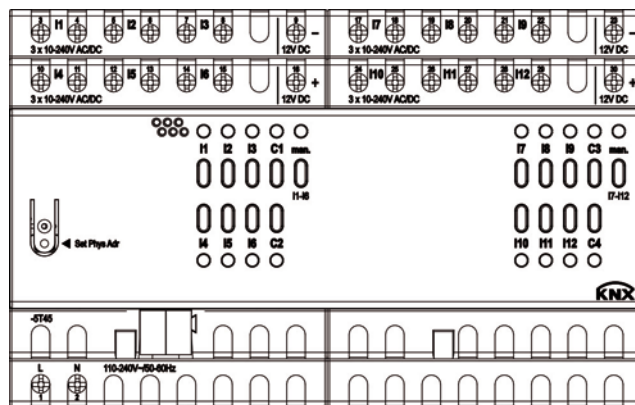


KNX Manual

Binary inputs

GBI-6K KNX, GBI-12K KNX



GBI-6K KNX	108388
GBI-12K KNX	108389

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2 Functional characteristics

- 6-/12-way binary input
- 6/12 floating universal and wide-range voltage inputs (10-240 V AC/DC or internally generated auxiliary voltage of approx. 12 V DC).
- 2/4 additional channels operable by buttons on the device, but without input.
- LED switching status indicator for each channel.
- Manual operation on device (even without bus voltage).
- Manual operation per channel for simulating the input states.
- All inputs can be operated with different voltages and at different potentials.
- Connectable cable length up to 100 m.
- Free allocation of functions: switch/push button, dimming, blinds/roller blinds, counter, repeat telegram, sequences.

3 Operation

3.1 Channel button and LED

The device has 6 or 12 binary inputs (I1-I6/I12) and 2 or 4 additional channels (C1, C2/C3, C4), which each have to be operated via a button on the device.

One button and one LED are available for each input.

The LED shows the current status of the input:

LED on = voltage present at the input.

The channel buttons simulate the inputs I1-I6/I12:

Pressing the button simulates applying the voltage to an input, (with edge evaluation: pressing = rising edge, releasing = falling edge).

This operating philosophy does not apply if the input is configured as a switch.

In this case, each push of the button inverts the previously detected edge.

I.e. the channel button can be used to invert the actual switching status.

The buttons on the device can be blocked via a parameter.

If a blocked button is operated, the channel LED flashes at a frequency of 2 Hz.

Channels C1 and C2 (C3, C4) have to be operated only on the device. The following functions are available:

- Push button
- Dimming
- Blinds
- Sequence

3.2 Manual button and LED

In manual mode, the inputs are not evaluated anymore.

Telegrams can only be generated via the buttons on the device.

If the "Manual" function is selected, the Manual LED is lit.

Any running time functions (delays) will be stopped.

This mode can be set or reset with the manual button or via object 78.

Whether manual mode should be ended after the expiry of a set time can also be defined.

3.2.1 Blocking the manual button

The function of the button can be blocked via a parameter, whereby the corresponding object also loses any function.

After unlocking, the inputs are active again.

Events during manual (by change of state at the inputs) will not be performed later. The "Manual" state will be reset in the event of a mains failure, but not in case of a bus failure.

4 Technical data

Operating voltage KNX	Bus voltage, ≤ 4 mA
Operating voltage	110–240 V AC, +10% / –15%
Frequency	50 – 60 Hz
Standby output	0.3 W / 0.5 W ¹
Inputs	6 / 12 ²
Auxiliary voltage	12 V DC, max. 18 mA, SELV
Connection of SELV to the inputs	only if all inputs (I1–I3 or I4–I6) are connected to SELV.
Protection rating	IP 20 in accordance with EN 60529
Protection class	II subject to designated installation
Operating temperature	–5 °C to +45 °C

¹ GBI-12K KNX

² GBI-12K KNX

5 The application programme "GBI-12K KNX"

5.1 Selection in the product database

Manufacturer	GARO AB
Product family	Binary inputs
Product type	GBI-6K KNX, GBI-12K KNX
Program name	GBI-12K KNX

Table 1

Number of communication objects	97
Number of group addresses	254
Number of associations	255

5.2 Communication objects

The objects are divided into channel-related and common objects. Name and function of the objects are determined by the selected channel function (parameter *Input function*). For reasons of clarity, only the objects of channel I1 are listed here.

Note: The *Switch*, *Counter* and *Repeat telegram* functions are not available with the additional channels C1 and C2:

5.2.1 SWITCH function

Table 2

No.	Object name	Function	Length DPT	Flags			
				C	R	W	T
0	Channel I1.1	Switching ON/OFF	1 bit 1.001	✓	✓	✓	✓
		Priority	2 bit 2.003	✓	✓	-	✓
		Send percentage value	1 byte 5.001	✓	✓	-	✓
		Send value	1 byte 5.010	✓	✓	-	✓
		2 byte DPT 9.x	2 byte 9.xxx	✓	✓	-	✓
		4 byte DPT 14.x	4 byte 14.xxx	✓	✓	-	✓
1	Channel I1.2	Switching ON/OFF	1 bit 1.001	✓	✓	✓	✓
		Priority	2 bit 2.003	✓	✓	-	✓
		Send percentage value	1 byte 5.001	✓	✓	-	✓
		Send value	1 byte 5.010	✓	✓	-	✓
		2 byte DPT 9.x	2 byte 9.xxx	✓	✓	-	✓
		4 byte DPT 14.x	4 byte 14.xxx	✓	✓	-	✓
2	Channel I1.3	Switching ON/OFF	1 bit 1.001	✓	✓	✓	✓
		Priority	2 bit 2.003	✓	✓	-	✓
		Send percentage value	1 byte 5.001	✓	✓	-	✓
		Send value	1 byte 5.010	✓	✓	-	✓
		2 byte DPT 9.x	2 byte 9.xxx	✓	✓	-	✓
		4 byte DPT 14.x	4 byte 14.xxx	✓	✓	-	✓

Continuation:

No.	Object name	Function	Length DPT	Flags			
				C	R	W	T
4	<i>Channel II</i>	<i>Block = 0</i>	1 bit 1.003	✓	✓	✓	-
	<i>Channel II</i>	<i>Block = 1</i>	1 bit 1.003	✓	✓	✓	-
5	<i>Channel II</i>	<i>Acknowledge alert</i>	1 bit 1.015	✓	✓	✓	-

5.2.2 PUSH BUTTON function

Table 3

No.	Object name	Function	Length DPT	Flags			
				C	R	W	T
0	Channel II.1	Switching ON/OFF	1 bit 1.001	✓	✓	✓	✓
		Priority	2 bit 2.003	✓	✓	-	✓
		Send percentage value	1 byte 5.001	✓	✓	-	✓
		Send value	1 byte 5.010	✓	✓	-	✓
		2 byte DPT 9.x	2 byte 9.xxx	✓	✓	-	✓
		4 byte DPT 14.x	4 byte 14.xxx	✓	✓	-	✓
1	Channel II.2	Switching ON/OFF	1 bit 1.001	✓	✓	✓	✓
		Priority	2 bit 2.003	✓	✓	-	✓
		Send percentage value	1 byte 5.001	✓	✓	-	✓
		Send value	1 byte 5.010	✓	✓	-	✓
		2 byte DPT 9.x	2 byte 9.xxx	✓	✓	-	✓
		4 byte DPT 14.x	4 byte 14.xxx	✓	✓	-	✓
2	Channel II.3	Switching ON/OFF	1 bit 1.001	✓	✓	✓	✓
		Priority	2 bit 2.003	✓	✓	-	✓
		Send percentage value	1 byte 5.001	✓	✓	-	✓
		Send value	1 byte 5.010	✓	✓	-	✓
		2 byte DPT 9.x	2 byte 9.xxx	✓	✓	-	✓
		4 byte DPT 14.x	4 byte 14.xxx	✓	✓	-	✓
4	Channel II	Block = 1	1 bit 1.003	✓	✓	✓	-
		Block = 0	1 bit 1.003	✓	✓	✓	-

5.2.3 DIMMING function

Table 4

No.	Object name	Function	Length DPT	Flags			
				C	R	W	T
0	<i>Channel II</i>	<i>Switching ON/OFF</i>	1 bit 1.001	✓	✓	✓	✓
1	<i>Channel II</i>	<i>Brighter/darker</i>	4 bit 3.007	✓	✓	-	✓
		<i>Brighter</i>	4 bit 3.007	✓	✓	✓	✓
		<i>Darker</i>	4 bit 3.007	✓	✓	✓	✓
2	<i>Channel II</i>	<i>Switching ON/OFF</i>	1 bit 1.001	✓	✓	✓	✓
		<i>Send percentage value</i>	1 byte 5.001	✓	✓	-	✓
		<i>Send value</i>	1 byte 5.010	✓	✓	-	✓
4	<i>Channel II</i>	<i>Block = 0</i>	1 bit 1.003	✓	✓	✓	-
		<i>Block = 1</i>	1 bit 1.003	✓	✓	✓	-

