in the signal status at the input from logical “1” to “0”.	
Value on falling edge	**0** (0... 65535)
This parameter is only visible when an “integer” shall be sent. Here an adjustment is made to define which integer value (0...65535) is written into the storage cell of the communication object and sent after a falling edge in the signal status at the input. The falling edge corresponds to a change in the signal status at the input from logical “1” to “0”.	
Value on falling edge in tenth part	**0** (-32768...+32767)
This parameter is only visible when “floating point value” shall be sent. Here an adjustment is made to define which FP value (-320.0...+320.0) is written into the storage cell of the communication object and sent after a falling edge in the signal status at the input. The FP value to be sent should be entered (where necessary with a plus/minus sign) as tenfold the desired FP value (i.e. including decimal place, but excluding point). The falling edge corresponds to a change in the signal status at the input from logical “1” to “0”.	

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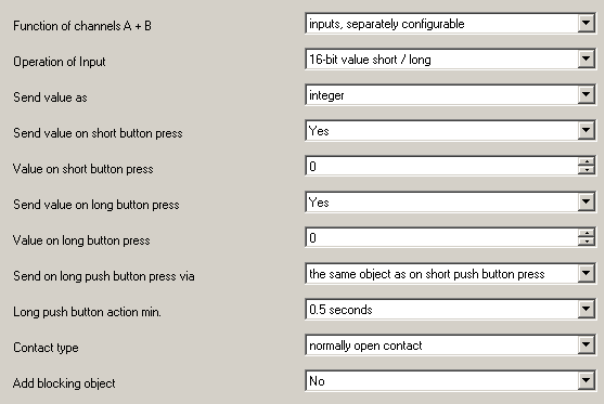
Parameter	Settings
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.1.14 16-bit value short / long



This function is used to send 16-bit integer values (DPT 7.001) ranging from 0...65535 or 16-bit floating point values (DPT 9.000) ranging from -3276.8 to 3276.7 (with one decimal place). The exponent of the 16-bit floating point value is automatically generated. An adjustment can be made as to whether a value telegram is to be sent as a reaction to a short and / or long button press action on the channel input (i.e. when a push button is pressed and / or released). Additionally, it is possible to configure whether the value associated with the long button press action is sent via the same object used for the shirt button press action or via a second object.
Using this function it is possible, for example, to switch between a day and a night set point for room temperature control via one switch.

Depending on the selected data type (integer or floating point) either the object for sending an integer value or for sending a floating point value is inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, 16-bit Value 1	Send	2 Byte	CRT
The configured 16-bit integer value (EIS 5; DPT 7.001) is sent via the group address linked with this object only on short or on short and long button press action.				
22	Channel A, 16-bit Value 2	Send	2 Byte	CRT
The configured 16-bit integer value (EIS 5; DPT 7.001) is sent via the group address linked with this object on long button press action if sending via a second object is configured.				
21	Channel A, 16-bit floating point value 1	Send	2 Byte	CRT
The configured 16-bit floating point value (EIS 9; DPT 9.000) is sent via the group address linked with this object only on				

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Obj	Object name	Function	Type	Flags
short or on short and long button press action.				
22	Channel A, 16-bit Value 2	Send	2 Byte	CRT
The configured 16-bit floating point value (EIS 9; DPT 9.000) is sent via the group address linked with this object on long button press action if sending via a second object is configured.				

Parameter	Settings
Send value as	**integer**; floating point value
This parameter determines whether an integer in the range 0...65535 or a floating point value (with one decimal place) in the range -3276.8 to +3276.7 is sent.	
Send value on short button press	No; **Yes**
Here an adjustment is made as to whether the configured 16–bit value is to be written into the storage cell of the communication object and sent after a short button press action at the input.	
Value on short button press	**0** (0... 65535)
This parameter is only visible when an "integer" shall be sent. Here an adjustment is made to define which integer value (0...65535) is written into the storage cell of the communication object and sent after a short button press action at the input.	
Value on short button press in tenth part	**0** (-32768...+32767)
This parameter is only visible when "floating point value" shall be sent. Here an adjustment is made to define which floating point value (-32768...+32767) is written into the storage cell of the communication object and sent after a short button press action in the signal status at the input. The floating point value to be sent should be entered (where necessary with a plus/minus sign) as tenfold the desired floating point value (i.e. including decimal place, but excluding point).	
Send value on long button press	No; **Yes**
Here an adjustment is made as to whether the configured 16–bit value is to be written into the storage cell of the communication object and sent after a long button press action at the input.	
Value on long button press	**0** (0... 65535)
This parameter is only visible when an "integer" shall be sent. Here an adjustment is made to define which integer value (0...65535) is written into the storage cell of the communication object and sent after a long button press action at the input.	

