

KNX manual
2/4-way wireless push button RF
KNX
PS 1 RF KNX



PS 1 RF KNX 4941625

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1 ⚡ IMPORTANT WARNINGS!



Danger of death through electric shock or fire!

- Installation should only be carried out by a qualified electrician!
- Before installation/dismounting, disconnect the mains voltage!
- Protect against accidental contact during installation.

2 Features

General:

- 2/4-way wireless push button with switch actuator
- For installation in flush-mounted boxes
- Programming mode can be activated via button combination.

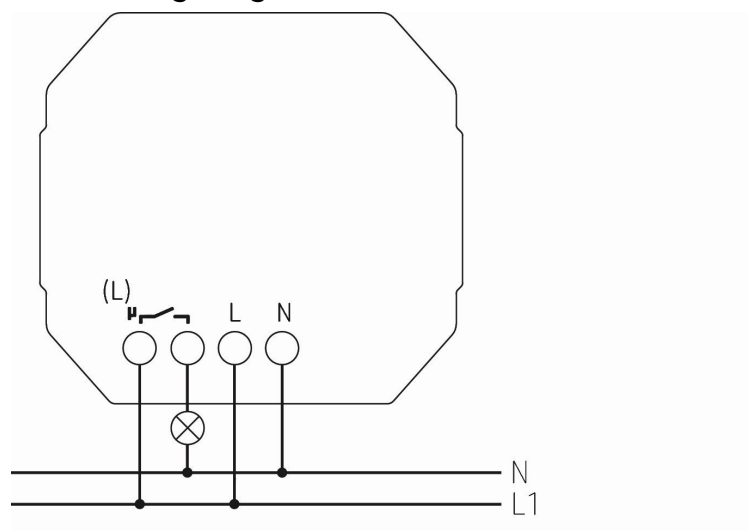
Wireless push button:

- Can be used as a 2- or 4-way push button
- Optionally for direct control of the switch actuator as well as dimming and blinds control with one and two-button operation possible
- Free allocation of functions: switching, dimming, blinds, priority, value, percentage value

Switch actuator:

- Links, type of contact (NC contact/NO contact) and participation in central commands such as permanent on, permanent off, central switching and save/call up scene.
- Configurable features: e.g. On/Off, pulse, Switch-on/off delay, staircase light with warning, flashing.
- Logical links: e.g. block, AND, release, OR.
- Activation of the channel function via 1-bit telegram or 8-bit threshold.

2.1 Wiring diagram



Note – Observe phase connection to supply **and** switch contact in order to correctly recognise zero crossing

3 Operation

The wireless push button with switch actuator PS 1 RF KNX has four buttons (F1-F4) and a 1-channel switch actuator.

i In the factory setting, the switch actuator can be switched on and off directly using all 4 buttons (without configuration).

Depending on the setting of the F1 button in the ETS, the actuator can be operated in 2 different ways:

Control via bus telegrams.

This is the classic configuration for a KNX actuator.

The actuator is controlled exclusively via bus telegrams.

i In this case, the buttons F1-F4 have no internal connection to the actuator.

Direct control (setting in the ETS)

The actuator channel can be operated with the F1 button.

i The F1 button is then used exclusively for this function and is no longer connected to the bus in this configuration, i.e. there are no communication objects.

The actuator itself retains all of its communication objects in this configuration

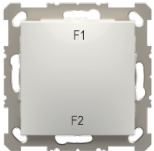
Either a single or double rocker can be fitted.

Depending on the rocker selection, the application must be configured accordingly:

- Single rocker = 2-way push button
- Double rocker = 4-way push button

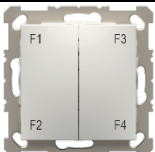
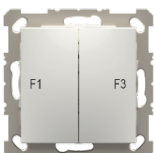
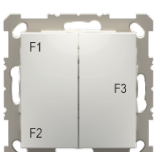
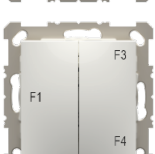
3.1 Button assignment for 2-way push button

When using a 2-way push button, either a single push button (F1/F2) or rocker (F1) can be configured.