5.2.4 BLINDS function

Table 5

No.	Object name	Function	Length DPT	Flags			
				C	R	W	T
0	<i>Channel I1</i>	<i>Step/stop</i>	1 bit 1.010	✓	✓	-	✓
1	<i>Channel I1</i>	<i>UP/DOWN</i>	1 bit 1.008	✓	✓	✓	✓
		<i>UP</i>	1 bit 1.008	✓	✓	-	✓
		<i>DOWN</i>	1 bit 1.008	✓	✓	-	✓
2	<i>Channel I1.1</i>	<i>Switching ON/OFF</i>	1 bit 1.001	✓	✓	✓	✓
		<i>Send percentage value</i>	1 byte 5.001	✓	✓	-	✓
		<i>Height %</i>	1 byte 5.001	✓	✓	-	✓
		<i>Send value</i>	1 byte 5.010	✓	✓	-	✓
3	<i>Channel I1.2</i>	<i>Slat %</i>	1 byte 5.001	✓	✓	-	✓
4	<i>Channel I1</i>	<i>Block = 0</i>	1 bit 1.003	✓	✓	✓	-
		<i>Block = 1</i>	1 bit 1.003	✓	✓	✓	-

5.2.5 REPEAT TELEGRAM function

IMPORTANT:

For the *Repeat telegram* function, object 0 must be linked to at least 2 group addresses:

- One sending group address.
- One (or more) receiving group address.

Via the receiving address, the object is set to the desired value (receive telegrams).

The sending address repeats the previously received (saved) telegram, as soon as the input (button) is activated.

Table 6

No.	Object name	Function	Length DPT	Flags			
				C	R	W	T
0	<i>Channel II.1</i>	<i>Switching ON/OFF</i>	1 bit 1.001	✓	✓	✓	✓
		<i>Priority</i>	2 bit 2.003	✓	✓	✓	✓
		<i>Repeat 1 byte</i>	1 byte	✓	✓	✓	✓
		<i>2 byte DPT 9.x</i>	2 byte 9.xxx	✓	✓	✓	✓
		<i>4 byte DPT 14.x</i>	4 byte 14.xxx	✓	✓	✓	✓
4	<i>Channel II</i>	<i>Block = 0</i>	1 bit 1.003	✓	✓	✓	-
		<i>Block = 1</i>	1 bit 1.003	✓	✓	✓	-

5.2.6 COUNTER function

Table 7

No.	Object name	Function	Length DPT	Flags			
				C	R	W	T
0	<i>Channel II</i>	<i>Comparison value reached</i>	1 bit 1.002	✓	✓	-	✓
	<i>Channel II</i>	<i>Send counter value</i>	2 byte 7.001	✓	✓	-	✓
1	<i>Channel II</i>	<i>Current counter value</i>	2 byte 7.001	✓	✓	-	✓
4	<i>Channel II</i>	<i>l = block counter</i>	1 bit 1.003	✓	✓	✓	-
	<i>Channel II</i>	<i>l = enable counter</i>	1 bit 1.003	✓	✓	✓	-
5	<i>Channel II</i>	<i>Reset counter</i>	1 bit 1.015	✓	✓	✓	-

5.2.7 SEQUENCE function

Table 8

No.	Object name	Function	Length DPT	Flags			
				C	R	W	T
0	<i>Channel II.1</i>	<i>Switching ON/OFF</i>	1 bit 1.001	✓	✓	-	✓
	<i>Channel II.1</i>	<i>Priority</i>	2 bit 2.003	✓	✓	-	✓
	<i>Channel II.1</i>	<i>Send percentage value</i>	1 byte 5.001	✓	✓	-	✓
	<i>Channel II.1</i>	<i>Send value</i>	1 byte 5.010	✓	✓	-	✓
	<i>Channel II.1</i>	<i>2 byte DPT 9.x</i>	2 byte 9.xxx	✓	✓	-	✓
	<i>Channel II.1</i>	<i>4 byte DPT 14.x</i>	4 byte 14.xxx	✓	✓	-	✓
1	<i>Channel II.2</i>	<i>Switching ON/OFF</i>	1 bit 1.001	✓	✓	-	✓
	<i>Channel II.2</i>	<i>Priority</i>	2 bit 2.003	✓	✓	-	✓
	<i>Channel II.2</i>	<i>Send percentage value</i>	1 byte 5.001	✓	✓	-	✓
	<i>Channel II.2</i>	<i>Send value</i>	1 byte 5.010	✓	✓	-	✓
	<i>Channel II.2</i>	<i>2 byte DPT 9.x</i>	2 byte 9.xxx	✓	✓	-	✓
	<i>Channel II.2</i>	<i>4 byte DPT 14.x</i>	4 byte 14.xxx	✓	✓	-	✓
2	<i>Channel II.3</i>	<i>Switching ON/OFF</i>	1 bit 1.001	✓	✓	-	✓
	<i>Channel II.3</i>	<i>Priority</i>	2 bit 2.003	✓	✓	-	✓
	<i>Channel II.3</i>	<i>Send percentage value</i>	1 byte 5.001	✓	✓	-	✓
	<i>Channel II.3</i>	<i>Send value</i>	1 byte 5.010	✓	✓	-	✓
3	<i>Channel II.4</i>	<i>Switching ON/OFF</i>	1 bit 1.001	✓	✓	-	✓
	<i>Channel II.4</i>	<i>Priority</i>	2 bit 2.003	✓	✓	-	✓
	<i>Channel II.4</i>	<i>Send percentage value</i>	1 byte 5.001	✓	✓	-	✓
	<i>Channel II.4</i>	<i>Send value</i>	1 byte 5.010	✓	✓	-	✓
4	<i>Channel II</i>	<i>Block = 1</i>	1 bit 1.003	✓	✓	✓	-
	<i>Channel II</i>	<i>Block = 0</i>	1 bit 1.003	✓	✓	✓	-

5.2.8 Common objects

Table 9:

No.	Object name	Function	Type DPT	Flags			
				C	R	W	T
78	<i>I1 – I6</i>	<i>Manual</i>	1 bit 1.001	✓	✓	✓	✓
158	<i>I7 – I12</i>	<i>Manual</i>	1 bit 1.001	✓	✓	✓	✓
250	<i>Version of bus coupling unit</i>	<i>send</i>	14 byte 16.001	✓	✓	-	✓
251	<i>Firmware version 1</i>	<i>send</i>	14 byte 16.001	✓	✓	-	✓
252	<i>Firmware version 2</i>	<i>send</i>	14 byte 16.001	✓	✓	-	✓

5.2.9 Description of objects

5.2.9.1 Objects for the switch function

- **Object 0 "Channel II.1"**

First output object of the channel (First telegram).

6 telegram formats can be set:

Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

- **Object 1 "Channel II.2"**

Second output object of the channel (Second telegram).

6 telegram formats can be set:

Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

- **Object 2 "Channel II.3"**

Third output object of the channel (Third telegram).

6 telegram formats can be set:

Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

- **Object 4 "Block = 0, Block = 1"**

The channel is blocked via this object.

The acting direction and behaviour when setting or cancelling the block can be set on the block function parameter page.

- **Object 5 "Acknowledge alert"**

Only available if the channel is configured as an alert input.

Deletes the alert.

- **Objects 10-55**

Objects for channels I2-I6.

- **Objects 60-75**

This function is not supported by C1-C2.

5.2.9.2 Objects for the push button function

- **Object 0 "Channel II.1"**

First output object of the channel (First telegram).

6 telegram formats can be set:

Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

- **Object 1 "Channel II.2"**

Second output object of the channel (Second telegram).

6 telegram formats can be set:

Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

- **Object 2 "Channel II.3"**

Third output object of the channel (Third telegram).

6 telegram formats can be set:

Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

- **Object 4 "Block = 0, Block = 1"**

The channel is blocked via this object.

The acting direction and behaviour when setting or cancelling the block can be set on the block function parameter page.

- **Objects 10-75**

Objects for channels I2-I6 and C1-C2.

5.2.9.3 Objects for the dimming function

- **Object 0 "Switching ON/OFF"**

Switches the dimmer on and off

- **Object 1 "Brighter, darker, brighter/darker"**

4-bit dim commands for the dimmer.

- **Object 2 "Channel II.1"**

Output object for the additional function with double-click.

3 telegram formats can be set:

Switching ON/OFF, send percentage value, send 8-bit value.

- **Object 4 "Block = 0, Block = 1"**

The channel is blocked via this object.

The acting direction and behaviour when setting or cancelling the block can be set on the *configuration options and double-click* parameter pages.

- **Objects 10-75**

Objects for channels I2-I6 and C1-C2.

5.2.9.4 Objects for the blinds function

- **Object 0 "UP/DOWN"**

Sends operating command to the blind actuator.

- **Object 1 "Step/Stop"**

Sends Step/Stop commands to the blind actuator.