Parameter	Settings
Value on falling edge in tenth part	**0** (-32768...+32767)
This parameter is only visible when "floating point value" shall be sent. Here an adjustment is made to define which floating point value (-320.0...+320.0) is written into the storage cell of the communication object and sent after a long button press action at the input. The floating point value to be sent should be entered (where necessary with a plus/minus sign) as tenfold the desired floating point value (i.e. including decimal place, but excluding point).	
Send on long push button press via	**the same object as on short push button press;** second object
This parameter is only visible when the parameter "reaction on long pressing" is not set to „no reaction". This parameter determines whether the 16-bit value on long push button press action is sent via the same object (16-bit value 1) or via a second object (16-bit value 2).	
Long push button action min.	0.3 Seconds 0.4 Seconds **0.5 Seconds** 0.6 Seconds 0.8 Seconds 1.0 Seconds 1.2 Seconds 1.5 Seconds 2.0 Seconds 2.5 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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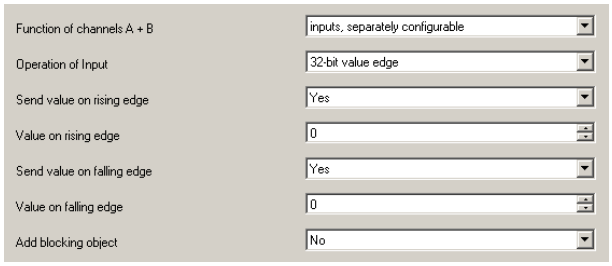
3.1.15 32-bit value edge



This function is used to send 32-bit integer values (DPT 12.001) ranging from 0...4,294,967,295. An adjustment can be made as to whether a value telegram is to be sent as a reaction to a rising and / or falling signal edge on the channel input (i.e. when a push button is pressed and / or released).

The following object is inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, 32-bit value 1	send	4 Byte	CRT
The configured 32-bit integer value (DPT 12.001) is sent via the group address linked with this object.				

Parameter	Settings
Send value on rising edge	No; **Yes**
Here an adjustment is made as to whether the configured 32–bit value is to be written into the storage cell of the communication object and sent after a rising edge in the signal status at the input. The rising edge corresponds to a change in the signal status at the input from logical "0" to "1".	
Value on rising edge	**0** (0... 4.294.967.295)
This parameter is only visible when an "integer" shall be sent. Here an adjustment is made to define which integer value (0...65535) is written into the storage cell of the communication object and sent after a rising edge in the signal status at the input. The rising edge corresponds to a change in the signal status at the input from logical "0" to "1".	
Send value on falling edge	No; **Yes**
Here an adjustment is made as to whether the configured 16–bit FP value is to be written into the storage cell of the communication object and sent after a falling edge in the signal status at the input. The falling edge corresponds to a change in the signal status at the input from logical "1" to "0".	

Parameter	Settings
Value on falling edge	**0** (0... 4.294.967.295)
This parameter is only visible when an "integer" shall be sent. Here an adjustment is made to define which integer value (0...65535) is written into the storage cell of the communication object and sent after a falling edge in the signal status at the input. The falling edge corresponds to a change in the signal status at the input from logical "1" to "0".	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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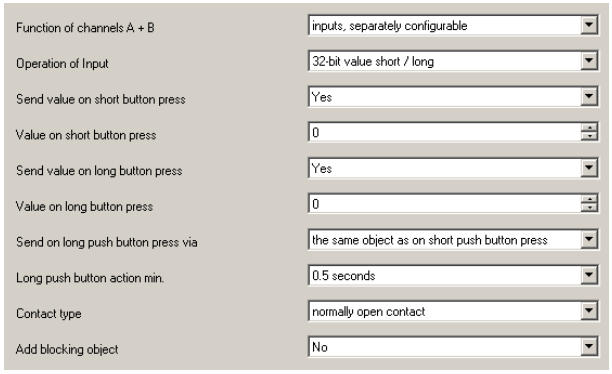
3.1.16 32-bit value short / long



This function is used to send 32-bit integer values (DPT 12.001) ranging from 0...4,294,967,295.. An adjustment can be made as to whether a value telegram is sent as a reaction to short and / or long push button action. Additionally, it is possible to configure whether the value associated with the long button press action is sent via the same object used for the shirt button press action or via a second object.

The following object is inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, 32-bit value 1	send	4 Byte	CRT
The configured 32-bit integer value (DPT 12.001) is sent via the group address linked with this object.				
22	Channel A, 32-bit value 2	send	4 Byte	CRT
The configured 32-bit integer value (DPT 12.001) is sent via the group address linked with this object on long button press action if sending via a second object is configured.				

Parameter	Settings
Send value on short button press	No; **Yes**
Here an adjustment is made as to whether or not the configured 32–bit value is to be written into the storage cell of the communication object and sent after short pressing of the push button attached to the input.	
Value on short button press	**0** (0... 4.294.967.295)
Here an adjustment is made to define which value (0... 4.294.967.295) is written into the storage cell of the communication object and sent after short pressing of the push button attached to the input.	

Parameter	Settings
Send value on long button press	No; **Yes**
Here an adjustment is made as to whether or not the configured 32–bit value is to be written into the storage cell of the communication object and sent after long pressing of the push button attached to the input.	
Value on long button press	**0** (0... 4.294.967.295)
Here an adjustment is made to define which value (0... 4.294.967.295) is written into the storage cell of the communication object and sent after long pressing of the push button attached to the input.	
Send on long push button press via	**the same object as on short push button press;** second object
This parameter is only visible when the parameter "reaction on long pressing" is not set to „no reaction". This parameter determines whether the 32-bit value on long push button press action is sent via the same object (32-bit value 1) or via a second object (32-bit value 2).	
Long push button action min.	0.3 Seconds 0.4 Seconds **0.5 Seconds** 0.6 Seconds 0.8 Seconds 1.0 Seconds 1.2 Seconds 1.5 Seconds 2.0 Seconds 2.5 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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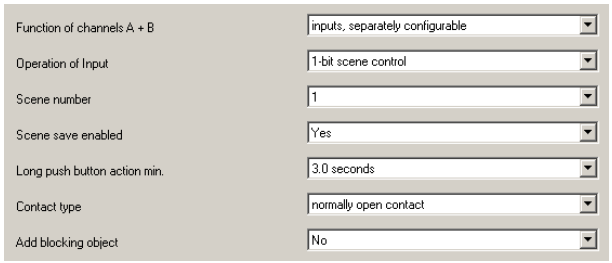
3.1.17 1-bit scene control