Type of operation	Button assignment
Single push button (F1/F2)	
Rocker (F1)	

3.2 Button assignment for 4-way push button

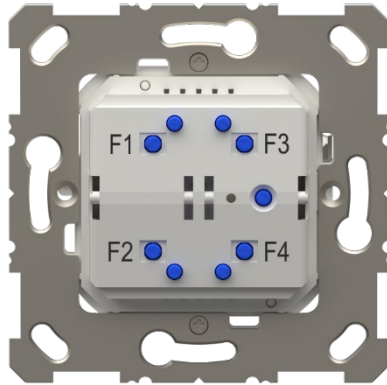
When using a 4-way push button, a distinction is made between left (F1/F2) and right (F3/F4). There is also a choice between single push button and rocker. This provides 4 configuration options.

Type of operation left	Type of operation right	Button assignment
Single push button (F1/F2)	Single push button (F3/F4)	
Rocker (F1)	Rocker (F3)	
Single push button (F1/F2)	Rocker (F3)	
Rocker (F1)	Single push button (F3/F4)	

3.3 Activating programming mode

Programming mode is activated by pressing any function button (F1-F4) six times, regardless of the application's charge status.

After successful activation, this is indicated by a red LED on the front of the device and also by a status LED on the back of the device.



Programming mode will be ended immediately by pressing any function button. After 4 minutes of inactivity, programming mode will automatically be terminated.

i The 6x click must occur within 3 seconds

i The physical address LED on the device front is only visible when the rocker switch is removed

3.4 Factory settings / Master reset

To reset the device to the factory settings using a master reset, the following button combination must be used:

- Device must be in programming mode (6x click of any function button)
- Press any button for 10 -15 s
- Release the button briefly (< 1 s)
- Press the same button for 10 - 15 s
- The successful master reset is signalled by the physical address LED flashing quickly 3 times after the button is released

i The FDSK remains valid, the physical address is set to 15.15.255

i Direct switching of the actuator is again possible via all 4 buttons

4 Technical data

Operating voltage	230 – 240 V AC
Frequency	50 – 60 Hz
Standby output	< 0.4 W
type of contact	Floating, 1 NO contact
Suitable for SELV	no
switching capacity	10 A (at 240 V AC, $\cos\varphi = 1$)
switch output	Only the phase of the supply voltage is allowed to be switched
minimum load	230 V / 10mA
Protection class	II subject to designated installation
Operating temperature	-5 °C...+45 °C
Incandescent/halogen lamp load	1800 W
Capacitive switching load inrush current	133 μ F max. 740 A / 200 μ s
Fluorescent lamp load (EB)	1100 W
Compact fluorescent lamps	300 W
LED lamps	< 2 W: 50 W > 2 W: 600 W
Rated impulse voltage	4 kV
Pollution degree	2
Max. cable cross-section	Solid: 0.5 mm ² ($\varnothing$ 0.8 mm) to 4 mm ² strand with crimp terminal: 0.5 mm ² to 2.5 mm ²
Torque screw terminal	0.5 Nm
Type of installation	Flush-mounted installation
Installation depth	25.6 mm
Radio frequency	868.3 MHz (KNX RF1.R)
Transmission power	< 10 mW
Free field range	Up to 100 m
Coding	FSK (Frequency Shift Keying)
Transceiver type	bidirectional

-
-  The switching capacity ratings for lamps with electronic ballast, such as LED, compact fluorescent lamps, fluorescent lamps with EB, etc., might vary depending on the technical characteristics of the ballasts.
 -  The switching capacity ratings refer to a relay lifetime of at least 30000 switching cycles.
 -  It is possible to exceed the switching capacity ratings for these lamps. However, this will reduce the lifetime of the relay.
-



Generally, it is not allowed to exceed the current and voltage ratings stated on the device!

5 General information about KNX Secure

From ETS5 version 5.5 (ETS version 5.7.7 or higher is recommended for the PS 1 RF KNX), secure communication in KNX systems is supported. 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 marked. 

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 'Deactivated'.