- **Object 2 "Channel II.1"**

First output object for the additional function with double-click.

4 telegram formats can be set:

Switching ON/OFF, send percentage value, send 8-bit value, send height %.

- **Object 3 "Channel II.3 (Slat %)"**

Second output object for the additional function with double-click: Slat %.

This object is only available if object type *Height % + Slat %* is selected.

- **Object 4 "Block = 0, Block = 1"**

The channel is blocked via this object.

The acting direction and behaviour when setting or cancelling the block can be set on the *configuration options and double-click* parameter pages.

- **Objects 10-75**

Objects for channels I2-I6 and C1-C2.

5.2.9.5 Objects for the repeat telegram function

- **Object 0 "Channel I1.1"**

When activating the input, the object sends the previously received telegram to the bus again.

6 telegram formats can be set:

1 bit (ON/OFF), 4 bit (priority), 1 byte (% , 1-255..), 2 byte (DPT 9.x), 4 byte (DPT 14.x).

- **Object 4 "Block = 0, Block = 1"**

The channel is blocked via this object.

The acting direction and behaviour when setting or cancelling the block can be set on the block function parameter page.

- **Objects 10-55**

Objects for channels I2-I6.

- **Objects 60-75**

This function is not supported by C1-C2.

5.2.9.6 Objects for the counter function

- **Object 0** "*Comparison value reached, send counter value*"

Table 10

Counter type	Object function
Event counter	Sends the current meter reading (0-65535).
Comparator	Reports, whether the preset comparison value is reached. See also: <i>Telegram once the comparison value is reached</i> parameter.

- **Object 4** "*1 = Block counter, 1 = Enable counter*"

The channel is blocked or enabled via this object.
The counter can be blocked with a 0 or with a 1.
See *Function of the input object* parameter.

- **Object 5** "*Reset counter*"

Reset counter to 0.

- **Objects 10-55**

Objects for channels I2-I6.

- **Objects 60-75**

This function is not supported by C1-C2.

5.2.9.7 Objects for the sequence function

- **Object 0 "Channel II.1"**

First output object of the channel (object 1).

6 telegram formats can be set:

Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

- **Object 1 "Channel II.2"**

Second output object of the channel (object 2).

6 telegram formats can be set:

Switching ON/OFF, priority, send percentage value, send value, 2 byte DPT 9.x, 4 byte DPT 14.x.

- **Object 2 "Channel II.3"**

Third output object of the channel (object 3).

4 telegram formats can be set:

Switching ON/OFF, priority, send percentage value, send value.

- **Object 3 "Channel II.4"**

Fourth output object of the channel (object 4).

4 telegram formats can be set:

Switching ON/OFF, priority, send percentage value, send value.

- **Object 4 "Block = 0, Block = 1"**

The channel is blocked via this object.

The acting direction and behaviour when setting or cancelling the block can be set on the block function parameter page.

- **Objects 10-75**

Objects for channels I2-I6 and C1-C2.

5.2.9.8 Common objects

- Objects 78, 158 "Manual"

Puts the device in manual mode or sends the status of the manual operation.

Table 11

Telegram	Meaning	Explanation
0	Auto	Device inputs and manual buttons are evaluated.
1	Manual	Only manual buttons are evaluated, the device inputs are not taken into account.

The duration of the manual mode, i.e. *operation of the manual button* is adjustable on the *General* parameter page.

After cancelling manual operation, the state of the channel is redefined, based on the hardware inputs. The "Manual" state will be reset in the event of a mains failure.

- **Object 250** "*Version of bus coupling unit*"

For diagnostic purposes only.

Sends the bus coupling unit software version after reset or download.
Can also be read out via the ETS.

Format: **Axx Hyy Vzzz**

Code	Meaning
xx	00 .. FF = Version of application without dividing point (14 = V1.4, 15 = V1.5 etc.).
yy	Hardware version 00..99
zzz	Firmware version 000..999

EXAMPLE: A11 H00 V09

- ETS Application version 1.1
- Hardware version \$00
- Firmware version \$09

- **Object 251, 252** "*Firmware version 1.2*"

For diagnostic purposes only.

Sends the firmware versions of the device after reset or download.
Can also be read out via the ETS.

The version is issued as an ASCII character string.

Format: **Mxx Hyy Vzzz**

Code	Meaning
xx	01 .. FF = Module code (hexadecimal).
yy	Hardware version 00..99
zzz	Firmware version 000..999

EXAMPLE: M92 H00 V09

- Module \$92 = GBI-12K KNX
- Hardware version V00
- Firmware version V09

5.3 Parameter

5.3.1 Parameter pages

Binary input 6 T has 6 identical, individually configurable input channels (I1-I6).
Via 2 push buttons on the device, 2 additional channels (C1-C2) can be controlled directly.

Each of the input channels I1-I6 can implement seven different functions.
Four of these functions are also available for channels C1 and C2:

- Push button
- Dimming
- Blinds
- Sequence

Table 12

Function	Description
<i>Channel I1 Configuration options</i>	Function of the input, activate block function etc.
<i>Objects for switch</i>	Object type, 1, 2 or 3 send telegrams.
<i>Objects for push buttons</i>	Object type, 1, 2 or 3 send telegrams.
<i>Dimming function</i>	Type of control
<i>Blinds function</i>	Type of control
<i>Double-click</i>	Additional telegrams for <i>dimming</i> and <i>blinds</i>
<i>Objects for repeat telegram</i>	Object type etc.
<i>Counter function</i>	Counter type, prescaler etc.
<i>Sequence function</i>	Settings for step 1 to step 4 of the telegram sequence
<i>Block function</i>	Reaction when activating/cancelling the block etc.

5.3.3 Parameters for the SWITCH function

5.3.3.1 Channel I1 parameter page: Configuration options

Table 14

Designation	Values	Description
<i>Sensitivity of the input</i>	<p>normal</p> <p><i>reduced</i></p>	<p>for normal application.</p> <p>Recommended in case of faulty control due to malfunctions, especially with long cables.</p> <p>Important: This setting can be used unrestrictedly for DC voltage control. With AC voltage only for input voltage ≥ 110 V AC suitable.</p>
<i>Input function</i>	<p>Switch..</p> <p><i>Push button..</i></p> <p><i>Dimming..</i></p> <p><i>Blinds..</i></p> <p><i>Repeat telegram..</i></p> <p><i>Counter..</i></p> <p><i>Sequence..</i></p>	<p>Sends, depending on whether the input is 0 or 1.</p> <p>See below.</p>
<i>Debounce time</i>	<p><i>30 ms</i></p> <p>50 ms</p> <p><i>80 ms</i></p> <p><i>100 ms</i></p> <p><i>200 ms</i></p> <p><i>1 s</i></p> <p><i>5 s</i></p> <p><i>10 s</i></p>	<p>In order to avoid a disruptive switching due to debouncing of the contact connected to the input, the new status of the input is only accepted after a delay time.</p> <p>Larger values (≥ 1s) can be used as a switch-on delay</p>
<i>Use channel as an alert input</i>	<p>no</p> <p><i>yes</i></p>	<p>Channel is used as a standard switch input.</p> <p>The input is used together with any alarm generator, e.g. alarm button, over-temperature switch, etc.</p>

Continuation:

Designation	Values	Description
<i>Cycle time</i>	2 min, 3 min, 5 min <i>10 min, 15 min, 20 min</i> <i>30 min, 45 min, 60 min</i>	Common cycle time for all 3 output objects of the channel.
<i>Activate block function</i>	no	No block function.
	<i>yes</i>	Show block function parameter page.
Parameter for channel as fault indicator		
<i>Report fault</i>	with rising edge <i>with falling edge</i>	Adjustment to the available alarm generator.
<i>Acknowledgement mandatory</i>	no	The alert is only as long active as the input.
	<i>yes</i>	Channel reports fault, which must be acknowledged. See appendix: Fault indicator function.
<i>Acting direction of the acknowledgement object</i>	acknowledge with 1 <i>acknowledge with 0</i>	Is the alert to be acknowledged with 1 or 0 telegram?
<i>Update after acknowledgement if fault still present</i>	<i>do not update automatically</i> <i>10 min, 20 min, 30 min</i> <i>40 min, 50 min</i> 1 h <i>1 h 10 min, 1 h 20 min</i> <i>1 h 30 min, 1 h 40 min</i> <i>1 h 50 min</i> 2 h <i>2 h 10 min, 2 h 20 min</i> <i>2 h 30 min</i>	Behaviour in case of acknowledgement if fault is permanently present at the input: Alert is terminated. If the fault is still present after acknowledgement, it will be alerted again after expiration of the set time. See appendix: Fault indicator function.