Using the "1-bit Scene control" function it is possible for the user, without changing the project planning using the ETS, to re-program a scene component for 1-bit scene control, i.e. to assign different brightness values or switching statuses to the individual groups of the respective scene. Using one button, a short push button action recalls a scene and a long push button action stores a scene, while one communication object is used to store the scene and a second one is used to recall a stored scene. In this connection it can be configured whether a telegram with the value "0" is used to store or recall Scene 1 and a telegram with the value "1" is used to store or recall Scene 2.
Before a scene is stored the actuators concerned must be adjusted to the desired brightness values or switching statuses using the push buttons / sensors provided for the purpose. When a "Store" telegram is received, the addressed scene controllers are prompted to query the currently set values and statuses with the actuators integrated into the scene and store them in the corresponding scene.
Moreover it can be configured whether the push button is only to be used to recall a scene (storage disabled) or whether it is also possible to initiate the storage of a scene via the push button. In order not to inadvertently initiate scene storage by pressing the push button only a little "longer" than a short push button action, scene storage can only be initiated by an "extra long" push button action.

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, Scene 1/2	Recall	1 bit	CRT
The telegrams to recall Scene 1 or Scene 2 are sent via the group address linked with this object. When the telegram is received, the scene controller for 1-bit scene control sends, for example, the stored switching statuses and brightness values of Scene 1 or Scene 2, respectively, via the group objects to the addressed switching / dimming actuators.				

Obj	Object name	Function	Type	Flags
22	Channel A, Scene 1/2	Store	1 bit	CRT
The telegrams to store Scene 1 or Scene 2, respectively, are sent via the group address linked with this object to the corresponding scene controller with 1-bit scene control.				

Parameter	Settings
Scene number	**1** 2
This parameter determines which scene is to be stored / recalled. „1": On short push button action, Scene 1 is recalled from the addressed scene controllers via a telegram with the value "0". On long push button action, the addressed scene controllers are prompted to query the currently set values and statuses with the actuators integrated into the scene and store them under the scene with the number 1. „2": Scene 2 is stored and recalled on this setting.	
Saving scene enabled	No; **Yes**
This parameter determines if the scene may not only be recalled but the current settings may be saved.	
Long push button action min.	1.0 Seconds 2.0 Seconds **3.0 Seconds** 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action. For scene control a long push button action triggers saving the current scene settings.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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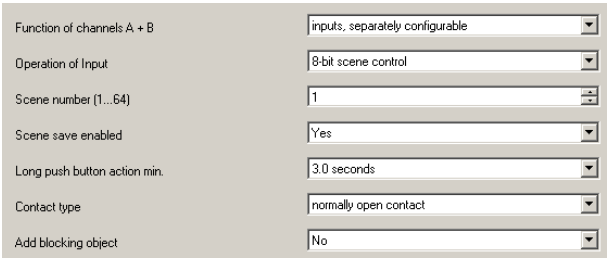
3.1.18 8-bit scene control



Using the 8-bit Scene control it is possible for the user himself, without changing the project planning using the ETS, to re-program scene controllers for 8-bit scene control or actuators with integrated 8-bit scene control, i.e. to assign current values or switching statuses to the respective scene. Using one button, the scene with the configured number (1...64) can be recalled via a short push button action, while a long push button action stores the scene. At the same time, both the command to store a scene and the command to recall a stored scene, together with the number of the desired scene, are transmitted via a single communication object.
Before a scene is stored, the actuators integrated into the scene must be adjusted to the desired values or statuses using the push buttons / sensors provided for the purpose. When a telegram is received, the addressed scene controllers / actuators with integrated scene control are prompted to query the currently set values and statuses with the actuators integrated into the scene and to store them in the corresponding scene.
Moreover it can be configured whether the push button is only to be used to recall a scene (storage disabled) or whether it is also possible to initiate the storage of a scene via the push button. In order not to inadvertently initiate scene storage by pressing the push button only a little "longer" than a short push button action, scene storage can only be initiated by an "extra long" push button action.

The following object is inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, 8-bit Scene	Recall / Store	1 Byte	CRT
The telegrams to recall and store the scene with the configured number (1...64) are sent via the group address linked with this object.				

Parameter	Settings
Scene number (1...64)	**1**
This parameter determines which scene (1...64) is to be stored or recalled.	
Saving scene enabled	No; **Yes**
This parameter determines if the scene may not only be recalled but the current settings may be saved.	
Long push button action min.	1.0 Seconds 2.0 Seconds **3.0 Seconds** 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action. For scene control a long push button action triggers saving the current scene settings.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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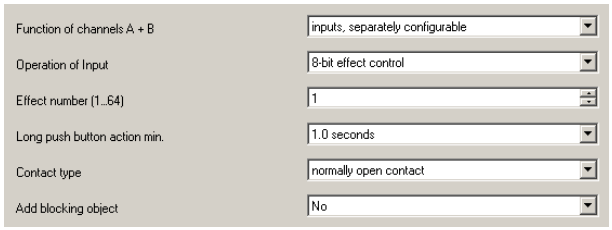
3.1.19 8-bit effect control



Using the 8-bit effect control it is possible to use a push button connected to the input to start and stop the effect with the configured number (1...64) on a KNX / DALI Gateway N141/02.
As with the 8-bit scene control short and long button press actions are distinguished.