6 The "PS 1 RF KNX" application program

6.1 Selection in the product database

Manufacturer	Theben AG
Product family	Push button
Product type	PS 1 RF KNX
Program names	PS 1 RF KNX

Number of communication objects	36
Number of group addresses	255
Number of associations	255

 The ETS database can be found on our website: www.theben.de/downloads

 Recommended ETS version: ETS 5.7.7 or higher.

6.2 Overview of communication objects

6.2.1 switch actuator

No.	Object name	Function	Length	R	W	C	T	DPT
1	C1 – Switch – Receive	Switch object	1 bit	-	W	C	-	1001
		Threshold 0..65535	2 bytes	-	W	C	-	7.001
		Threshold EIS 5 (DPT9.xxx)	2 bytes	-	W	C	-	9.xxx
		Threshold as a percentage	1 byte	-	W	C	-	5.001
		Threshold value 0..255	1 byte	-	W	C	-	5.010
2	C1 – Switch – Receive	Switching with priority	2 bit	-	W	C	-	2.001
3	C1 – Switch – Receive	Logic input in XOR gate	1 bit	-	W	C	-	1.002
		Logic input in AND gate	1 bit	-	W	C	-	1.002
		Logic input in OR gate	1 bit	-	W	C	-	1.002
4	C1 – Switch – Receive	Block	1 bit	-	W	C	-	1.001
5	C1 – Switch – Receive	Call up/save scenes	1 byte	-	W	C	-	18.001
6	C1 – Switch – Receive	Block scenes = 1	1 bit	-	W	C	-	1.001
		Enable scenes = 1	1 bit	-	W	C	-	1.003
7	C1 – Switch – Send	On/Off feedback	1 bit	R	-	C	T	1.001
8	C1 – Switch – Send	Time to next service	2 bytes	R	-	C	T	7.007
		Operating hours feedback	2 bytes	R	-	C	T	7.001
9	C1 – Switch – Send	Service required	1 bit	R	-	C	T	1.001
10	C1 – Switch – Receive	Reset operating hours	1 bit	-	W	C	-	1.001
		Reset service	1 bit	-	W	C	-	1.001
40	Alarm - send	Excess temperature	1 bit	R	-	C	T	1.005

6.2.2 Wireless push button: Switching function, priority, percentage value, value

No.	Object name	Function	Length	R	W	C	T	DPT
41	<i>F1.1 – Send/Recive</i>	<i>Switching</i>	1 bit	R	W	C	T	1.001
		<i>Priority</i>	2 bit	R	-	C	T	2.001
		<i>Percentage value</i>	1 byte	R	-	C	T	5.001
		<i>Value</i>	1 byte	R	-	C	T	5.010
42	<i>F1.2 – Send/Recive</i>	<i>Switching</i>	1 bit	R	W	C	T	1.001
		<i>Priority</i>	2 bit	R	-	C	T	2.001
		<i>Percentage value</i>	1 byte	R	-	C	T	5.001
		<i>Value</i>	1 byte	R	-	C	T	5.010
45	<i>F1 - Receive</i>	<i>Block = 1</i>	1 bit	-	W	C	-	1.001
		<i>Block = 0</i>	1 bit	-	W	C	-	1.003
51-75	Channels 2 to 4 (details: see channel 1)							

6.2.3 Wireless push button: Dimming function

No.	Object name	Function	Length	R	W	C	T	DPT
41	<i>F1 – Send/Recive</i>	<i>Switching</i>	1 bit	R	W	C	T	1.001
42	<i>F1 - Send</i>	<i>Brighter/darker</i>	4 bit	R	-	C	T	3.007
		<i>Brighter</i>	4 bit	R	-	C	T	3.007
		<i>Darker</i>	4 bit	R	-	C	T	3.007
43	<i>F1.1 – Send/Recive</i>	<i>Switching</i>	1 bit	R	W	C	T	1.001
		<i>Priority</i>	2 bit	R	-	C	T	2.001
		<i>Percentage value</i>	1 byte	R	-	C	T	5.001
		<i>Value</i>	1 byte	R	-	C	T	5.010
45	<i>F1 - Receive</i>	<i>Block = 1</i>	1 bit	-	W	C	-	1.001
		<i>Block = 0</i>	1 bit	-	W	C	-	1.003
51-75	Channels 2 to 4 (details: see channel 1)							