5.3.3.2 Objects for switch parameter page

Table 15

Designation	Values	Description	
FIRST TELEGRAM			
<i>Object type</i>	Switching (1 bit) Priority (2 bit) Value 0-255 Percentage value (1 byte) 2 byte floating-point number DPT 9.x 4 byte floating-point number DPT 14.x	Select telegram type for this channel.	
<i>Send if input = 1 (or fault active)</i>	no yes	Send if voltage is present at the input?	
<i>Telegram</i>	With object type = switching (1 bit)		
	ON	Send switch-on command	
	OFF	Send switch-off command	
	toggle	Invert current state (ON→OFF→ON etc.)	
	With object type = priority (2 bit)		
	inactive	Function	Value
		Priority not active (no control)	0 (00 _{bin})
		Priority ON (control: enable, on)	3 (11 _{bin})
	OFF	Priority OFF (control: disable, off)	2 (10 _{bin})
	With object type = value 0-255		
0-255	Any value between 0 and 255 can be sent.		
With object type = percentage value (1 byte)			
0-100%	Any percentage value between 0 and 100 % can be sent in 5 % increments.		
With object type = 2 byte floating-point number DPT 9.x			
<i>Value</i>	-999 to +999	The telegram is calculated from a value and a factor (teleg. = value x factor). Examples: Value 10 and factor 100 = 1000. Value 10 and factor 0.1 = 1.	
<i>Factor</i>	1 10 100 1000 10000 100000 0.01 0.1	Set base value Set factor (= multiplier).	

Continuation:

Designation	Values	Description								
	With object type = 4 byte floating-point number DPT 14.x									
<i>Value</i>	-999 to +999	Set base value								
<i>Factor</i>	1 10 100 1000 10000 100000 1,001,000 10⁷, 10⁸ 10⁹, 10¹⁰ 10¹¹, 10¹² 0.1 0.01 0.001	Set factor (= multiplier).								
<i>Send if input = 0 (or fault inactive)</i>	no yes	Send if no voltage is present at the input?								
<i>Telegram</i>	With object type = switching (1 bit)									
	ON OFF toggle	Send switch-on command Send switch-off command Invert current state (ON→OFF→ON etc.)								
	With object type = priority (2 bit)									
	inactive ON OFF	<table border="1"> <thead> <tr> <th>Function</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Priority not active (no control)</td> <td>0 (00_{bin})</td> </tr> <tr> <td>Priority ON (control: enable, on)</td> <td>3 (11_{bin})</td> </tr> <tr> <td>Priority OFF (control: disable, off)</td> <td>2 (10_{bin})</td> </tr> </tbody> </table>	Function	Value	Priority not active (no control)	0 (00 _{bin})	Priority ON (control: enable, on)	3 (11 _{bin})	Priority OFF (control: disable, off)	2 (10 _{bin})
Function	Value									
Priority not active (no control)	0 (00 _{bin})									
Priority ON (control: enable, on)	3 (11 _{bin})									
Priority OFF (control: disable, off)	2 (10 _{bin})									
	With object type = value 0-255									
	0-255	Any value between 0 and 255 can be sent.								
	With object type = percentage value (1 byte)									
	0-100%	Any percentage value between 0 and 100 % can be sent in 5 % increments.								
	With object type = 2 byte floating-point number DPT 9.x									
<i>Value</i>	-999 to +999	Set base value								
<i>Factor</i>	1 10 100 1000 10000 100000 0.01 0.1	Set factor (= multiplier).								

Continuation:

Designation	Values	Description
	With object type = 4 byte floating-point number DPT 14.x	
<i>Value</i>	-999 to +999	Set base value
<i>Factor</i>	1 10 100 1000 10000 100000 1,001,000 10 ⁷ , 10 ⁸ 10 ⁹ , 10 ¹⁰ 10 ¹¹ , 10 ¹² 0.1 0.01 0.001	Set factor (= multiplier).
<i>Send telegram cyclically</i>	no yes, always only if input = 1 (or fault active) only if input = 0 (or fault inactive)	do not send cyclically. Send cyclically. send cyclically only with one state.
<i>Response after bus and mains restoration</i>	none update (after 5 s) update (after 10 s) update (after 15 s)	Do not send. Send update telegram with delay.
<i>Send a second telegram?</i>	no yes	Only one output object should be active. A second output object including parameters is shown and enables the sending of 2 telegrams.
SECOND TELEGRAM → see above, FIRST TELEGRAM .		
<i>Send a third telegram?</i>	no yes	Only two output objects should be active. A third output object including parameters is shown and enables the sending of 3 telegrams.
THIRD TELEGRAM → see above, FIRST TELEGRAM .		

5.3.3.3 Block function parameter page

Table 16

Designation	Values	Description
Block telegram	Block with 1 (standard)	0 = enable 1 = block
	Block with 0	0 = block 1 = enable
FIRST TELEGRAM		
Response when setting the block	Ignore block	Block function is ineffective with this telegram.
	no response	Do not respond when setting the block.
	<i>As with input = 1 (or fault active)</i>	React as if input is set to 1 or fault is reported.
	<i>As with input = 0 (or fault inactive)</i>	React as if input is set to 0 or no fault is reported.
Response when cancelling the block	no response	Do not respond when the block is cancelled.
	update	Send the current channel status.
SECOND TELEGRAM		
Response when setting the block	Ignore block	Block function is ineffective with this telegram.
	no response	Do not respond when setting the block.
	<i>As with input = 1 (or fault active)</i>	React as if input is set to 1 or fault is reported.
	<i>As with input = 0 (or fault inactive)</i>	React as if input is set to 0 or no fault is reported.
Response when cancelling the block	no response	Do not respond when the block is cancelled.
	update	Send the current channel status.

Continuation:

Designation	Values	Description
<i>THIRD TELEGRAM</i>		
<i>Response when setting the block</i>	<i>Ignore block</i>	Block function is ineffective with this telegram.
	<i>no response</i>	Do not respond when setting the block.
	<i>As with input = 1 (or fault active)</i>	React as if input is set to 1 or fault is reported.
	<i>As with input = 0 (or fault inactive)</i>	React as if input is set to 0 or no fault is reported.
<i>Response when cancelling the block</i>	<i>no response</i>	Do not respond when the block is cancelled.
	<i>update</i>	Send the current channel status.

Note: If a channel is blocked, no telegrams will be sent cyclically.

5.3.4 Parameters for the PUSH BUTTON function

5.3.4.1 Channel I1 parameter page: Configuration options

Table 17

Designation	Values	Description
<i>Sensitivity of the input</i>	<i>normal</i> <i>reduced</i>	for normal application. Recommended in case of faulty control due to malfunctions, especially with long cables. Important: This setting can be used unrestrictedly for DC voltage control. With AC voltage only for input voltage ≥ 110 V AC suitable.
<i>Input function</i>	<i>Switch..</i> <i>Push button..</i> <i>Dimming..</i> <i>Blinds..</i> <i>Repeat telegram..</i> <i>Counter..</i> <i>Sequence..</i>	See above. A push button is connected to the input. See below
<i>Connected push button</i>	<i>NO contact</i> <i>Opening contact</i>	Set the Type of connected contact.
<i>Debounce time</i>	<i>30 ms</i> <i>50 ms</i> <i>80 ms</i> <i>100 ms</i> <i>200 ms</i> <i>1 s</i> <i>5 s</i> <i>10 s</i>	In order to avoid a disruptive switching due to debouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values (≥ 1 s) can be used as a switch-on delay
<i>Long button push starting at</i>	<i>300 ms</i> <i>400 ms</i> <i>500 ms</i> <i>600 ms</i> <i>700 ms</i> <i>800 ms</i> <i>900 ms</i> <i>1 s</i>	Serves to clearly differentiate between long and short button push. If the push button is pressed for at least as long as the set time, then a long button push will be registered.

Continuation:

Designation	Values	Description
<i>Time for double-click</i>	<i>300 ms, 400 ms, 500 ms 600 ms, 700 ms, 800 ms 900 ms 1 s</i>	Serves to differentiate between a double-click and 2 single clicks. Time period in which the second click must begin, in order to recognise a double-click.
<i>Cycle time</i>	<i>2 min, 3 min, 5 min 10 min, 15 min, 20 min 30 min, 45 min, 60 min</i>	Common cycle time for all 3 output objects of the channel.
<i>Activate block function</i>	<i>no yes</i>	No block function. Show block function parameter page.

5.3.4.2 Objects for push buttons parameter page

Table 18

Designation	Values	Description	
FIRST TELEGRAM			
<i>Object type</i>	Switching (1 bit) Priority (2 bit) Value 0-255 Percentage value (1 byte) 2 byte floating-point number DPT 9.x 4 byte floating-point number DPT 14.x	Select telegram type for this channel.	
<i>After short operation</i>	do not send Send telegram	Respond to short button push?	
<i>Telegram</i>	With object type = switching (1 bit)		
	ON	Send switch-on command	
	OFF	Send switch-off command	
	toggle	Invert current state (ON→OFF→ON etc.)	
	With object type = priority (2 bit)		
	inactive	Function	Value
		Priority not active (no control)	0 (00 _{bin})
		ON Priority ON Priority ON (control: enable, on)	3 (11 _{bin})
	OFF Priority OFF (control: disable, off)	2 (10 _{bin})	
	With object type = value 0-255		
0-255	Any value between 0 and 255 can be sent.		
With object type = percentage value (1 byte)			
0-100%	Any percentage value between 0 and 100 % can be sent in 5 % increments.		
With object type = 2 byte floating-point number DPT 9.x			
<i>Value</i>	-999 to +999	The telegram is calculated from a value and a factor (teleg. = value x factor). Examples: Value 10 and factor 100 = 1000. Value 10 and factor 0.1 = 1.	
<i>Factor</i>	1 10 100 1000 10000 100000 0.01 0.1	Set base value Set factor (= multiplier).	

