

# KNX manual 4-way flush-mounted wireless push-button interface TU 4 RF



TU 4 RF – 4961604



Push-button module 9070806

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## 1 ⚡ IMPORTANT WARNINGS!



### Risk of electric shock!

- The device does not have basic insulation around the terminals and plug connection!
- The inputs carry mains voltage!
- When connecting the inputs or before any intervention at one of the inputs, interrupt the 230 V supply of the device.
- Protect against accidental contact during installation.
- Maintain a minimum distance of 3 mm from live parts or use additional insulation, e.g. separating strips/walls.
- Do not remove the insulation from the unused inputs.
- Do not cut off the conductors of the unused inputs.
- Do not connect mains voltage (230 V) or other external voltages to the inputs!
- During installation, ensure there is adequate insulation between mains voltage (230 V) and bus or inputs (min. 5.5 mm).

## 2 Functional characteristics

- Binary input wireless push-button interface
- 4-way push-button input or 2-way switch input
- NTC input for actual temperature measurement
- Can be installed with conventional push-buttons/switches in flush-mounted boxes
- Free allocation of functions: switch/push-button, dimming, blinds, valuator
- Colour coding of wiring pairs
- Grooves on side of housing for switch/push-button clamps
- 7-pole cable connection

### 3 Operation

Upon application of voltage the input is activated and the configured telegram is sent. Conventional push-buttons, switches or any kind of sensor (thermostat, time switch, etc.) can be connected.

The input configuration is defined on the General parameter page.

3 configurations are possible:

- 4 push-buttons + temperature input
- 2 switches or window contacts
- 2 push-buttons + 1 switch + temperature input<sup>1</sup>

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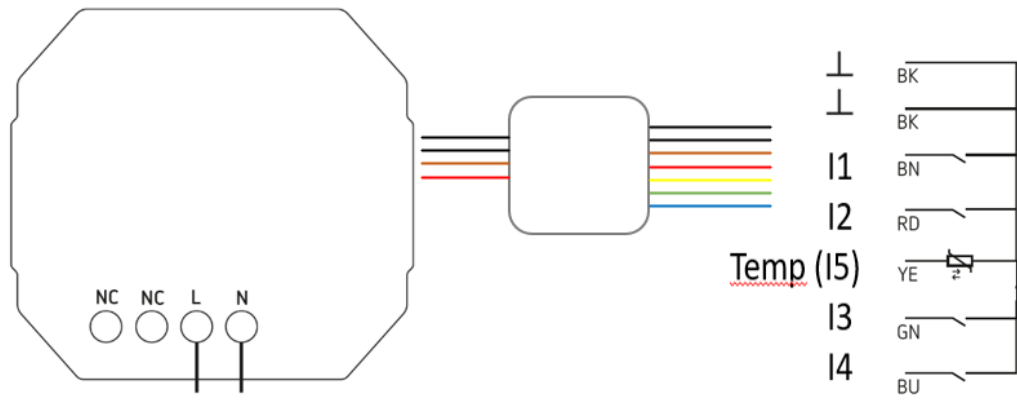
<sup>1</sup> No temperature input if I3=switch

## 4 Technical data

### 4.1 Technical data

KNX operating voltage	230–240 V AC
Frequency	50-60 Hz
Standby output	< 0.4 W
KNX medium	KNX RF (wireless)
Connection type	Screw terminals
Max. cable cross-section	Solid: 0.5 mm <sup>2</sup> (Ø 0.8 mm) to 4 mm <sup>2</sup> strand with crimp terminal: 0.5 mm <sup>2</sup> to 2.5 mm <sup>2</sup>
Length of connecting wires	25 cm
Maximum cable length	30 m
Contact voltage	5 V DC
Contact current	0.5 mA (5 mA peak)
Suitable for SELV	No
Ambient temperature	– 5 °C ... + 45 °C
Type of installation	Flush-mounted installation
Protection rating	IP 20 in accordance with EN 60529
Protection class	II subject to correct installation
Pollution degree	2
Rated impulse voltage	4 kV
Radio standard	KNX
Transmission frequency	868.3 MHz
Transmission power	10 mW
Coding	FSK (Frequency Shift Keying)
Transceiver type	bidirectional

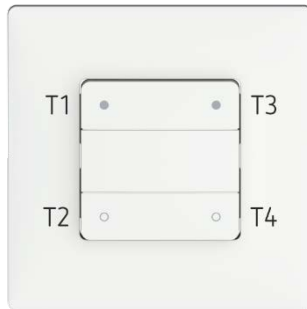
4.2 Wiring diagram



**Key:**  
BK = black  
BN = brown  
RD = red  
GN = green  
BU = blue  
YE = yellow

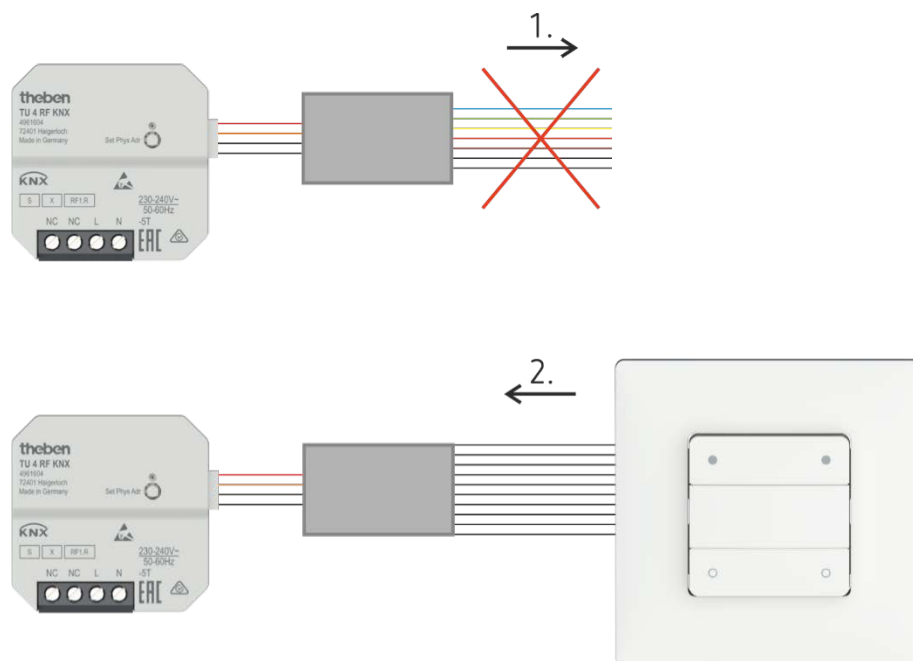
### 4.3 Push-button module

#### 4.3.1 Push-button allocation



Push-button module (9070806)

#### 4.3.2 Connection



1. Disconnect connecting wires.
2. Plug in push-button module (9070806).



## 5 General information about KNX Secure

ETS5 Version 5.5 and higher support secure communication in KNX systems. A distinction is made between secure communication via the IP medium using KNX IP Secure and secure communication via the TP and RF media using KNX Data Secure. The following information refers to KNX Data Secure.