6.2.4 Radio push button: Blinds function

No.	Object name	Function	Length	R	W	C	T	DPT
41	<i>F1 - Send</i>	<i>Step/stop</i>	1 bit	R	-	C	T	1.010
42	<i>F1 - Send/Recive</i>	<i>Up/down</i>	1 bit	R	W	C	T	1.008
		<i>Up</i>	1 bit	R	W	C	T	1.008
		<i>Down</i>	1 bit	R	W	C	T	1.008
43	<i>F1.1 - Send/Recive</i>	<i>Switching</i>	1 bit	R	W	C	T	1.001
		<i>Priority</i>	2 bit	R	-	C	T	2.001
		<i>Send percentage value</i>	1 byte	R	-	C	T	5.001
		<i>Height % ¹</i>	1 byte	R	-	C	T	5.001
		<i>Send value</i>	1 byte	R	-	C	T	5.010
44	<i>F1.2 - Send</i>	<i>Slat %¹</i>	1 byte	R	-	C	T	5.001
45	<i>F1 - Receive</i>	<i>Block = 1</i>	1 bit	-	W	C	-	1.001
		<i>Block = 0</i>	1 bit	-	W	C	-	1.003
51-75	Channels 2 to 4 (details: see channel 1)							

6.2.4 General objects

No.	Object name	Function	Length	R	W	C	T	DPT
101	<i>Central permanent - Receive</i>	<i>On</i>	1 bit	-	W	C	-	1.001
102	<i>Central permanent - Receive</i>	<i>Off</i>	1 bit	-	W	C	-	1.001
103	<i>Central switching - Recive</i>	<i>On/Off</i>	1 bit	-	W	C	-	1.001
104	<i>Central scenes - Recive</i>	<i>Call up/save</i>	1 byte	-	W	C	-	18.001

¹ Upon double-click with object type = *Height % + slat %*

6.3 Description of communication objects

6.3.1 Objects for the switch actuator

Object 1: Switch object, threshold as a percentage, threshold 0..255, threshold DPT 9.xxx, threshold 0..65535

Input object: this object activates the set channel function (see parameter: *Configuration options*).

The set channel function can either be activated via 1-bit telegram or by exceeding a threshold (8- or 16-bit telegram).

Parameters		Activation of channel function via
Activation of function via	Type of threshold object	
Switch object		1-bit telegram
Exceeding the threshold	Object type: Per cent (DPT5.001)	Exceeding percentage value
	Object type: Counter value 0..255 (DPT 5.010)	Any value in given numerical range
	Object type: Counter value 0..65535 (DPT 7.001)	
	Object type: EIS5 e.g. CO2, brightness (DPT 9.xxx)	2-byte floating-point number

Object 2: Switching with priority

Priority control:

Status of obj. Switching with priority	Channel status
0	As specified by the input object ²
1	
2	OFF
3	ON

Object 3: Logic input in AND gate, in OR gate, in XOR gate

Only available if operation is activated (*Configuration options* parameter page).

Forms a logical operation together with the input object to activate the channel function.

Object 4: Block

Blocks the channel function.

Response to the block being set and cancelled can be configured if the block function has been activated (*Configuration options* parameter page).

² Also in the case of direct control: push button F1

Object 5: Call up/save scenes

Only available if the scene function has been activated (**Configuration options** parameter page).

This object can be used to save and subsequently call up scenes.

Saving stores the channel status. It does not matter how this status is produced (whether via switch commands, central objects or the buttons on the device).

The saved status is restored when it is called up.

All scene numbers from 1 to 64 are supported.

Each channel can participate in up to 8 scenes.

See appendix: [Scenes](#)

Object 6: Block scenes = 1, enable scenes = 1

Blocks the scene function with a 1 or a 0 depending on the configuration.

As long as it is blocked, scenes cannot be saved or called up.

Object 7: On/Off feedback

Reports the current channel status.

The status can also be inverted depending on configuration.

Object 8: Time to next service, operating hours feedback

Only available if the operating hours counter function has been activated (**Configuration options** parameter page).