Continuation:

Designation	Values	Description
	With object type = 4 byte floating-point number DPT 14.x	
<i>Value</i>	-999 to +999	Set base value
<i>Factor</i>	1 10 100 1000 10000 100000 1,001,000 10⁷, 10⁸ 10⁹, 10¹⁰ 10¹¹, 10¹² 0.1 0.01 0.001	Set factor (= multiplier).
<i>After long operation</i>	<i>do not send</i> Send telegram	Respond to long button push?
<i>Telegram</i>	See above: Same object type as with short operation.	
<i>After double-click</i>	<i>do not send</i> Send telegram	Respond to double-click?
<i>Telegram</i>	See above: Same object type as with short operation.	
<i>Send telegram cyclically</i>	no <i>yes, always</i> <i>only if input = 1 (or fault active)</i> <i>only if input = 0 (or fault inactive)</i>	do not send cyclically. Send cyclically. send cyclically only with one state.
<i>Response after bus and mains restoration</i>	none <i>update (after 5 s)</i> <i>update (after 10 s)</i> <i>update (after 15 s)</i>	Do not send. Send update telegram with delay
<i>Send a second telegram?</i>	no yes	Only one output object should be active. A second output object including parameters is shown and enables the sending of 2 telegrams.
SECOND TELEGRAM → see above, FIRST TELEGRAM .		
<i>Send a third telegram?</i>	no yes	A third output object and its parameters is shown. The channel sends 3 telegrams.
THIRD TELEGRAM → see above, FIRST TELEGRAM .		

5.3.4.3 Block function parameter page

Table 19

Designation	Values	Description
Block telegram	Block with 1 (standard) <i>Block with 0</i>	0 = enable 1 = block 0 = block 1 = enable
FIRST TELEGRAM		
<i>Response when setting the block</i>	<i>Ignore block</i> no response <i>as with short</i> <i>as with long</i> <i>as with double-click</i>	Block function is ineffective with this telegram. Do not respond when setting the block. Respond as with a short button push. Respond as with a long button push. Respond as with a double-click.
<i>Response when cancelling the block</i>	no response <i>as with short</i> <i>as with long</i> <i>as with double-click</i>	Do not respond when the block is cancelled. Respond as with a short button push. Respond as with a long button push. Respond as with a double-click.
SECOND TELEGRAM (if used)		
<i>Response when setting the block</i>	<i>Ignore block</i> no response <i>as with short</i> <i>as with long</i> <i>as with double-click</i>	Block function is ineffective with this telegram. Do not respond when setting the block. Respond as with a short button push. Respond as with a long button push. Respond as with a double-click.

Continuation:

Designation	Values	Description
<i>Response when cancelling the block</i>	<i>no response</i>	Do not respond when the block is cancelled.
	<i>as with short</i>	Respond as with a short button push.
	<i>as with long</i>	Respond as with a long button push.
	<i>as with double-click</i>	Respond as with a double-click.
<i>THIRD TELEGRAM (if used)</i>		
<i>Response when setting the block</i>	<i>Ignore block</i>	Block function is ineffective with this telegram.
	<i>no response</i>	Do not respond when setting the block.
	<i>as with short</i>	Respond as with a short button push.
	<i>as with long</i>	Respond as with a long button push.
<i>Response when cancelling the block</i>	<i>no response</i>	Do not respond when the block is cancelled.
	<i>as with short</i>	Respond as with a short button push.
	<i>as with long</i>	Respond as with a long button push.
	<i>as with double-click</i>	Respond as with a double-click.

Note: If a channel is blocked, no telegrams will be sent cyclically.

5.3.5 Parameters for the DIMMING function

The input is connected to a button and sends ON/OFF and relative dim commands (brighter/darker) to a KNX dimming actuator.

5.3.5.1 Channel I1 parameter page: Configuration options

Table 20

Designation	Values	Description
<i>Sensitivity of the input</i>	<p><i>normal</i></p> <p><i>reduced</i></p>	<p>for normal application.</p> <p>Recommended in case of faulty control due to malfunctions, especially with long cables.</p> <p>Important: This setting can be used unrestrictedly for DC voltage control. With AC voltage only for input voltage ≥ 110 V AC suitable.</p>
<i>Input function</i>	<p><i>Switch..</i></p> <p><i>Push button..</i></p> <p><i>Dimming..</i></p> <p><i>Blinds..</i></p> <p><i>Repeat telegram..</i></p> <p><i>Counter..</i></p> <p><i>Sequence..</i></p>	<p>See above.</p> <p>The input controls a dimming actuator, See below</p>
<i>Debounce time</i>	<p><i>30 ms</i></p> <p><i>50 ms</i></p> <p><i>80 ms</i></p> <p><i>100 ms</i></p> <p><i>200 ms</i></p> <p><i>1 s</i></p> <p><i>5 s</i></p> <p><i>10 s</i></p>	<p>In order to avoid a disruptive switching due to debouncing of the contact connected to the input, the new status of the input is only accepted after a delay time.</p> <p>Larger values (≥ 1s) can be used as a switch-on delay</p>
<i>Block telegram (if used)</i>	<p><i>Block with 1 (standard)</i></p> <p><i>Block with 0</i></p>	<p>0 = enable 1 = block</p> <p>0 = block 1 = enable</p>

Continuation:

Designation	Values	Description
<i>Response when setting the block</i>	Ignore block	Block function is ineffective with this telegram.
	<i>no response</i>	Do not respond when setting the block.
	<i>ON</i> <i>OFF</i>	Switch on dimmer Switch off dimmer
<i>Response when cancelling the block</i>	<i>no response</i>	Do not respond when the block is cancelled.
	<i>ON</i> <i>OFF</i>	Switch on dimmer Switch off dimmer
	<i>Response in case of bus and mains restoration</i>	<i>none</i>
<i>ON</i>		Switch on dimmer
<i>OFF</i>		Switch off dimmer
<i>after 5 s ON</i> <i>after 10 s ON</i> <i>after 15 s ON</i>		Switch on dimmer with delay
<i>after 5 s OFF</i> <i>after 10 s OFF</i> <i>after 15 s OFF</i>		Switch off dimmer with delay
<i>Additional function with double-click</i>		<i>no</i>
	<i>yes..</i>	The double-click parameter page is shown.

Note: If a channel is blocked, no telegrams will be sent cyclically.

5.3.5.2 Dimming function parameter page

Table 21

Designation	Values	Description
<i>Long button push starting at</i>	300 .. 1000ms	This function serves to clearly differentiate between long and short button pushes. If the push button is pressed for at least as long as the set time, then a long button push will be registered.
<i>Response to "long" / "short"</i>	<p>Single-surface operation</p> <p><i>brighter/ON</i></p> <p><i>brighter/toggle</i></p> <p><i>darker/OFF</i></p> <p><i>darker/toggle</i></p>	<p>The input distinguishes between a long and a short button push, and can thus carry out 2 functions.</p> <p>The dimmer is operated with a single push button. Short button push = ON/OFF Long button push = brighter/darker, Release = stop</p> <p>With the other variants, the dimmer is operated using 2 buttons (rocker).</p> <p>Short button push = ON Long button push = brighter Release = stop</p> <p>Short button push = ON/OFF Long button push = brighter Release = stop</p> <p>Short button push = OFF Long button push = darker Release = stop</p> <p>Short button push = ON/OFF Long button push = darker Release = stop</p>

Continuation:

Designation	Values	Description
<i>Increment for dimming</i>	<p style="text-align: right;">100%</p> <p style="text-align: right;">50%</p> <p style="text-align: right;">25%</p> <p style="text-align: right;">12.5%</p> <p style="text-align: right;">6%</p> <p style="text-align: right;">3%</p> <p style="text-align: right;">1.5%</p>	<p>With a long button push, the dimming value is:</p> <p>Increased (or decreased) until the button is released.</p> <p>Increased by the selected value (or reduced)</p>

5.3.5.3 Double-click parameter page

With a double-click, additional telegrams can be sent to the bus, independently of the dimming function.