The following object is inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, 8-bit effect	start / stop	1 Byte	CRT
The telegrams to start and stop the effect with the configured number (1...64) are sent via the group address linked with this object. The telegram starting the effect control is triggered by a short button press action, whereas a long button press action stops the effect control. The effect control is started via a telegram with a logic "0" in bit 7 of the object and it is stopped with a logic "1" in bit 7 of the object.				

Parameter	Settings
Effect number (1...64)	**1**
This parameter determines which effect (1...64) is to be started or stopped.	
Long push button action min.	**1.0 Seconds** 2.0 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action. For effect control a long push button action stops the current effect control.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated.	
"normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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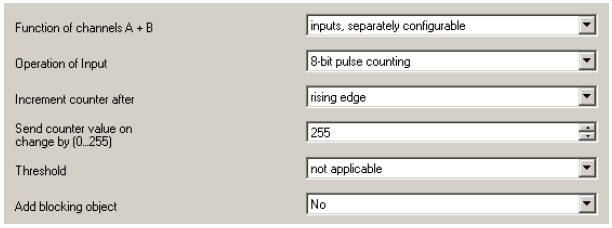
3.1.20 8-bit pulse counting



For binary inputs, this function enables the counting and saving of pulses as 8-bit counter value. The counter value stored in the counter value object can be sent on request and after modification by a configurable differential value. Additionally, the counter value can be monitored whether a threshold has been reached or exceeded. When the configured threshold value is exceeded a logical "1" is sent via the communication object "Upper limit violation". The threshold may be set via parameter or may be read and set via telegram from a communication object. Where required, the counter value can be reset to value 0 by telegram via an additional 1-bit communication object. Adjustments can be made via parameters as to whether the counter status should be incremented on rising or falling signal edge, and which value the counter must have changed by in order for the new counter value status to be sent automatically.
In the event of power supply failure to the electronics (power outage) the counter value is permanently stored in a memory protected against data loss in the event of voltage failure. The counter value is transferred from this memory into the working memory on bus voltage recovery.
The counter value rolls over to zero when the maximum possible value is exceeded.

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, 8-bit counter value	send	1 Byte	CRWT
The telegrams with the counter value status are sent via the group address linked with this object.				
22	Channel A, Counter value	Reset	1 bit	CWT
If a telegram linked with this object is received, then the counter value is reset to value 0. The binary value (0 or 1) transmitted with the telegram is irrelevant for the reset function.				
23	Channel A, Upper limit violation	On / Off	1 bit	CRT
This object is only visible when pulse counting with threshold monitoring is selected. Upper limit violation = On is sent if - the counter value is > threshold, - a modified counter value is sent and there is a threshold overrun, - a threshold is set that is < counter value. Upper limit violation = Off is sent if - the counter value is reset, - after bus or mains voltage recovery together with the first sending of a counter value, if there is then no threshold overrun, - a threshold is set that is > counter value. In the event of counter overrun with persistent threshold overrun, "Threshold overrun = ON" will continue to be sent together with the counter value which is now below threshold until the counter is either reset to "0" or a new threshold that is bigger than the current counter value is set.				
24	Channel A, 8-bit threshold	Read / Write	1 Byte	CRWT
This object is only visible when pulse counting with threshold monitoring is selected and the threshold is settable via object. The current threshold can be queried or overwritten by a new threshold via the group address linked with this object.				

Parameter	Settings
Increment counter after	**rising edge** falling edge
Here an adjustment is made as to whether the counter status is to be increased by value 1 in the event of a rising or falling signal edge. The rising edge corresponds to a change in the signal status at the input from logical "0" to "1". The falling edge corresponds to a change in the signal status at the input from logical "1" to "0". "rising edge": The counter status is increased by 1 after a rising edge. "falling edge": The counter status is increased by 1 after a falling edge.	
Send counter value on change by (0...255)	**255**
An adjustment is made via this parameter to define which value the counter value must have changed by in order for it to be sent automatically. The counter status can be queried at any time via the bus, irrespectively of the value set here. "0": Do not send counter value.	
Threshold	**not applicable;** to be set by parameter; to be set by object
Using this parameter, an adjustment is made as to whether the threshold is predetermined as a parameter or is queried and	

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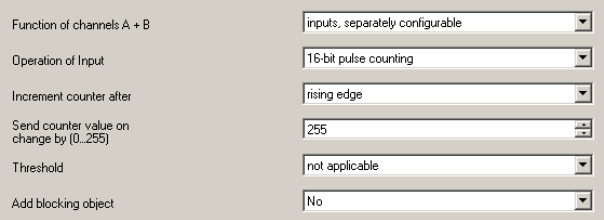
Parameter	Settings
modifiable via a communication object. The data type of the threshold always corresponds to that of the counter value. "not applicable": Threshold monitoring is not executed. "to be set by parameter": The threshold is set as a parameter. "to be set by object": A communication object via which the threshold can be queried and modified is supplemented.	
Threshold (1...255)	**255**
This parameter is only visible if the parameter "Threshold" is set to "to be set by parameter". The threshold is adjusted via this parameter.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.1.21 16-bit pulse counting