In the ETS catalogue, KNX products supporting "KNX-Secure" are clearly identified. 

As soon as a "KNX-Secure" device is included in the project, the ETS requests a project password. If no password is entered, the device is included with Secure Mode deactivated. However, the password can also be entered or changed later in the project overview.

## 5.1 Start-up with "KNX Data Secure"

For secure communication, the FDSK (Factory Device Setup Key) is required. If a KNX product supporting "KNX Data Secure" is included in a line, the ETS requires the input of the FDSK. This device-specific key is printed on the device label and can either be entered by keyboard or read by using a code scanner or notebook camera.

Example of FDSK on device label:



After entering the FDSK, the ETS generates a device-specific tool key. The ETS sends the tool key to the device to be configured via the bus. The transmission is encrypted and authenticated with the original and previously entered FDSK key. Neither the tool key nor the FDSK key are sent in plain text via the bus.

After the previous action, the device only accepts the tool key for further communication with the ETS.

The FDSK key is no longer used for further communication, unless the device is reset to the factory setting: In this case, all set safety-related data will be deleted.

The ETS generates as many runtime keys as needed for the group communication you want to protect. The ETS sends the runtime keys to the device to be configured via the bus.

Transmission takes place by encrypting and authenticating them via the tool key. The runtime keys are never sent in plain text via the bus.

The FDSK is saved in the project and can be viewed in the project overview. All keys for this project can also be exported (backup).

During project planning, it can be defined subsequently which functions / objects are to communicate securely. All objects with encrypted communication are identified by the "Secure" icon in the ETS.



## 5.2 Start-up without "KNX Data Secure"

Alternatively, the device can also be put into operation without KNX Data Secure. In this case, the device is unsecured and behaves like any other KNX device without KNX Data Secure function.

To start up the device without KNX Data Secure, select the device in the 'Topology' or 'Devices' section and set the 'Secure start up' option in the 'Properties' area of the 'Settings' tab to 'Disabled'.


## 6 The "LUXORliving T4 RF" application programme

### 6.1 Selection in the product database

Manufacturer	<a href="#">Theben AG</a>
Product family	Inputs
Product type	TU 4 RF
Program names	TU 4 RF

Number of communication objects	Max. 22
Number of group addresses	255
Number of associations	255


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 The ETS database can be found on our website: [www.theben.de/downloads](http://www.theben.de/downloads)

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 Recommended ETS version: ETS 5.7.4 or higher.

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## 6.2 Overview of communication objects

### 6.2.1 Switch function

No.	Object name	Function	Length	R	W	C	T	DPT
11	I2.1	<i>Switching</i>	1 bit	-	W	C	T	1.001
		<i>Priority</i>	2 bit	-	-	C	T	2.001
		<i>Send percentage value</i>	1 byte	-	-	C	T	5.001
		<i>Send value</i>	1 byte	-	-	C	T	5.010
12	I2.2	<i>Switching</i>	1 bit	-	W	C	T	1.001
		<i>Priority</i>	2 bit	-	-	C	T	2.001
		<i>Send percentage value</i>	1 byte	-	-	C	T	5.001
		<i>Send value</i>	1 byte	-	-	C	T	5.010
15	I2	<i>Block = 1</i>	1 bit	-	W	C	-	1.001
		<i>Block = 0</i>	1 bit	-	W	C	-	1.003
21-25	Channel I3 (details: see channel I2)							

### 6.2.2 Push-button function

No.	Object name	Function	Length	R	W	C	T	DPT
1	I1.1	<i>Switching</i>	1 bit	-	W <sup>2</sup>	C	T	1.001
		<i>Priority</i>	2 bit	-	-	C	T	2.001
		<i>Send percentage value</i>	1 byte	-	-	C	T	5.001
		<i>Send value</i>	1 byte	-	-	C	T	5.010
2	I1.2	<i>Switching</i>	1 bit	-	W <sup>3</sup>	C	T	1.001
		<i>Priority</i>	2 bit	-	-	C	T	2.001
		<i>Send percentage value</i>	1 byte	-	-	C	T	5.001
		<i>Send value</i>	1 byte	-	-	C	T	5.010
5	I1	<i>Block = 1</i>	1 bit	-	W	C	-	1.001
		<i>Block = 0</i>	1 bit	-	W	C	-	1.003
11-35	Channels 2 to 4 (details: see channel 1)							

<sup>2</sup> Only for the *change over* function

<sup>3</sup> Only for the *change over* function

### 6.2.3 Dimming function

No.	Object name	Function	Length	R	W	C	T	DPT
1	I1	Switching	1 bit	-	W	C	T	1.001
2	I1	Brighter/darker	4 bit	-	-	C	T	3.007
		Brighter	4 bit	-	-	C	T	3.007
		Darker	4 bit	-	-	C	T	3.007
		Switching	1 bit	-	W	C	T	1.001
3	I1.1	Priority	2 bit	-	-	C	T	2.001
		Send percentage value	1 byte	-	-	C	T	5.001
		Send value	1 byte	-	-	C	T	5.010
		Block = 1	1 bit	-	W	C	-	1.001
5	I1	Block = 0	1 bit	-	W	C	-	1.003
11-35	Channels 2 to 4 (details: see channel 1)							

### Blinds function

No.	Object name	Function	Length	R	W	C	T	DPT
1	I1	Step/stop	1 bit	-	-	C	T	1.010
2	I1	UP/DOWN	1 bit	-	W	C	T	1.008
		UP	1 bit	-	-	C	T	1.008
		DOWN	1 bit	-	-	C	T	1.008
		Switching	1 bit	-	W	C	T	1.001
3	I1.1	Priority	2 bit	-	-	C	T	2.001
		Send percentage value	1 byte	-	-	C	T	5.001
		Height % <sup>4</sup>	1 byte	-	-	C	T	5.001
		Send value	1 byte	-	-	C	T	5.010
		Slat % <sup>5</sup>	1 byte	-	-	C	T	5.001
4	I1.2	Block = 1	1 bit	-	W	C	-	1.001
		Block = 0	1 bit	-	W	C	-	1.003
11-35	Channels 2 to 4 (details: see channel 1)							

### 6.2.4 Temperature input

No.	Object name	Function	Length	R	W	C	T	DPT
51	I5	Actual value for temperature	2 byte	R	-	C	T	9.001

<sup>4</sup> Upon double-click with object type = height % + slat %

<sup>5</sup> Upon double-click with object type = height % + slat %

## 6.3 Description of communication objects

### 6.3.1 Switch function (I2, I3)

#### *Object 11: I2.1*

First output object of the channel (first telegram).