Table 22

Designation	Values	Description
<i>Time for double-click</i>	<i>300 ms, 400 ms, 500 ms 600 ms, 700 ms, 800 ms 900 ms 1 s</i>	Serves to differentiate between a double-click and 2 single clicks. Time period in which the second click must begin, in order to recognise a double-click.
<i>Object type</i>	Switching (1 bit) <i>Value 0-255 Percentage value (1 byte)</i>	Select telegram type.
<i>Telegram</i>	With object type = switching (1 bit)	
	ON	Send switch-on command
	OFF	Send switch-off command
	toggle	Invert current state (ON→OFF→ON etc.)
	With object type = value 0-255	
	0-255	Any value between 0 and 255 can be sent.
<i>Telegram</i>	With object type = percentage value (1 byte)	
		0-100%
<i>Send telegram cyclically</i>	<i>no yes</i>	do not send cyclically. Send cyclically.
<i>Cycle time</i>	2 min, 3 min, 5 min 10 min, 15 min, 20 min 30 min, 45 min, 60 min	Cycle time for the double-click function
<i>Response when setting the block</i>	Ignore block	Block function is ineffective with this telegram.
	<i>no response</i>	Do not respond when setting the block.
	<i>as with double-click</i>	Respond as with a double-click.
<i>Response when cancelling the block</i>	no response	Do not respond when the block is cancelled.
	<i>as with double-click</i>	Respond as with a double-click.

Continuation:

Designation	Values	Description
<i>Response after bus and mains restoration</i>	<p>none</p> <p><i>as after double-click (after 5 s)</i></p> <p><i>as after double-click (after 10 s)</i></p> <p><i>as after double-click (after 15 s)</i></p>	<p>Do not send.</p> <p>Send update telegram with delay</p>

Note: If a channel is blocked, no telegrams will be sent cyclically.

5.3.6 Parameters for the BLINDS function

The input is connected to a button and sends STEP/STOP and operating commands (UP/DOWN) to a blinds actuator.

5.3.6.1 Channel I1 parameter page: Configuration options

Table 23

Designation	Values	Description
<i>Sensitivity of the input</i>	<i>normal</i> <i>reduced</i>	for normal application. Recommended in case of faulty control due to malfunctions, especially with long cables. Important: This setting can be used unrestrictedly for DC voltage control. With AC voltage only for input voltage ≥ 110 V AC suitable.
<i>Input function</i>	<i>Switch..</i> <i>Push button..</i> <i>Dimming..</i> <i>Blinds..</i> <i>Repeat telegram..</i> <i>Counter..</i> <i>Sequence..</i>	See above. The input controls a blinds actuator. See below.
<i>Debounce time</i>	<i>30 ms</i> <i>50 ms</i> <i>80 ms</i> <i>100 ms</i> <i>200 ms</i> <i>1 s</i> <i>5 s</i> <i>10 s</i>	In order to avoid a disruptive switching due to debouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values (≥ 1 s) can be used as a switch-on delay
<i>Long button push starting at</i>	<i>300 .. 1000ms</i>	This function serves to clearly differentiate between long and short button pushes. If the push button is pressed for at least as long as the set time, then a long button push will be registered.

Continuation:

Designation	Values	Description
<i>Block telegram (if used)</i>	<i>Block with 1 (standard)</i>	0 = enable 1 = block
	<i>Block with 0</i>	0 = block 1 = enable
<i>Response when setting the block</i>	<i>Ignore block</i>	Block function is ineffective with this telegram.
	<i>no response</i>	Do not respond when setting the block.
	<i>UP</i> <i>DOWN</i>	Raise the blind Lower blinds
<i>Response when cancelling the block</i>	<i>no response</i>	Do not respond when the block is cancelled.
	<i>UP</i> <i>DOWN</i>	Raise the blind Lower blinds
	<i>none</i>	Do not react.
<i>Response in case of bus and mains restoration</i>	<i>UP</i>	Raise the blind
	<i>DOWN</i>	Lower blinds
	<i>after 5 s UP</i> <i>after 10 s UP</i> <i>after 15 s UP</i>	Raise blinds with delay
	<i>after 5 s DOWN</i> <i>after 10 s DOWN</i> <i>after 15 s DOWN</i>	Lower blinds with delay
	<i>no</i>	No double-click function
	<i>yes..</i>	The double-click parameter page is shown.

Note: If a channel is blocked, no telegrams will be sent cyclically.

5.3.6.2 Blinds function parameter page

Table 24

Designation	Values	Description
<i>Operation</i>	<i>Single-surface operation</i>	The input distinguishes between a long and a short button push, and can thus carry out 2 functions. The blinds are operated with a single push button. Short button push = Step. Long button push = Move.
	<i>DOWN</i>	Short button push = Step. Long button push = lowering.
	<i>UP</i>	Short button push = Step. Long button push = raising.
<i>Movement is stopped by</i>	<i>releasing the button</i> <i>Short operation</i>	How is the stop command to be triggered?

5.3.6.3 Double-click parameter page

With a double-click, additional telegrams can be sent to the bus, independently of the blinds function.

Table 25

Designation	Values	Description
<i>Time for double-click</i>	<i>300 ms, 400 ms, 500 ms 600 ms, 700 ms, 800 ms 900 ms 1 s</i>	Serves to differentiate between a double-click and 2 single clicks. Time period in which the second click must begin, in order to recognise a double-click.
<i>Object type</i>	<i>Switching (1 bit)</i>	Switching telegrams.
	<i>Value 0-255</i>	8 bit value.
	<i>Percentage value (1 byte)</i>	Percent.
	<i>Height % + slat %</i>	Send 2 telegrams: height of blinds and slat position.
<i>Telegram</i>	With object type = <i>switching (1 bit)</i>	
	<i>ON</i>	Send switch-on command
	<i>OFF</i>	Send switch-off command
	<i>toggle</i>	Invert current state (ON → OFF → ON etc.)
	With object type = <i>value 0-255</i>	
	<i>0-255</i>	Any value between 0 and 255 can be sent.
<i>Telegram</i>	With object type = <i>percentage value (1 byte)</i>	
	<i>0-100%</i>	Any percentage value between 0 and 100% can be sent in 5% increments.
With object type = <i>height % + slat %</i>		
<i>Height</i>	<i>0-100%</i> Default value = 50%	Desired height for blinds.
<i>Slat</i>	<i>0-100%</i> Default value = 75%	Desired slat position for blinds.
<i>Send telegram cyclically</i>	<i>no</i> <i>yes</i>	do not send cyclically. Send cyclically.
<i>Cycle time</i>	<i>2 min, 3 min, 5 min 10 min, 15 min, 20 min 30 min, 45 min, 60 min</i>	Cycle time for the double-click function

Continuation:

Designation	Values	Description
<i>Response when setting the block</i>	Ignore block	Block function is ineffective with this telegram.
	<i>no response</i>	Do not respond when setting the block.
	<i>as with double-click</i>	Respond as with a double-click.
<i>Response when cancelling the block</i>	no response	Do not respond when the block is cancelled.
	<i>as with double-click</i>	Respond as with a double-click.
<i>Response after bus and mains restoration</i>	none	Do not send.
	<i>as after double-click (immediately)</i>	Send update telegram without delay
	<i>as after double-click (after 5 s)</i>	Send update telegram with delay
	<i>as after double-click (after 10 s)</i>	
<i>as after double-click (after 15 s)</i>		

Note: If a channel is blocked, no telegrams will be sent cyclically.

5.3.7 Parameter for the REPEAT TELEGRAM function

With this function, the previously received telegram will be saved and can be sent again with the push of a button.

5.3.7.1 Channel I1 parameter page: Configuration options

Table 26

Designation	Values	Description
<i>Sensitivity of the input</i>	<p><i>normal</i></p> <p><i>reduced</i></p>	<p>for normal application.</p> <p>Recommended in case of faulty control due to malfunctions, especially with long cables.</p> <p>Important: This setting can be used unrestrictedly for DC voltage control. With AC voltage only for input voltage ≥ 110 V AC suitable.</p>
<i>Input function</i>	<p><i>Switch..</i></p> <p><i>Push button..</i></p> <p><i>Dimming..</i></p> <p><i>Blinds..</i></p> <p><i>Repeat telegram..</i></p> <p><i>Counter..</i></p> <p><i>Sequence..</i></p>	<p>See above.</p> <p>The previously received telegram is sent to the bus again when the input is activated.</p> <p>See below</p>
<i>Debounce time</i>	<p><i>30 ms</i></p> <p><i>50 ms</i></p> <p><i>80 ms</i></p> <p><i>100 ms</i></p> <p><i>200 ms</i></p> <p><i>1 s</i></p> <p><i>5 s</i></p> <p><i>10 s</i></p>	<p>In order to avoid a disruptive switching due to debouncing of the contact connected to the input, the new status of the input is only accepted after a delay time.</p> <p>Larger values (≥ 1s) can be used as a switch-on delay</p>
<i>Activate block function</i>	<p><i>no</i></p> <p><i>yes</i></p>	<p>No block function.</p> <p>Show block function parameter page.</p>

Continuation:

Designation	Values	Description
<i>Save object value in the event of bus and mains failure</i>	<i>no</i>	The previously received telegram will be lost because of a bus or mains failure.
	<i>yes</i>	The previously received telegram will be preserved, even after bus or mains restoration.
<i>Delete object value at download</i>	<i>no</i>	The saved telegram will not be deleted by a download.
	<i>yes</i>	The saved telegram will be lost after a download.