This function enables the counting and saving on binary inputs of pulses as 16-bit counter value with threshold check. The counter value stored in the counter value object can be sent on request and after modification by a configurable differential value. In addition, a check can be made on whether the counter status has already reached or exceeded a threshold value. If the threshold is exceeded, a logical 1 is sent immediately via the "Upper limit violation" communication object. The threshold can either be set as a parameter or queried and modified via a communication object by telegram. Where required, the counter value can be reset to value 0 by telegram via an additional 1-bit communication object. If the threshold is again fallen short of due to the changed threshold or a counter reset, then a logical 0 is sent immediately via the "Upper limit violation" communication object. Adjustments can be made via parameters as to whether the counter value status should be increased on rising or falling signal edge and which value the counter must have changed by in order for the new counter value status to be sent automatically. It can also be defined whether the threshold is a value that is adjustable as a parameter, or whether it can be queried and modified via the bus.
In the event of power supply failure to the electronics (power outage) both the counter value and the threshold (if this can be changed via a communication object) are permanently stored in a memory protected against data loss in the event of voltage failure. They are transferred from this memory into the working memory on bus voltage recovery.
The counter value rolls over to zero when the maximum possible value is exceeded.

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, 16-bit Counter value	send	2 Byte	CRWT
The telegrams with the counter value status are sent via the group address linked with this object.				

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22	Channel A, Counter value reset	Reset	1 bit	CWT
If a telegram linked with this object is received, then the counter value is reset to value 0. The binary value (0 or 1) transmitted with the telegram is irrelevant for the reset function.				
23	Channel A, Upper limit violation	On / Off	1 bit	CRT
This object is only visible when pulse counting with threshold monitoring is selected. Upper limit violation = On is sent if - the counter value is > threshold, - a modified counter value is sent and there is a threshold overrun, - a threshold is set that is < counter value. Upper limit violation = Off is sent if - the counter value is reset, - after bus or mains voltage recovery together with the first sending of a counter value, if there is then no threshold overrun, - a threshold is set that is > counter value. In the event of counter overrun with persistent threshold overrun, "Threshold overrun = ON" will continue to be sent together with the counter value which is now below threshold until the counter is either reset to "0" or a new threshold that is bigger than the current counter value is set.				
24	Channel A, 16-bit Threshold	Read / Write	2 Byte	CRWT
This object is only visible when pulse counting with threshold monitoring is selected and the threshold is settable via object. The current threshold can be queried or overwritten by a new threshold via the group address linked with this object.				

Parameter	Settings
Increment counter after	**rising edge** falling edge
Here an adjustment is made as to whether the counter status is to be increased by value 1 in the event of a rising or falling signal edge. The rising edge corresponds to a change in the signal status at the input from logical "0" to "1". The falling edge corresponds to a change in the signal status at the input from logical "1" to "0". "rising edge": The counter status is increased by 1 after a rising edge. "falling edge": The counter status is increased by 1 after a falling edge.	
Send counter value on change by (0...255)	**255**
An adjustment is made via this parameter to define which value the counter value must have changed by in order for it to be sent automatically. The counter status can be queried at any time via the bus, irrespectively of the value set here.	

Parameter	Settings
"0": Do not send counter value.	
Threshold	**not applicable;** to be set by parameter; to be set by object
Using this parameter, an adjustment is made as to whether the threshold is predetermined as a parameter or is queried and modifiable via a communication object. The data type of the threshold always corresponds to that of the counter value. "not applicable": Threshold monitoring is not executed. "to be set by parameter": The threshold is set as a parameter. "to be set by object": A communication object via which the threshold can be queried and modified is supplemented.	
Threshold (1...65.535)	**65535**
This parameter is only visible if the parameter "Threshold" is set to "to be set by parameter". The threshold is adjusted via this parameter.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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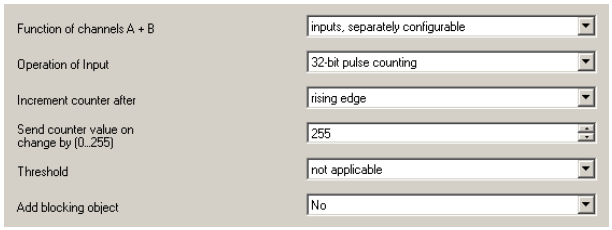
3.1.22 32-bit pulse counting



This function enables the counting and saving on binary inputs of pulses as 32-bit counter value with threshold check. The counter value stored in the counter value object can be sent on request and after modification by a configurable differential value. In addition, a check can be made on whether the counter status has already reached or exceeded a threshold value. If the threshold is exceeded, a logical 1 is sent immediately via the "Upper limit violation" communication object. The threshold can either be set as a parameter or queried and modified via a communication object by telegram. Where required, the counter value can be reset to value 0 by telegram via an additional 1-bit communication object. If the threshold is again fallen short of due to the changed threshold or a counter reset, then a logical 0 is sent immediately via the "Upper limit violation" communication object. Adjustments can be made via parameters as to whether the counter value status should be increased on rising or falling signal edge and which value the counter must have changed by in order for the new counter value status to be sent automatically. It can also be defined whether the threshold is a value that is adjustable as a parameter, or whether it can be queried and modified via the bus.
In the event of power supply failure to the electronics (power outage) both the counter value and the threshold (if this can be changed via a communication object) are permanently stored in a memory protected against data loss in the event of voltage failure. They are transferred from this memory into the working memory on bus voltage recovery.
The counter value rolls over to zero when the maximum possible value is exceeded.