4 telegram formats can be set:

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

#### *Object 12: I2.2*

Second output object of the channel (second telegram).

4 telegram formats can be set:

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

#### *Object 15: I2 block = 1, or block = 0*

The channel is blocked via this object.

The acting direction of the block object and behaviour when the block is set or cancelled can be configured.

### 6.3.2 Push-button function

#### *Object 1: I1.1*

First output object of the channel (first telegram).

4 telegram formats can be set:

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

#### *Object 2: I1.2*

Second output object of the channel (second telegram).

4 telegram formats can be set:

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

#### *Object 5: I1 block = 1, or block = 0*

The channel is blocked via this object.

The acting direction of the block object and behaviour when the block is set or cancelled can be configured.

### 6.3.3 Dimming function

*Object 1: I1.1 switching*

Switches the dimmer on and off.

*Object 2: I1.1 brighter, darker, brighter/darker*

4-bit dimming commands.

*Object 3: I1.1 – switching, priority, percentage value..*

Output object for the additional function with double-click.

4 telegram formats can be set:

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

*Object 5: I1 block = 1, or block = 0*

The channel is blocked via this object.

The acting direction of the block object and behaviour when the block is set or cancelled can be configured.



### 6.3.4 Blinds function

*Object 1: I1 step/stop*

Sends step/stop commands to the blind actuator.

*Object 2: I1 UP/DOWN, UP, DOWN*

Sends operating commands to the blind actuator.

*Object 3: I1.1 – switching, priority, percentage value., height % + slat %*

Output object for the additional function with double-click.

5 telegram formats can be set:

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

*Object 4: I1.1 – slat %*

Slat telegram for positioning the blinds upon double-click (together with object 3, with *object type = height + slat*).

*Object 5: I1 block = 1, or block = 0*

The channel is blocked via this object.

The acting direction of the block object and behaviour when the block is set or cancelled can be configured.

*Objects 11-35*

Objects for channels I2-I4

### 6.3.5 Temperature input I5

*Object 51: I5 – actual value for temperature*

Sends the temperature measured at input I5 (remote sensor or floor temperature sensor).

## 6.4 Parameter pages overview

Parameter page	Description
<i>General information</i>	Definition of inputs as push-buttons or switches. Excess temperature alarm
<i>I1..I4</i>	Function of the input, debounce time, number of telegrams, block function, etc.
<i>Switch object 1</i>	Object type, transmission behaviour, etc. can be set for each object individually.
<i>Switch object 2</i>	
<i>Button object 1</i>	Object type, transmission behaviour, etc. can be set for each object individually.
<i>Button object 2</i>	
<i>I5 temperature</i>	Temperature calibration etc.
<i>Dimming</i>	Type of control.
<i>Blinds</i>	Type of control.
<i>Double-click</i>	Additional telegrams for <i>Dimming</i> and <i>Blinds</i> .

6.4.1 General parameter page

**i** First of all, the *Input configuration* parameter must be used to determine whether switches or push-buttons are connected.

**i** If channel I3 is used as a **switch**, temperature input I5 is not available (see *Input configuration* parameter, **General** parameter page).

Designation	Values	Description
<i>Input configuration</i>	4 push-buttons I1, I2, I3, I4 + I5 temperature	Only use push-buttons. Temperature input I5 is available.
	Push-button module + I5 temperature	Use with the Theben push-button module. Temperature input I5 is available.
	1 switch I2 / 2 push-buttons I3, I4 + I5 temperature	1 switch and 2 push-buttons. Temperature input I5 is available.
	2 push-buttons I1, I2 / 1 switch I3	2 push-buttons and 1 switch. Temperature input I5 is not available.
	2 switches I2, I3	2 switches. Temperature input I5 is not available.
<i>Send excess temperature alarm<sup>6</sup> cyclically</i>	<i>always cyclically</i>	The alarm info object always sends the current status cyclically and in the event of a change:
	<b><i>only send cyclically in case of an error</i></b>	Only sends in case of an error, cyclically and in the event of a change.
<i>Cycle time</i>	<i>every min</i> <i>every 2 min</i> <i>every 3 min</i> ... <b><i>every 30 min</i></b> <i>every 45 min</i> <i>every 60 min</i>	Cycle time for the alarm info object

**i** <sup>6</sup> When the temperature in the device increases too much due to overloading, the output is switched off and an alarm telegram is sent.  
Normal operation cannot be resumed until the temperature has dropped by around 40 K.

### 6.4.2 Switch function

**i** This function is available for I2 or I3 if the channel has been configured as a switch (see *Input configuration* parameter, **General** parameter page).

Designation	Values	Description
<i>Function</i>	<b>Switch..</b> <i>Window contact..</i>	Desired use.
<i>Debounce time</i>	<i>30 ms, 50 ms, 80 ms</i> <i>100 ms, 200 ms,</i> <i>1 s, 5 s, 10 s</i>	In order to avoid disruptive switching due to bouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values ( $\geq 1$ s) can be used as a switch-on delay
<i>Cycle time for sending cyclically</i>	<i>every min</i> <i>every 2 min</i> <i>every 3 min</i>  <i>...</i> <b><i>every 30 min</i></b> <i>every 45 min</i> <i>every 60 min</i>	Common cycle time for all output objects of the channel.
<i>How many telegrams are to be sent</i>	<b><i>one telegram</i></b> <i>two telegrams</i>	Each channel has 2 output objects and can thus send up to 2 different telegrams.
<i>Activate block function</i>	<b><i>no</i></b>  <i>yes</i>	No block function.  Show parameters for the block function.
<i>Block telegram</i>	<b><i>Block with 1 (standard)</i></b>  <i>Block with 0</i>	0 = cancel block 1 = block  0 = block 1 = cancel block

### 6.4.2.1 Switch objects 1, 2

Each of the 2 objects can be configured individually on its own parameter page.