5.3.7.2 Objects for repeat telegram parameter page

Table 27

Designation	Values	Description
<i>Object type</i>	1 bit (e.g. switching) 2 bit (e.g. priority) 1 byte (e.g. 0-255, % etc.) 2 byte (e.g. DPT 9.x) 4 byte (e.g. DPT 14.x)	Select data type of the telegram to be repeated.
<i>Response after bus and mains restoration³</i>	none <i>send immediately</i> <i>send after 5 s</i> <i>send after 10 s</i> <i>send after 15 s</i>	Do not send. Send without delay Send with delay.

³ IMPORTANT: Sending after bus and mains restoration is only possible if a value has been saved, i.e. if the parameter *Save object value in the event of bus and mains failure* is set to *yes*.

5.3.7.3 Block function parameter page

Table 28

Designation	Values	Description
Block telegram	<i>Block with 1 (standard)</i>	0 = enable 1 = block
	<i>Block with 0</i>	0 = block 1 = enable
<i>FIRST TELEGRAM</i>		
<i>Response when setting the block</i>	<i>Ignore block</i>	Block function is ineffective.
	<i>no response</i>	Do not respond when setting the block.
	<i>Repeat telegram</i>	Send the saved telegram.
<i>Response when cancelling the block</i>	<i>no response</i>	Do not respond when the block is cancelled.
	<i>Repeat telegram</i>	Send the saved telegram.

5.3.8 Parameters for the COUNTER function

Basic functionalities:

2 basic types of counter are possible:

- The event counter is incremented and sends its status to the bus
- The comparator compares the meter reading with a fixed configured counter value (comparison value). When the comparison value is reached, the channel sends a preset telegram to the bus, and the counter is reset.

Moreover, if necessary both the rising and the falling signal edge can be evaluated.

The counting capacity is up to 65535, and can be extended to 65,535,000 through the use of the prescaler.

Continuation:

Designation	Values	Description
<i>Save meter reading in the event of bus and mains failure</i>	<i>no</i>	The meter reading will be lost because of a bus or mains failure.
	<i>yes</i>	The meter reading will be preserved, even after bus or mains restoration.
<i>Reset meter reading at download</i>	<i>no</i>	The meter reading will be preserved after a download.
	<i>yes</i>	The meter reading will be lost after a download.

Continuation:

Designation	Values	Description
<i>All send meter reading</i>	<i>1 .. 1000</i>	Only for counter type: event counter. At what counter interval is the current meter reading to be sent?
<i>Comparison value</i>	<i>1 .. 1000</i>	Only for counter type: comparator What value should the counter (comparator) count up to?
<i>Telegram once the comparison value is reached</i>	<p><i>OFF otherwise ON</i></p> <p><i>ON otherwise no</i></p> <p><i>OFF otherwise no</i></p> <p><i>ON otherwise OFF</i></p>	<p>Only for counter type: comparator.</p> <p>When the comparison value is reached, send OFF, and as long as the value is not reached, send ON.</p> <p>Send only when the comparison value has been reached (ON telegram).</p> <p>Send only when the comparison value has been reached (OFF telegram).</p> <p>When the comparison value is reached, send ON, and as long as the value is not reached, send OFF.</p>
<i>Send telegram cyclically</i>	<p><i>no</i></p> <p><i>yes</i></p>	<p>do not send cyclically.</p> <p>Send cyclically.</p>
<i>Cycle time</i>	<p><i>2 min, 3 min, 5 min</i></p> <p><i>10 min, 15 min, 20 min</i></p> <p><i>30 min, 45 min, 60 min</i></p>	Cycle time.

Note: If a channel is blocked, no telegrams will be sent cyclically.

5.3.9 Parameters for the SEQUENCE function

The sequence function allows sending certain telegrams consecutively with a push button. A sequence consists of 4 single steps and can use up to 4 output objects. At each step, these objects can send different values. See appendix: Sequence function.

5.3.9.1 Channel I1 parameter page: Configuration options

Table 31

Designation	Values	Description
<i>Sensitivity of the input</i>	<i>normal</i> <i>reduced</i>	for normal application. Recommended in case of faulty control due to malfunctions, especially with long cables. Important: This setting can be used unrestrictedly for DC voltage control. With AC voltage only for input voltage ≥ 110 V AC suitable.
<i>Input function</i>	<i>Switch..</i> <i>Push button..</i> <i>Dimming..</i> <i>Blinds..</i> <i>Repeat telegram..</i> <i>Counter..</i> <i>Sequence..</i>	See above. Send individual 4 step telegram sequence with up to 4 telegrams per step.
<i>Debounce time</i>	<i>30 ms</i> <i>50 ms</i> <i>80 ms</i> <i>100 ms</i> <i>200 ms</i> <i>1 s</i> <i>5 s</i> <i>10 s</i>	In order to avoid a disruptive switching due to debouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values (≥ 1 s) can be used as a switch-on delay

Continuation:

Designation	Values	Description
<i>Object 1 type</i>	<i>Switching (1 bit)</i> <i>Priority (2 bit)</i> <i>Value 0-255</i> <i>Percentage value (1 byte)</i> <i>2 byte floating-point number</i> <i>DPT 9.x</i> <i>4 byte floating-point number</i> <i>DPT 14.x</i>	Select telegram type for the first of the 4 sequence objects (6 formats can be set)..
<i>Object 2 type</i>	<i>Switching (1 bit)</i> <i>Priority (2 bit)</i> <i>Value 0-255</i> <i>Percentage value (1 byte)</i> <i>2 byte floating-point number</i> <i>DPT 9.x</i> <i>4 byte floating-point number</i> <i>DPT 14.x</i>	Select telegram type for the second of the 4 sequence objects (6 formats can be set).
<i>Object 3 type</i>	<i>Switching (1 bit)</i> <i>Priority (2 bit)</i> <i>Value 0-255</i> <i>Percentage value (1 byte)</i>	Select telegram type for the third of the sequence objects (4 formats can be set).
<i>Object 4 type</i>	<i>Switching (1 bit)</i> <i>Priority (2 bit)</i> <i>Value 0-255</i> <i>Percentage value (1 byte)</i>	Select telegram type for the fourth of the sequence objects (4 formats can be set).
<i>Long button push starting at</i>	300 ms 400 ms 500 ms 600 ms 700 ms 800 ms 900 ms 1 s	Serves to clearly differentiate between long and short button push. If the push button is pressed for at least as long as the set time, then a long button push will be registered.
<i>Sequence details</i>	Step 1-2-3-4-1-2-3-4 Step 1-2-3-4-3-2-1	In which order should the steps be processed?
<i>With a long button push</i>	<i>no function</i> set to step 1	Long button push will be ignored. Reset sequence to the beginning.
<i>Response after bus and mains restoration</i>	none <i>Step 1 (immediately)</i> <i>Step 1 (after 5 s)</i> <i>Step 1 (after 10 s)</i> <i>Step 1 (after 15 s)</i>	No response. Reset sequence immediately Reset sequence with delay
<i>Activate block function</i>	no yes	No block function. Show block function parameter page.

5.3.9.2 Sequence function parameter page

Table 32

Designation	Values	Description	
<i>FIRST STEP</i>			
<i>Send object 1</i>	<i>no</i>	Do not use first object during this step.	
	<i>yes..</i>	First object has to send during this step.	
<i>Telegram</i>	<i>With object type = switching (1 bit)</i>		
	<i>ON</i>	Send switch-on command	
	<i>OFF</i>	Send switch-off command	
	<i>toggle</i>	Invert current state (ON→OFF→ON etc.)	
	<i>With object type = priority (2 bit)</i>		
	<i>inactive</i>	Function	Value
		Priority not active (no control)	0 (00 _{bin})
		<i>ON</i> Priority ON (control: enable, on)	3 (11 _{bin})
	<i>OFF</i> Priority OFF (control: disable, off)	2 (10 _{bin})	
	<i>With object type = value 0-255</i>		
<i>0-255</i>	Any value between 0 and 255 can be sent.		
<i>With object type = percentage value (1 byte)</i>			
<i>0-100%</i>	Any percentage value between 0 and 100 % can be sent in 5 % increments.		
<i>With object type = 2 byte floating-point number DPT 9.x</i>			
<i>Value</i>	<i>-999 to +999</i>	The telegram is calculated from a value and a factor (tegr. = value x factor). Examples: Value 10 and factor 100 = 1000. Value 10 and factor 0.1 = 1.	
		Set base value	
<i>Factor</i>	<i>1</i> <i>10</i> <i>100</i> <i>1000</i> <i>10000</i> <i>100000</i> <i>0.01</i> <i>0.1</i>	Set factor (= multiplier).	