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, 32-bit Counter value	Send	4 Byte	CRT
The telegrams with the counter value status are sent via the group address linked with this object.				
22	Channel A, Counter value	Reset	1 bit	CWT
If a telegram linked with this object is received, then the counter value is reset to value 0. The binary value (0 or 1) transmitted with the telegram is irrelevant for the reset function.				
23	Channel A, Upper limit violation	On / Off	1 bit	CRT
This object is only visible when pulse counting with threshold monitoring is selected. Upper limit violation = On is sent if - the counter value is > threshold, - a modified counter value is sent and there is a threshold overrun, - a threshold is set that is < counter value. Upper limit violation = Off is sent if - the counter value is reset, - after bus or mains voltage recovery together with the first sending of a counter value, if there is then no threshold overrun, - a threshold is set that is > counter value. In the event of counter overrun with persistent threshold overrun, "Threshold overrun = ON" will continue to be sent together with the counter value which is now below threshold until the counter is either reset to "0" or a new threshold that is bigger than the current counter value is set.				
24	Channel A, 32-bit Threshold	Read / Write	4 Byte	CRWT
This object is only visible when pulse counting with threshold monitoring is selected and the threshold is settable via object. The current threshold can be queried or overwritten by a new threshold via the group address linked with this object.				

Parameter	Settings
Increment counter after	**rising edge** falling edge
Here an adjustment is made as to whether the counter status is to be increased by value 1 in the event of a rising or falling signal edge. The rising edge corresponds to a change in the signal status at the input from logical "0" to "1". The falling edge corresponds to a change in the signal status at the input from logical "1" to "0". "rising edge": The counter status is increased by 1 after a rising edge. "falling edge": The counter status is increased by 1 after a falling edge.	
Send counter value on change by (0...255)	**255**
An adjustment is made via this parameter to define which value the counter value must have changed by in order for it to be sent automatically. The counter status can be queried at any time via the bus, irrespectively of the value set here. "0": Do not send counter value.	

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Parameter	Settings
Threshold	**not applicable;** to be set by parameter; to be set by object
Using this parameter, an adjustment is made as to whether the threshold is predetermined as a parameter or is queried and modifiable via a communication object. The data type of the threshold always corresponds to that of the counter value. "not applicable": Threshold monitoring is not executed. "to be set by parameter": The threshold is set as a parameter. "to be set by object": A communication object via which the threshold can be queried and modified is supplemented.	
Threshold (1...4.296.067.294)	**4296067294**
This parameter is only visible if the parameter "Threshold" is set to "to be set by parameter". The threshold is adjusted via this parameter.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

3.2 Jointly configured inputs

All following parameter windows contain the below listed parameter for selection of the function of jointly configured inputs. This parameter is not repeated and described again with the individual functions.

Parameter	Settings
Function of input	**2-button dimming with stop telegram**; (2-button dimming with cyclical sending); 2-button solar protection control
This parameter is visible when a function shall be assigned to a pair of inputs. Depending on the selected setting for this parameter further parameters may become visible or hidden.	

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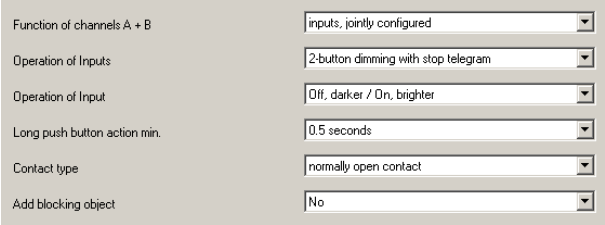
3.2.1-2-button dimming with stop telegram



Using the push button pair attached to the two channel inputs, the light can be switched on or off by a short push button action, while a long push button action brightens or dims. An adjustment can be made as to which push button (or channel) switches off and darkens and which one switches on and brightens.
"Dimming with two push buttons with stop telegram" is used to send a "100% brighter" or "100% darker" dimming telegram as soon as a long push button action has been recognized, while releasing the push button sends a stop telegram.

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, Switching 1	On / Off	1 bit	CRWT
ON or OFF switching telegrams are sent via the group address linked with this object. Adjustment via the "Operation of input" parameter defines which of the two channels the ON or OFF function is assigned to on short push button action, or whether the TOGGLE function is assigned to both.				
22	Channel A, Dimming	Brighter / Darker	4 bit	CRT
Dimming telegrams are sent via the group address linked with this object. Together with the assignment for switching on and off, adjustment via the "Operation of input" parameter defines which of the two channels generates a telegram for brighter / darker dimming on long push button action.				

Parameter	Settings
Operation of input	**Off, darker / On, brighter** On, brighter / Off, darker Toggle, darker / Toggle, brighter Toggle, brighter / Toggle, darker
Adjustment via this parameter defines which push button / channel is to be used to switch off and darken and which is to be used to switch on and brighten, or whether switching on both channels is to take place via a TOGGLE function.	