Designation	Values	Description	
<i>Object type</i>	<b>Switching (1 bit)</b> <i>Priority (2 bit)</i> <i>Value 0-255</i> <i>Percentage value (1 byte)</i>	Telegram type for this object.	
<i>Send if input = 1</i>	<i>no</i> <b>yes</b>	Send if voltage is present at the input?	
<i>Telegram</i>	<i>With object type = switching 1 bit</i>		
	<b>ON</b> <i>OFF</i> <i>INVERT</i>	Send switch-on command Send switch-off command Invert current state (ON-OFF-ON etc.)	
	<i>With object type = priority 2 bit</i>		
	<b>inactive</b>  <i>ON</i>  <i>OFF</i>	Function	Value
		Priority inactive (no control)	0 (00 <sub>bin</sub> )
		Priority ON (control: enable, on)	3 (11 <sub>bin</sub> )
		Priority OFF (control: disable, off)	2 (10 <sub>bin</sub> )
	<i>With object type = value 0-255</i>		
	<b>0-255</b>	Any value between 0 and 255 can be sent.	
	<i>With object type = percentage value 1 byte</i>		
<b>0-100%</b>	Any percentage value between 0 and 100% can be sent.		
<i>Send if input = 0</i>	<i>no</i> <b>yes</b>	Send if no voltage is present at the input?	
<i>Telegram</i>	See above: Same object type as <i>Send if input = 1</i>		
<i>Send cyclically</i>	<b>no</b> <i>yes, always</i> <i>only if input = 1</i> <i>only if input = 0</i>	When should cyclical sending take place? The cycle time is set on the main parameter page of the channel.	
<i>Response after restoration of the mains supply</i>	<b>none</b>  <i>update (immediately)</i> <i>update (after 5 s)</i> <i>update (after 10 s)</i> <i>update (after 15 s)</i>	Do not send.  Send update telegram immediately or with delay.	
<i>Response when the block is set</i>	<b>Ignore block</b>  <i>no response</i>  <i>as with input = 1</i> <i>as with input = 0</i>	The block function is ineffective with this telegram. Do not respond when the block is set. Respond as with rising edge. Respond as with falling edge.	
<i>Response when cancelling the block</i>	<b>no response</b>  <i>update</i>	Do not respond when the block is cancelled. Send update telegram.	



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

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### 6.4.3 Window contact function

**i** This function is available for I2 or I3 if the channel has been configured as a switch (see *Input configuration* parameter, **General** parameter page).

Designation	Values	Description
<i>Function</i>	<i>Switch..</i> <b>Window contact..</b>	Desired use.
<i>Debounce time</i>	<i>30 ms, 50 ms, 80 ms</i> <i>100 ms, 200 ms,</i> <i>1 s, 5 s, 10 s</i>	In order to avoid disruptive switching due to bouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values ( $\geq 1$ s) can be used as a switch-on delay
<i>Cycle time for sending cyclically</i>	<i>every min</i> <i>every 2 min</i> <i>every 3 min</i> ... <b><i>every 30 min</i></b> <i>every 45 min</i> <i>every 60 min</i>	Common cycle time for all output objects of the channel.
<i>Activate block function</i>	<b>no</b>	No block function.
	yes	Show parameters for the block function.
<i>Block telegram</i>	<b>Block with 1 (standard)</b>	0 = cancel block 1 = block
	<i>Block with 0</i>	0 = block 1 = cancel block

### 6.4.3.1 Window contact

Designation	Values	Description
<i>Telegram when contact closed</i>	<b>ON</b> OFF	Set switching status.
<i>Telegram when contact open</i>	<i>ON</i> OFF	Is set automatically.
<i>Send cyclically</i>	<b>no</b> <i>yes, always</i> <i>only if input = 1</i> <i>only if input = 0</i>	When should cyclical sending take place? The cycle time is set on the main parameter page of the channel.
<i>Response after restoration of the mains supply</i>	<b>none</b>  <i>update (immediately)</i> <i>update (after 5 s)</i> <i>update (after 10 s)</i> <i>update (after 15 s)</i>	Do not send.  Send update telegram immediately or with delay.
<i>Response when the block is set</i>	<b>Ignore block</b>  <i>no response</i>  <i>as with input = 1</i>  <i>as with input = 0</i>	The block function is ineffective with this telegram. Do not respond when the block is set.  Respond as with rising edge.  Respond as with falling edge.
<i>Response when cancelling the block</i>	<b>no response</b>  <i>update</i>	Do not respond when the block is cancelled. Send update telegram.



### 6.4.4 Push-button function

**i** This function is available for I1-I4 if the channel has been configured as a push-button, or if the push-button module has been selected (see *Input configuration* parameter, *General* parameter page).

Designation	Values	Description
<i>Function</i>	<i>Push-button..</i> <i>Dimming..</i> <i>Blinds..</i>	Desired use.
<i>Debounce time</i>	<i>30 ms, 50 ms, 80 ms</i> <i>100 ms, 200 ms,</i> <i>1 s, 5 s, 10 s</i>	In order to avoid disruptive switching due to bouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values ( $\geq 1$ s) can be used as a switch-on delay
<i>Connected button</i>	<b>NO contact</b> <i>NC contact</i>	Set the type of connected contact.
<i>Long button push starting at</i>	<b>300 ms, 400 ms</b> <i>500 ms, 600 ms</i> <i>700 ms, 800 ms</i> <i>900 ms, 1 s</i>	Serves to clearly differentiate between long and short button push. If the button is pressed for at least as long as the set time, then a long button push will be registered.
<i>Time for double-click</i>	<b>300 ms, 400 ms</b> <i>500 ms, 600 ms</i> <i>700 ms, 800 ms</i> <i>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 for sending cyclically</i>	<i>every min</i> <i>every 2 min</i> <i>every 3 min</i> ... <b>every 30 min</b> <i>every 45 min</i> <i>every 60 min</i>	Common cycle time for all 2 output objects of the channel.
<i>How many telegrams are to be sent</i>	<b>one telegram</b> <i>two telegrams</i>	Each channel has 2 output objects and can thus send up to 2 different telegrams.
<i>Activate block function</i>	<b>no</b>  <i>yes</i>	No block function.  Show parameters for the block function.
<i>Block telegram</i>	<b>Block with 1 (standard)</b>  <i>Block with 0</i>	0 = cancel block 1 = block  0 = block 1 = cancel block

## 6.4.4.1 Button objects 1, 2

Designation	Values	Description	
<i>Object type</i>	<b>Switching (1 bit)</b> <i>Priority (2 bit)</i> <i>Value 0-255</i> <i>Percentage value (1 byte)</i>	Telegram type for this object.	
<i>Send after short operation</i>	<b>do not send</b> <i>Send telegram</i>	Respond to short button push?	
<i>Telegram</i>	<i>With object type = switching 1 bit</i>		
	<b>ON</b> <i>OFF</i> <i>INVERT</i>	Send switch-on command Send switch-off command Invert current state (ON-OFF-ON etc.)	
	<i>With object type = priority 2 bit</i>		
	<i>inactive</i>  <i>ON</i>  <i>OFF</i>	Function	Value
		Priority inactive (no control)	0 (00 <sub>bin</sub> )
		Priority ON (control: enable, on)	3 (11 <sub>bin</sub> )
	Priority OFF (control: disable, off)	2 (10 <sub>bin</sub> )	
	<i>With object type = value 0-255</i>		
<b>0-255</b>	Any value between 0 and 255 can be sent.		
<i>With object type = percentage value 1 byte</i>			
<b>0-100%</b>	Any percentage value between 0 and 100% can be sent.		
<i>Send after long operation</i>	<b>do not send</b> <i>Send telegram</i>	Respond to long button push?	
<i>Telegram</i>	See above: Same object type as with short operation.		
<i>Send after double-click</i>	<b>do not send</b> <i>Send telegram</i>	Respond to double-click?	
<i>Telegram</i>	See above: Same object type as with short operation.		
<i>Send cyclically</i>	<b>no</b> <i>yes</i>	The cycle time is set on the main parameter page of the channel.	
<i>Response after restoration of the mains supply</i>	<b>none</b>  <i>As with short (immediately)</i> <i>As with short (after 5 s)</i> <i>As with short (after 10 s)</i> <i>As with short (after 15 s)</i> <i>As with long (immediately)</i> <i>As with long (after 5 s)</i> <i>As with long (after 10 s)</i> <i>As with long (after 15 s)</i> <i>As with double-click (immediately)</i> <i>As with double-click (after 5 s)</i> <i>As with double-click (after 10 s)</i> <i>As with double-click (after 15 s)</i>	Do not send.  Send update telegram immediately or with delay. The value to be sent depends on the value configured for long button push, short button push or double-click.	