Continuation:

Designation	Values	Description	
<i>Factor</i>	1	Set factor (= multiplier).	
	10		
	100		
	1000		
	10000		
	100000		
	0.01		
	0.1		
With object type = 4 byte floating-point number DPT 14.x			
<i>Value</i>	-999 to +999	Set base value	
<i>Factor</i>	1	Set factor (= multiplier).	
	10		
	100		
	1000		
	10000		
	100000		
	1,001,000		
	10⁷, 10⁸		
	10⁹, 10¹⁰		
	10¹¹, 10¹²		
	0.1		
	0.01		
	0.001		
<i>Send object 3</i>	<i>no</i>	Do not use third object during this step.	
	<i>yes..</i>	Third object has to send during this step.	
<i>Telegram</i>	With object type = <i>switching (1 bit)</i>		
	ON	Send switch-on command	
	OFF	Send switch-off command	
	toggle	Invert current state (ON → OFF → ON etc.)	
	With object type = <i>priority (2 bit)</i>		
	inactive	Function	Value
		Priority not active (no control)	0 (00 _{bin})
		ON Priority ON Priority ON (control: enable, on)	3 (11 _{bin})
	OFF Priority OFF (control: disable, off)	2 (10 _{bin})	
	With object type = <i>value 0-255</i>		
0-255	Any value between 0 and 255 can be sent.		
With object type = <i>percentage value (1 byte)</i>			
0-100%	Any percentage value between 0 and 100 % can be sent in 5 % increments.		

Continuation:

Designation	Values	Description	
<i>Send object 4</i>	<i>no</i>	Do not use fourth object during this step.	
	<i>yes</i>	Fourth object has to send during this step.	
<i>Telegram</i>	With object type = <i>switching</i> (1 bit)		
	ON	Send switch-on command	
	OFF	Send switch-off command	
	toggle	Invert current state (ON→OFF→ON etc.)	
	With object type = <i>priority</i> (2 bit)		
	inactive	Function	Value
		Priority not active (no control)	0 (00 _{bin})
		Priority ON (control: enable, on)	3 (11 _{bin})
	OFF	Priority OFF (control: disable, off)	2 (10 _{bin})
	With object type = <i>value</i> 0-255		
0-255	Any value between 0 and 255 can be sent.		
With object type = <i>percentage value</i> (1 byte)			
0-100%	Any percentage value between 0 and 100 % can be sent in 5 % increments.		
SECOND STEP			
<i>Send object 1</i>	<i>see above: First step.</i>		
<i>Telegram</i>			
<i>Send object 2</i>			
<i>Telegram</i>			
<i>Send object 3</i>			
<i>Telegram</i>			
<i>Send object 4</i>			
<i>Telegram</i>			
THIRD STEP			
<i>Send object 1</i>	<i>see above: First step.</i>		
<i>Telegram</i>			
<i>Send object 2</i>			
<i>Telegram</i>			
<i>Send object 3</i>			
<i>Telegram</i>			
<i>Send object 4</i>			
<i>Telegram</i>			

Continuation:

Designation	Values	Description
<i>FOURTH STEP</i>		
<i>Send object 1</i>		<i>see above: First step.</i>
<i>Telegram</i>		
<i>Send object 2</i>		
<i>Telegram</i>		
<i>Send object 3</i>		
<i>Telegram</i>		
<i>Send object 4</i>		
<i>Telegram</i>		

5.3.9.3 Block function parameter page

Table 33

Designation	Values	Description
Block telegram	<i>Block with 1 (standard)</i>	0 = enable 1 = block
	<i>Block with 0</i>	0 = block 1 = enable
<i>Response when setting the block</i>	<i>Ignore block</i>	Block function is ineffective.
	<i>no response</i>	Do not respond when setting the block.
	<i>Send step 1</i>	Send object values of step 1.
<i>Response when cancelling the block</i>	<i>no response</i>	Do not respond when the block is cancelled.
	<i>Send step 1</i>	Send object values of step 1.

6 APPENDIX

6.1 Fault indicator function

In switch function, inputs I1-I6 can be configured as fault indicator.

To do this, the corresponding input is used together with any sensor, e.g. float switch, over temperature switch, etc.

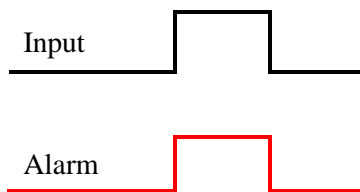
If a fault is detected, the channel will send an alert.

With the parameters *Acknowledgement mandatory* and *Update after acknowledgement if fault still present*, many applications can be covered.

6.1.1 Without acknowledgement function

The alert remains active, as long as a fault is present at the input terminals.

Acknowledgement mandatory = no



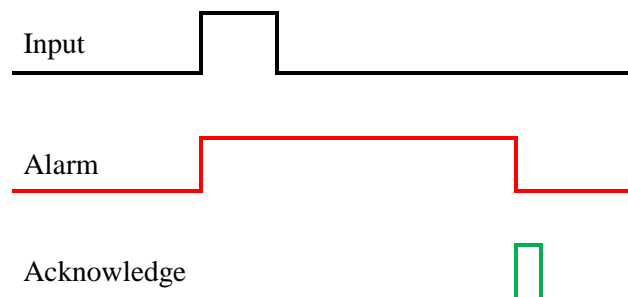
6.1.2 Acknowledgement function without update

The alert remains active, even if no fault is present at the input terminals anymore.

This detects and retains brief errors.

The alert can only be terminated with an acknowledgement telegram.

Acknowledgement mandatory = yes



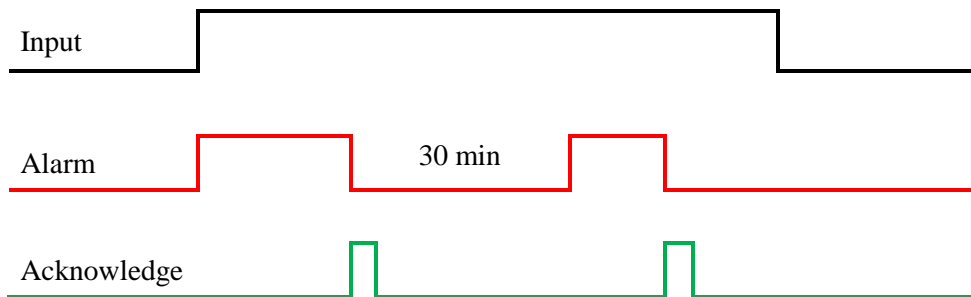
6.1.3 Acknowledgement function with update

The alert can be interrupted temporarily with an acknowledgement telegram, while the fault is still present at the input terminals.

The alert will be repeated at regular intervals (update, here every 30 min.) and has to be acknowledged each time.

Acknowledgement mandatory = yes

Update after acknowledgement if fault still present = 10 min



6.2 The sequence function

A sequence:

- Consists of 4 steps, which are called up consecutively via button push.
- Has a maximum of 4 objects.

A step:

- Triggers the sending of the 4 objects with a defined value.
- Can also, when required, send only individual objects (e.g. obj. 1 + obj. 3)
- Is omitted, if no object is activated in it (applies to step 2, 3, and 4)

The 4 objects

- Have a fixed, individually adjustable type within a sequence (e.g. obj. 1 = DPT 1,001, obj. 2 = DPT 5,010 etc.)
- Can send a different value at each step (e.g. obj. 1, step 1 = 10%; obj. 1, step 2 = 25% etc.) or be deactivated.

Execution of a sequence 1-2-3-4-1-2-3-4 if all 4 objects shall send at each step:

1st button push = 1st step			
Object 1 sends	Object 2 sends	Object 3 sends	Object 4 sends
Telegram for step 1	Telegram for step 1	Telegram for step 1	Telegram for step 1



2nd button push = 2nd step			
Object 1 sends	Object 2 sends	Object 3 sends	Object 4 sends
Telegram for Step 2	Telegram for step 2	Telegram for step 2	Telegram for step 2



3rd button push = 3rd step			
Object 1 sends	Object 2 sends	Object 3 sends	Object 4 sends
Telegram for step 3	Telegram for step 3	Telegram for step 3	Telegram for step 3



4th button push = 4th step			
Object 1 sends	Object 2 sends	Object 3 sends	Object 4 sends
Telegram for step 4	Telegram for step 4	Telegram for step 4	Telegram for step 4



5th button push = 1st step			
Object 1 sends	Object 2 sends	Object 3 sends	Object 4 sends
Telegram for step 1	Telegram for step 1	Telegram for step 1	Telegram for step 1



etc..

6.3 Conversion of percentages to hexadecimal and decimal values

Table 34

Percentage value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Hexadecimal	00	1a	33	4D	66	80	99	B3	CC	E6	FF
Decimal	00	26	51	77	102	128	153	179	204	230	255

All values from 00 to FF hex. (0 to 255 dec.) are valid.