Parameter	Settings
Long push button action min.	0.3 Seconds 0.4 Seconds **0.5 Seconds** 0.6 Seconds 0.8 Seconds 1.0 Seconds 1.2 Seconds 1.5 Seconds 2.0 Seconds 2.5 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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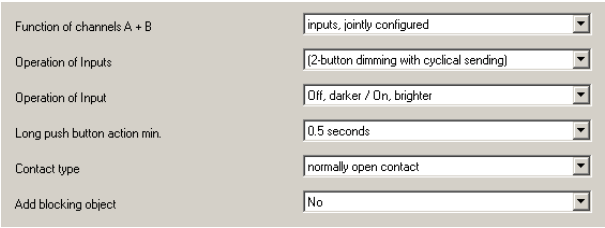
3.2.2 2-button dimming with cyclical sending



Using the push button pair attached to the two channel inputs, the light can be switched on or off by a short push button action, while a long push button action brightens or dims. An adjustment can be made as to which push button (or channel) switches off and darkens and which one switches on and brightens.
"2-button dimming with cyclical sending" sends, as soon as a long push button press action is detected, a dimming telegram brighter resp. darker with step 1/8 every 0.5 seconds, as long as a long push button press action is detected (i.e. in 4 seconds it may be dimmed from0% to 100% and vice versa).

Note: Instead of the "2-button dimming with cyclical sending" the"2-button dimming with stop telegram" should be used (lower bus traffic load because of much less telegrams).

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, Switching 1	On / Off	1 bit	CRWT
ON or OFF switching telegrams are sent via the group address linked with this object. Adjustment via the "Operation of input" parameter defines which of the two channels the ON or OFF function is assigned to on short push button action, or whether the TOGGLE function is assigned to both.				
22	Channel A, Dimmen	brighter / darker	4 bit	CRT
Dimming telegrams are sent via the group address linked with this object. Together with the assignment for switching on and off, adjustment via the "Operation of input" parameter defines which of the two channels generates a telegram for brighter / darker dimming on long push button action.				

Parameter	Settings
Operation of input	**Off, darker / On, brighter** On, brighter / Off, darker Toggle, darker / Toggle, brighter Toggle, brighter / Toggle, darker
Adjustment via this parameter defines which push button / channel is to be used to switch off and darken and which is to be used to switch on and brighten, or whether switching on both channels is to take place via a TOGGLE function.	
Long push button action min.	0.3 Seconds 0.4 Seconds **0.5 Seconds** 0.6 Seconds 0.8 Seconds 1.0 Seconds 1.2 Seconds 1.5 Seconds 2.0 Seconds 2.5 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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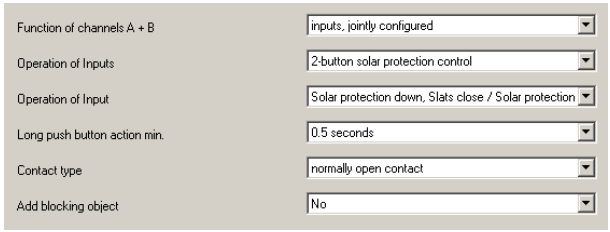
3.2.3 2-button solar protection control



Using one push button pair, the solar protection can be lowered or raised to the respective final position with a long push button action, while a short push button action ends the movement or adjusts the slats by one step. An adjustment can be made to define which push button (or channel) is used to lower the solar protection and close the slats by one step where necessary, and which is used to raise the solar protection and open the slats by one step where necessary.

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
21	Channel A, Solar protection	Up / Down	1 bit	CRWT
The movement commands Up / Down are sent via the group address linked with this object in order to raise / lower the solar protection. Adjustment via the "Operation of input" parameter defines which of the two channels generates an Up or Down telegram on long push button action.				
22	Channel A, Slats	Stop / Open / Close	1 bit	CRT
The commands "Stop" or "Slats open / close" are sent via the group address linked with this object. A short push button action always produces a command to stop the movement or to adjust the slats by one step. Together with the assignment for lowering and raising the solar protection, adjustment via the "Operation of input" parameter defines which of the two channels generates an Open or Close telegram on short push button action.				

Parameter	Settings
Operation of input	**Solar protection down, Slats close /** **Solar protection up, Slats open;** Solar protection up, Slats open / Solar protection down, Slats close
Adjustment via this parameter defines which channel is to lower the solar protection and close the slats and which channel is to raise the solar protection and open the slats.	

Parameter	Settings
Long push button action min.	0.3 Seconds 0.4 Seconds **0.5 Seconds** 0.6 Seconds 0.8 Seconds 1.0 Seconds 1.2 Seconds 1.5 Seconds 2.0 Seconds 2.5 Seconds 3.0 Seconds 4.0 Seconds 5.0 Seconds 6.0 Seconds 7.0 Seconds
This parameter determines the minimum period for detecting a long push button action.	
Contact type	**normally open contact** normally closed contact
The contact type of the push button attached to the channel is adjusted here. "normally open contact": the contact of the push button used is closed when activated, open when not activated. "normally closed contact": the contact of the push button used is open when activated, closed when not activated.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	

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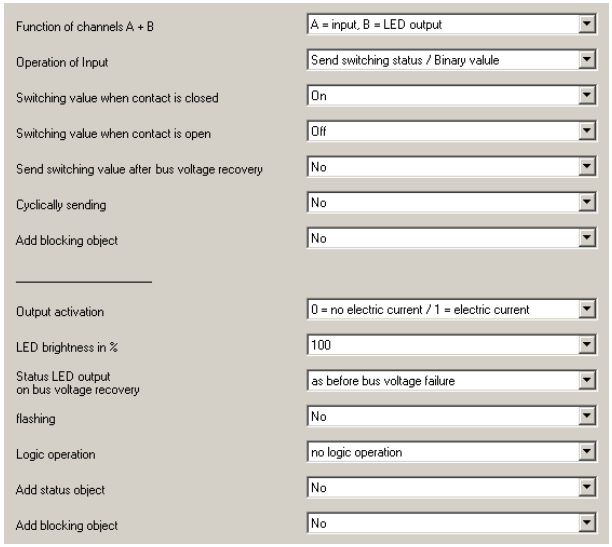
3.3 Channel A = input, Channel B = LED output