Designation	Values	Description
<i>Response when the block is set</i>	<b><i>Ignore block</i></b>	The block function is ineffective with this telegram.
	<i>no response</i>	Do not respond when the block is set.
	<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>	<b><i>no response</i></b>	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.

### 6.4.5 Dimming function

**i** This function is available for I1-I4 if the channel has been configured as a push-button, or if the push-button module has been selected (see *Input configuration* parameter, *General* parameter page).

Designation	Values	Description
<i>Channel function</i>	<i>Push-button..</i> <b>Dimming..</b> <i>Blinds..</i>	The input controls a dimming actuator,
<i>Debounce time</i>	<i>30 ms, 50 ms, 80 ms</i> <i>100 ms, 200 ms,</i> <i>1 s, 5 s, 10 s</i>	In order to avoid disruptive switching due to bouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values ( $\geq 1s$ ) can be used as a switch-on delay
<i>Activate block function</i>	<b>no</b>  <i>yes</i>	No block function.  Show block function parameter page.
<i>Block telegram</i>	<b>Block with 1 (standard)</b>  <i>Block with 0</i>	0 = cancel block 1 = block  0 = block 1 = cancel block
<i>Long button push starting at</i>	<b>300 ms, 400 ms</b> <i>500 ms, 600 ms</i> <i>700 ms, 800 ms</i> <i>900 ms, 1 s</i>	Serves to clearly differentiate between long and short button push. If the button is pressed for at least as long as the set time, then a long button push will be registered.
<i>Double-click additional function</i>	<b>no</b>  <i>yes</i>	No double-click function  The <b>double-click</b> parameter page is shown.
<i>Time for double-click</i>	<b>300 ms, 400 ms</b> <i>500 ms, 600 ms</i> <i>700 ms, 800 ms</i> <i>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.

6.4.5.1 Dimming parameter page

Designation	Values	Description
<i>Response to long/short</i>	<p><b>One button operation</b></p> <p><i>brighter / ON</i></p> <p><i>brighter / change over</i></p> <p><i>darker / OFF</i></p> <p><i>darker / change over</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 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>
<i>Increment for dimming</i>	<p><b>100%</b></p> <p>50%</p> <p>25%</p> <p>12.5%</p> <p>6%</p> <p>3%</p> <p>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>
<i>Response after restoration of the mains supply</i>	<p><b>none</b></p> <p><i>ON</i></p> <p><i>OFF</i></p>	<p>Do not respond.</p> <p>Switch on dimmer</p> <p>Switch off dimmer</p>

Designation	Values	Description
	ON after 5 s ON after 10 s ON after 15 s OFF after 5 s OFF after 10 s OFF after 15 s	Switch on dimmer with delay  Switch off dimmer with delay
<i>Response when the block is set</i>	<b>Ignore block</b>  no response  ON  OFF	The block function is ineffective with this telegram.  Do not respond when the block is set.  Switch on dimmer  Switch off dimmer
<i>Response when cancelling the block</i>	<b>no response</b>  ON  OFF	Do not respond when the block is cancelled.  Switch on dimmer  Switch off dimmer

## 6.4.5.2 Double-click parameter page

Designation	Values	Description	
<i>Object type</i>	<b>Switching (1 bit)</b> <i>Priority (2 bit)</i> <i>Value 0-255</i> <i>Percentage value (1 byte)</i>	Telegram type for this object.	
<i>Telegram</i>	<i>With object type = switching 1 bit</i>		
	<b>ON</b> <b>OFF</b> <b>INVERT</b>	Send switch-on command Send switch-off command Invert current state (ON-OFF-ON etc.)	
	<i>With object type = priority 2 bit</i>		
	<b>inactive</b>  <b>ON</b>  <b>OFF</b>	Function	Value
		Priority inactive (no control)	0 (00 <sub>bin</sub> )
		Priority ON (control: enable, on)	3 (11 <sub>bin</sub> )
		Priority OFF (control: disable, off)	2 (10 <sub>bin</sub> )
	<i>With object type = value 0-255</i>		
<b>0-255</b>	Any value between 0 and 255 can be sent.		
<i>With object type = percentage value 1 byte</i>			
<b>0-100%</b>	Any percentage value between 0 and 100% can be sent.		
<i>Send cyclically</i>	<b>do not send cyclically</b> <i>every 1 min</i> <i>every 2 min</i> <i>every 3 min</i> ... <i>every 45 min</i> <i>every 60 min</i>	How often should it be resent?	
<i>Response after restoration of the mains supply</i>	<b>none</b>  <i>As with double-click (immediately)</i> <i>As with double-click (after 5 s)</i> <i>As with double-click (after 10 s)</i> <i>As with double-click (after 15 s)</i>	Do not send.  Send update telegram immediately or with delay. The value to be sent depends on the value configured for double-click.	
<i>Response when the block is set</i>	<b>Ignore block</b>  <i>no response</i>  <i>as with double-click</i>	The block function is ineffective with this telegram.  Do not respond when the block is set.  Respond as with a double-click.	
<i>Response when cancelling the block</i>	<b>no response</b>  <i>as with double-click</i>	Do not respond when the block is cancelled.  Respond as with a double-click.	

6.4.6 Blinds function

**i** This function is available for I1-I4 if the channel has been configured as a push-button, or if the push-button module has been selected (see *Input configuration* parameter, *General* parameter page).

Designation	Values	Description
<i>Channel function</i>	<i>Push-button..</i> <i>Dimming..</i> <b><i>Blinds..</i></b>	The input controls a blind actuator.
<i>Debounce time</i>	<i>30 ms, 50 ms, 80 ms</i> <i>100 ms, 200 ms,</i> <i>1 s, 5 s, 10 s</i>	In order to avoid disruptive switching due to bouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Larger values ( $\geq 1$ s) can be used as a switch-on delay.
<i>Activate block function</i>	<b><i>no</i></b>  <i>yes</i>	No block function.  Show <b><i>block function</i></b> parameter page.
<i>Block telegram</i>	<b><i>Block with 1 (standard)</i></b>  <i>Block with 0</i>	0 = cancel block 1 = block  0 = block 1 = cancel block
<i>Long button push starting at</i>	<b><i>300 ms, 400 ms</i></b> <i>500 ms, 600 ms</i> <i>700 ms, 800 ms</i> <i>900 ms, 1 s</i>	Serves to clearly differentiate between long and short button push. If the button is pressed for at least as long as the set time, then a long button push will be registered.
<i>Double-click additional function</i>	<b><i>no</i></b>  <i>yes</i>	No double-click function  The <b><i>double-click</i></b> parameter page is shown.
<i>Time for double-click</i>	<b><i>300 ms, 400 ms</i></b> <i>500 ms, 600 ms</i> <i>700 ms, 800 ms</i> <i>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.



6.4.6.1 Blinds parameter page

Designation	Values	Description
<i>Operation</i>	<p><b>One button operation</b></p> <p><i>DOWN</i></p> <p><i>UP</i></p>	<p>The input distinguishes between a long and a short button push, and can thus carry out 2 functions.</p> <p>The blinds are operated with a single button. Short button push = step. Long button push = move.</p> <p>Short button push = step. Long button push = lower.</p> <p>Short button push = step. Long button push = raise.</p>
<i>Movement is stopped by</i>	<i>Releasing the button</i> <b>Short operation</b>	How is the stop command to be triggered?
<i>Response after restoration of the mains supply</i>	<p><b>none</b></p> <p><i>UP</i></p> <p><i>DOWN</i></p> <p><i>UP after 5 s</i> <i>UP after 10 s</i> <i>UP after 15 s</i></p> <p><i>DOWN after 5 s</i> <i>DOWN after 10 s</i> <i>DOWN after 15 s</i></p>	<p>Do not respond.</p> <p>Raise blinds</p> <p>Lower blinds</p> <p>Raise blinds with delay</p> <p>Lower blinds with delay</p>
<i>Response when the block is set</i>	<p><b>Ignore block</b></p> <p><i>no response</i></p> <p><i>UP</i></p> <p><i>DOWN</i></p>	<p>The block function is ineffective with this telegram.</p> <p>Do not respond when the block is set.</p> <p>Raise blinds</p> <p>Lower blinds</p>
<i>Response when cancelling the block</i>	<p><b>no response</b></p> <p><i>ON</i></p> <p><i>OFF</i></p>	<p>Do not respond when the block is cancelled.</p> <p>Raise blinds</p> <p>Lower blinds</p>

## 6.4.6.2 Double-click parameter page

Designation	Values	Description	
<i>Object type</i>	<b>Switching (1 bit)</b> Priority (2 bit) Value 0-255 Percentage value (1 byte) Height % + slat %	Telegram type for this object.	
<i>Telegram</i>	<i>With object type = switching 1 bit</i>		
	<b>ON</b> <b>OFF</b> <b>INVERT</b>	Send switch-on command Send switch-off command Invert current state (ON-OFF-ON etc.)	
	<i>With object type = priority 2 bit</i>		
	<b>inactive</b>	Function	Value
		Priority inactive (no control)	0 (00 <sub>bin</sub> )
		Priority ON (control: enable, on)	3 (11 <sub>bin</sub> )
	<b>OFF</b>	Priority OFF (control: disable, off)	2 (10 <sub>bin</sub> )
	<i>With object type = value 0-255</i>		
	<b>0-255</b>	Any value between 0 and 255 can be sent.	
	<i>With object type = percentage value 1 byte</i>		
<b>0-100%</b>	Any percentage value between 0 and 100% can be sent.		
<i>With object type = height % + slat %</i>			
<i>Height</i>	Upon double-click 2 telegrams are sent simultaneously: Required blind height		
<i>Slat</i>	Required slat position.		
<i>Send cyclically</i>	<b>do not send cyclically</b> every min every 2 min every 3 min ... every 45 min every 60 min	How often should it be resent?	
<i>Response after restoration of the mains supply</i>	<b>none</b> As with double-click (immediately) As with double-click (after 5 s) As with double-click (after 10 s) As with double-click (after 15 s)	Do not send. Send update telegram immediately or with delay. The value to be sent depends on the value configured for double-click.	
<i>Response when the block is set</i>	<b>Ignore block</b>	The block function is ineffective with this telegram.	

Designation	Values	Description
	<i>no response</i>	Do not respond when the block is set.
	<i>as with double-click</i>	Respond as with a double-click.
<i>Response when cancelling the block</i>	<b><i>no response</i></b>	Do not respond when the block is cancelled.
	<i>as with double-click</i>	Respond as with a double-click.

6.4.7 I5 temperature

Designation	Values	Description
<i>Temperature calibration</i>	-64..+64 (x 0.1 K)	Correction value for temperature measurement if sent temperature deviates from the actual ambient temperature. <b>Example:</b> temperature = 20 °C sent temperature = 21 °C Correction value = 10 (i.e. 10 x 0.1°C)
<i>Send temperature in the event of change of</i>	<i>not due to a change</i>	Only send cyclically (if enabled)
	0.2 K 0.3 K <b>0.5 K</b> 0.7 K 1 K 1.5 K 2 K	Send if the value has changed by the selected amount since the last transmission.
<i>Send temperature cyclically</i>	<b>do not send cyclically</b> every min, every 2 min every 3 min ... every 45 min every 60 min	How often should the current measured value be resent?

- 
- i** Applicable sensor types:  
 temperature sensor UP (9070496)  
 remote sensor IP65 (9070459)  
 floor sensor (9070321)
- 

- 
- i** If channel I3 is used as a **switch** (see *Input configuration* parameter), temperature input I5 is not available.  
 This applies to the following settings:  
 - 2 push buttons I1, I2 / 1 switch I3  
 - 2 switches I2, I3
-

## 7 Typical applications

**i** These application examples are designed to aid planning and are not to be considered an exhaustive list. They can be extended and updated as required.  
Standard or customer-defined parameter settings apply for the parameters not listed here.

**i** For all applications requiring 4 push-buttons, 4 individual push-buttons as well as push-button module 9070806 can be used.

### 7.1 Switching light

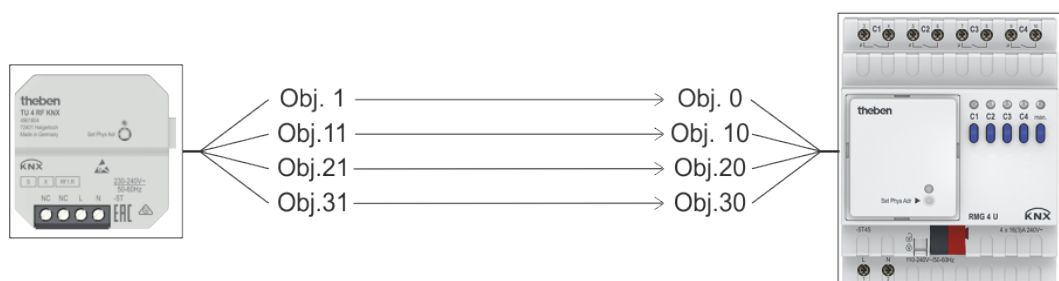
The wireless push-button interface is connected to a 4-way push-button and controls the switch actuator RMG 4 U.