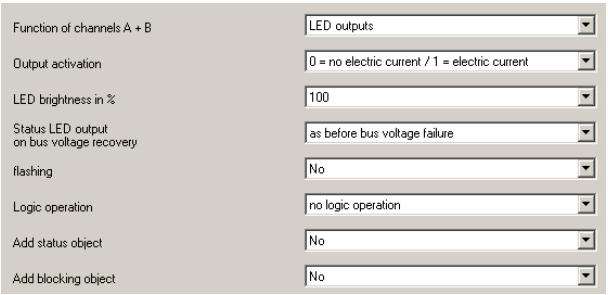


When the parameter setting "A = input; B = LED output" is selected as function for channels A+ B, the parameter settings for channel A follow chapter 3.1, separately configurable inputs, and the parameter settings for channel B follow chapter 3.4, LED output.

3.4 LED output

Note

Setting the parameters for channels A + B follows the same scheme. Therefore only the objects and parameter settings for channel B are described.



This parameter window allows setting the behavior of an output controlling an LED and its associated communication objects. You may set the brightness of the LED, whether it shall flash and with which flashing frequency, whether flashing must be acknowledged (after acknowledgement the flashing is replaced by steady LED light, as long as the output is switched on), whether the LED output is controlled via a logic link, and whether a blocking or a status object are desired.
An output can only flash when the parameter "flashing" is not set to "No". If additionally the parameter "logical combination" is not set to "No" then the output can only flash when result of the logical combination is true. When the flashing is acknowledged it changes to steady light.. If the logical combination is no longer fulfilled the flashing respectively the steady light switches off. If is is fulfilled again then the output flashes again until it is either acknowledged respectively switches off when the logical combination is no longer fulfilled.

The following objects are inserted automatically:

Obj	Object name	Function	Type	Flags
6	Channel B, LED	On / Off	1 bit	CWT
The switching telegram On resp. Off switching the LED on or off are received via the group address linked with this object.				

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Obj	Object name	Function	Type	Flags
7	Channel B, Confirmation	(On / Off)	1 bit	CWT
The telegram for acknowledgement of a flashing LED is received via the group address linked with this object. The binary value (0 or 1) transmitted with the telegram is irrelevant for the acknowledgement function. When the telegram is received, flashing of the LED turns into steady light as long as the LED output is switched on.				
8	Channel B, logic operation	On / Off	1 bit	CWT
Telegrams received via the group address linked with this object contain the current value for the second input of the selected logic operation controlling the LED output.				
9	Channel B, LED Status	On / Off	1 bit	CRT
After a change of value the current status of the LED is sent via the group address linked with this object.				
10	Channel B, blocking	On / Off	1 bit	CWT
Telegrams received via the group address linked with this object block or release reception of LED output control telegrams. While the LED output is blocked all other telegrams for control of the output are ignored.				

Parameter	Settings
Output activation	**0 = no electric current / 1 = electric current;** 0 = electric current / 1 = no electric current; always electric current (orientation light)
This parameter determines how the output is switched on: via a telegram with a logic „1" or a telegram with a logic „0" or whether it should be switched on permanently for the LED e.g. to serve as an orientation light. When the parameter is set to "always electric current" all objects disappear.	
LED brightness in %	25; 50; 75; **100**
This parameter allows for reducing the current through the LED if the light of the switched on LED is felt to be too bright.	
Status LED output on bus voltage recovery	**as before bus voltage failure**; no electric current; electric current
This parameter determines the desired switching state of the output on bus voltage recovery: as before bus voltage failure: The status of the LED saved at bus voltage failure is recalled from memory and is restored. no electric current: The LED output is switched off. electric current: The LED output is switched on.	

Parameter	Settings
Flashing	**No;** without confirmation; with confirmation
This parameter determines whether the LED, when switched on, shall flash and whether the flashing must be confirmed. For "Flashing with confirmation" the LED changes from flashing to steady light after a confirmation telegram was received, as long as the LED output is still switched on. When the LED is switched on again the last status remains.	
flashing frequency (in Hz)	0,3; **1,0;** 3,0
This parameter determines the frequency for the LED flashing. On and Off period are equally long.	
Logic operation	**no logic operation;** AND logic operation OR logic operation
This parameter determines whether the LED output is additionally controlled on and off via a logic operation with an additional object „logic operation".	
Initial value of logic operation object on bus voltage recovery	**as before bus voltage failure;** Off; On
This parameter is only visible when a logic operation is configured. This parameter determines the initial value of the logic operation object on bus voltage recovery.	
Add status object	**No**; Yes
This parameter determines whether the object „Status" is added, which enables automatically sending the current status of the LED output on change of value.	
Add blocking object	**No**; Yes
This parameter determines if the input can be blocked via an additional blocking object or not. If an input is blocked (blocking object value = 1) then status changes at this input are not transmitted.	
Status LED output on blocking	**as before blocking**; no electric current; electric current
This parameter determines the state that the LED output shall take after the LED output is blocked.	
Status LED output on unblocking	**as before unblocking**; no electric current; electric current
This parameter determines the state that the LED output shall take after the LED output is unblocked. "As before unblocking" refers to the current object status.	

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Space for notes

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