All 4 channels are used.

#### 7.1.1 Devices

- TU 4 RF (4961604)
- RMG 4 U (4930223)
- Option: Push-button module (9070806)

#### 7.1.2 Overview



### 7.1.3 Objects and links

#### Links

No.	TU 4 RF Object name	No.	RMG 4 U Object name	Comment
1	<i>I1 switching</i>	0	<i>RMG 4 U channel C1</i>	TU 4 RF sends switch commands to RMG 4 U
11	<i>I2 switching</i>	10	<i>RMG 4 U channel C2</i>	
21	<i>I3 switching</i>	20	<i>RMG 4 U channel C3</i>	
31	<i>I4 switching</i>	30	<i>RMG 4 U channel C4</i>	

### 7.1.4 Important parameter settings

#### TU 4 RF

Parameter page	Parameters	Setting
<i>General information</i>	<i>Input configuration</i>	<i>Push-button module + I5 temperature or: 4 push-buttons I1, I2, I3, I4 + I5 temperature</i>
<i>I1 (2,3,4)</i>	<i>Channel function</i>	<i>Push-button</i>
<i>Switch object</i>	<i>Object type</i>	<i>Switching</i>
	<i>Send if input = 1</i>	<i>yes</i>
	<i>Telegram</i>	<i>INVERT</i>
	<i>Send if input = 0</i>	<i>no</i>

#### RMG 4 U

Parameter page	Parameters	Setting
<i>RMG 4 U channel C1... C4:</i>	<i>Channel function</i>	<i>Switching On/Off</i>
<i>Configuration options</i>	<i>Activation of function via</i>	<i>Switch object</i>

## 7.2 2 lighting groups dimming (one button operation)

The wireless push-button interface TU 4 RF controls both channels of dimming actuator DMG 2 T.

One single push-button is used per lighting group (dimming actuator channel).

One short button push switches the light on or off.

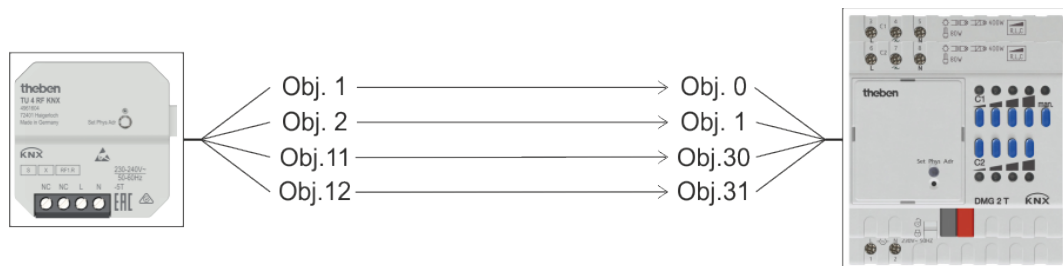
With a long button push the brightness changes.

When pressed again, the dimming direction changes (brighter/darker).

### 7.2.1 Devices

- TU 4 RF (4961604)
- DMG 2 T (4930270)
- Option: Push-button module (9070806)

### 7.2.2 Overview



### 7.2.3 Objects and links

Table 15: Links

No.	TA 2 S Object name	No.	DMG 2 T Object name	Comment
1	I1 Switching	0	DMG 2 T channel 1 Switching On/Off	Long button push for brighter/darker dimming commands.
2	I1 Brighter/darker	1	DMG 2 T channel 1 Brighter/darker	
11	I2 Switching	30	DMG 2 T channel 2 Switching On/Off	Short button push for On/Off commands.
12	I2 Brighter/darker	31	DMG 2 T channel 2 Brighter/darker	

### 7.2.4 Important parameter settings

#### TU 4 RF

Parameter page	Parameters	Setting
<i>General information</i>	<i>Input configuration</i>	<i>Push-button module + I5 temperature or: 4 push-buttons I1, I2, I3, I4 + I5 temperature</i>
<i>I1 (2,3,4)</i>	<i>Channel function</i>	<i>Dimming</i>
<i>Dimming</i>	<i>Response to long/short</i>	<i>One button operation</i>

#### DMG 2 T

Parameter page	Parameters	Setting
<i>Dimming response</i>	<i>Switching on/off with a 4-bit Telegram</i>	<i>no</i>



### 7.3 2 lighting groups dimming (2 rocker buttons)

The wireless push-button interface TU 4 RF controls both channels of dimming actuator DMG 2 T.

One rocker button is used per lighting group (dimming actuator channel).

One short button push switches the light on or off.

With a long button push the brightness changes.

- top button → brighter
- bottom button → darker



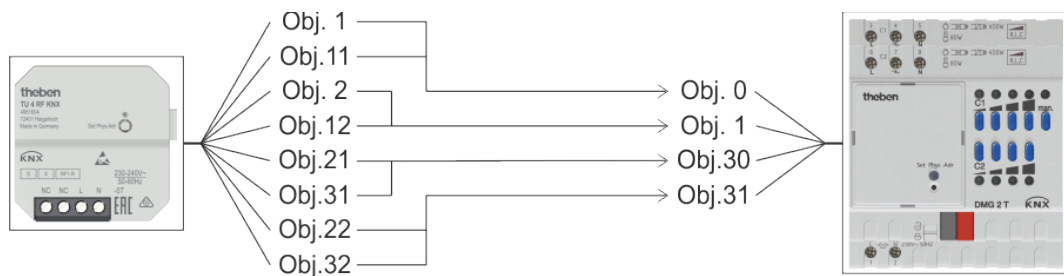
One rocker button, i.e. 2 inputs are used for each lighting group.

The top and bottom buttons of a rocker button always send the telegrams to the dimming actuator via a common group address.

#### 7.3.1 Devices

- TU 4 RF (4961604)
- DMG 2 T (4930270)

#### 7.3.2 Overview



### 7.3.3 Objects and links

#### Links

No.	TU 4 RF	No.	DMG 2 T	Comment
	Object name		Object name	
1	I1 Switching	0	DMG 2 T Channel C1 Switching On/Off	First lighting group: Sends On/Off commands to the dimming actuator with a short button push,
11	I2 Switching			
2	I1 Brighter	1	DMG 2 T Channel C1 Brighter/darker	Sends brighter/darker commands to the dimming actuator with a long button push.
12	I2 Darker			
21	I3 Switching	30	DMG 2 T Channel C2 Switching On/Off	Second lighting group: Sends On/Off commands to the dimming actuator with a short button push,
31	I4 Switching			
22	I3 Brighter	31	DMG 2 T Channel C2 Brighter/darker	Sends brighter/darker commands to the dimming actuator with a long button push.
32	I4 Darker			

### 7.3.4 Important parameter settings

#### TU 4 RF

Parameter page	Parameters	Setting
<i>General information</i>	<i>Input configuration</i>	<i>4 push-buttons I1, I2, I3, I4 + I5 temperature</i>
<i>I1 (2,3,4)</i>	<i>Channel function</i>	<i>Dimming</i>
<i>(I1) dimming</i>	<i>Response to long/short</i>	<i>Brighter/On<sup>7</sup></i>
<i>(I2) dimming</i>	<i>Response to long/short</i>	<i>Darker/Off<sup>8</sup></i>
<i>(I3) dimming</i>	<i>Response to long/short</i>	<i>Brighter/On<sup>9</sup></i>
<i>(I4) dimming</i>	<i>Response to long/short</i>	<i>Darker/Off<sup>10</sup></i>

#### DMG 2 T

Parameter page	Parameters	Setting
<i>Dimming response</i>	<i>Switching on/off with a 4-bit Telegram</i>	<i>no</i>

<sup>7</sup> Brighter/change over is also possible.

<sup>8</sup> Darker/change over is also possible.

<sup>9</sup> Brighter/change over is also possible.

<sup>10</sup> Darker/change over is also possible.

## 7.4 Controlling 4 blinds or blind groups

The wireless push-button interface TU 4 RF controls blind actuator JMG 4 T.

A push-button is connected to each input.

As an option, the push-button module can also be connected.

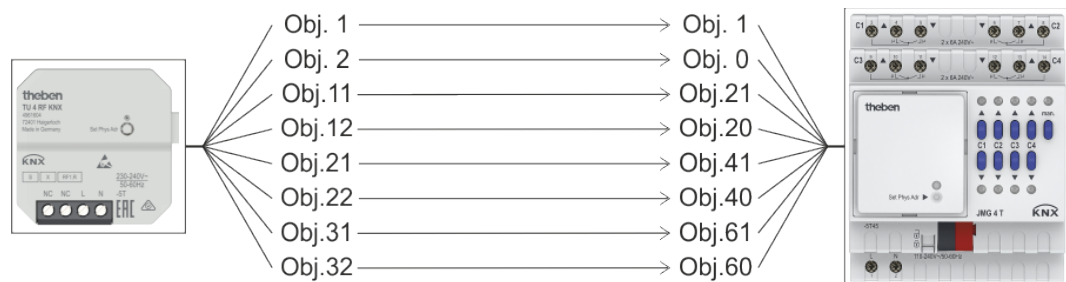
A long button push raises or lowers the blinds.

A short button push triggers the step/stop function.

### 7.4.1 Devices

- TU 4 RF (4961604)
- JMG 4 T (4930250)
- Option: Push-button module (9070806)

### 7.4.2 Overview



### 7.4.3 Objects and links

#### Links

No.	TU 4 RF Object name	No.	JMG 4 T Object name	Comment
1	I1 Step/stop	1	JMG 4 T C1 Step/stop	Long button push for Up/down operating commands.  Short button push for Step/stop commands.
2	I1 Up/down	0	JMG 4 T C1 Up/down	
11	I2 Step/stop	21	JMG 4 T C2 Step/stop	
12	Channel 2 Up/down	20	JMG 4 T C2 Up/down	
21	I3 Step/stop	41	JMG 4 T C3 Step/stop	
22	I3 Up/down	40	JMG 4 T C3 Up/down	
31	I4 Step/stop	61	JMG 4 T C4 Step/stop	
32	I4 Up/down	60	JMG 4 T C4 Up/down	

### 7.4.4 Important parameter settings

#### TU 4 RF

Parameter page	Parameters	Setting
<i>General information</i>	<i>Input configuration</i>	<i>Push-button module + 15 temperature or: 4 push-buttons I1, I2, I3, I4 + 15 temperature</i>
<i>I1 (2,3,4)</i>	<i>Channel function</i>	<i>Blinds</i>
<i>Blinds</i>	<i>Operation</i>	<i>One button operation</i>

#### JMG 4 T

Parameter page	Parameters	Setting
<i>JMG 4 JMG 4 T</i>	<i>Type of hanging</i>	<i>Blinds</i>

## 8 Appendix

### 8.1 Conversion of percentages to decimal and hexadecimal values

%	Dec.	Hex.	%	Dec.	Hex.	%	Dec.	Hex.
0%	0	\$00	34%	87	\$56	68%	173	\$AD
1%	3	\$02	35%	89	\$59	69%	176	\$AF
2%	5	\$05	36%	92	\$5B	70%	179	\$B2
3%	8	\$07	37%	94	\$5E	71%	181	\$B5
4%	10	\$0A	38%	97	\$60	72%	184	\$B7
5%	13	\$0C	39%	99	\$63	73%	186	\$BA
6%	15	\$0F	40%	102	\$66	74%	189	\$BC
7%	18	\$11	41%	105	\$68	75%	191	\$BF
8%	20	\$14	42%	107	\$6B	76%	194	\$C1
9%	23	\$16	43%	110	\$6D	77%	196	\$C4
10%	26	\$19	44%	112	\$70	78%	199	\$C6
11%	28	\$1C	45%	115	\$72	79%	201	\$C9
12%	31	\$1E	46%	117	\$75	80%	204	\$CC
13%	33	\$21	47%	120	\$77	81%	207	\$CE
14%	36	\$23	48%	122	\$7A	82%	209	\$D1
15%	38	\$26	49%	125	\$7C	83%	212	\$D3
16%	41	\$28	50%	128	\$7F	84%	214	\$D6
17%	43	\$2B	51%	130	\$82	85%	217	\$D8
18%	46	\$2D	52%	133	\$84	86%	219	\$DB
19%	48	\$30	53%	135	\$87	87%	222	\$DD
20%	51	\$33	54%	138	\$89	88%	224	\$E0
21%	54	\$35	55%	140	\$8C	89%	227	\$E2
22%	56	\$38	56%	143	\$8E	90%	230	\$E5
23%	59	\$3A	57%	145	\$91	91%	232	\$E8
24%	61	\$3D	58%	148	\$93	92%	235	\$EA
25%	64	\$3F	59%	150	\$96	93%	237	\$ED
26%	66	\$42	60%	153	\$99	94%	240	\$EF
27%	69	\$44	61%	156	\$9B	95%	242	\$F2
28%	71	\$47	62%	158	\$9E	96%	245	\$F4
29%	74	\$49	63%	161	\$A0	97%	247	\$F7
30%	77	\$4C	64%	163	\$A3	98%	250	\$F9
31%	79	\$4F	65%	166	\$A5	99%	252	\$FC
32%	82	\$51	66%	168	\$A8	100%	255	\$FF
33%	84	\$54	67%	171	\$AA			