Reports, depending on selected type of hour counter (**Operating hours counter and service** parameter page), either the remaining period to the next service or the current status of the hours counter.

Object 9: Service required

Only available if the hour counter function has been activated (**Configuration options** parameter page) and *Type of hour counter* = *Counter for time to next service*.

Reports if the next service is due.

0 = not due

1 = service is due.

Object 10: Reset service, reset operating hours

Function	Use
<i>Reset service</i> ³	Reset service interval counter
<i>Reset operating hours</i> ³	Reset hour counter

³ Depending on configuration

6.3.2 Objects for the radio push button

6.3.2.1 Switching function, priority, send percentage value, send value

Object 41: F1.1 - send/receive switching, priority, percentage value...

First output object of the channel (first telegram).

Telegram format: Send/receive switching, send priority, send percentage value, send value.

Object 42: F1.2 - send/receive switching, priority, percentage value...

Second output object of the channel (second telegram, optional).

Telegram format: Send/receive switching, send priority, send percentage value, send value.

Objects 43-44

Not used.

Object 45: F1 - receive block = 1, or block = 0

The channel is blocked via this object.

The direction of action of the block object can be configured.

Objects 51-75

Objects for channels 2-4

6.3.2.2 Dimming function

Object 41: F1 - send/receive switching

Switches the dimming actuator on and off.

Object 42: F1 - send brighter, darker, brighter/darker

Sends 4-bit dimming commands to the dimming actuator.

Object 43: F1.1 - send/receive switching, priority, percentage value...

Output object for the additional function on double-click.

4 telegram formats can be set:

- Send/receive switching
- Send priority
- Send percentage value
- Send value 0-255

Object 45: F1 - receive block = 1, or block = 0

The channel is blocked via this object.

The direction of action of the block object can be configured.

Objects 51-75

Objects for channels 2-4

6.3.2.3 Blinds function

Object 41: F1 - send step/stop

Sends step/stop commands to the blinds actuator.

Object 42: F1 - send/receive up, down, up/down

Sends operating commands to the blinds actuator.

Object 43: F1.1 - send/receive switching, hight % + slat %, priority...

Output object for the additional function on double-click.

5 telegram formats can be set:

- Send/receive switching
- Send priority, send percentage value
- Send value 0-255
- Send height %.

Object 44: F1.2 - send slat %

Slat telegram for positioning the blinds upon double-click (together with object 43, with *object type = height + slat*).

Object 45: F1 - receive block = 1, or block = 0

The channel is blocked via this object.

The direction of action of the block object can be configured.

Objects 51-75

Objects for channels 2-4

6.3.3 General objects

Object 40: Alarm – excess temperature

Reports when the device has reached too high a temperature, e.g. because the maximum current has been exceeded, and has switched the output off.

Object 101: Central permanent On

Central switch-on function.

0 = no function

1 = permanent ON



This object takes top priority.

As long as it is set, other switch commands will not work on the participating channel.

Object 102: Central permanent Off

Central switch-off function.

0 = no function

1 = permanent OFF



This object has the second highest priority after Central permanent On. As long as it is set, other switch commands will not work on the participating channel.

Object 103: Central switching

Central switch function.

0 = Off

1 = On

With this object, the channel responds exactly as if its input object were receiving a switch command.

Object 104: Call up/save central scenes

Central object for using scenes.

This object can be used to save and subsequently call up "scenes".

See appendix: [Scenes](#)

6.4 Parameter pages overview

6.4.1 Wireless push button:

Parameter page	Description
<i>General</i>	Basic settings such as 2-way or 4-way push button and single push button or rocker, direction of action of the block telegram
<i>F1..F4 button [position]⁴</i>	Description, function of the input, number of telegrams.
<i>F1 Control directly</i>	Response to short, long operation
<i>F1..F4 Object 1</i>	Object type [<i>switching, priority, value, percentage value</i>] as well as transmission behaviour and block function can be set individually for each channel.
<i>F1..F4 Object 2</i>	
<i>F1..F4 Dimming</i>	Type of control and block function
<i>F1..F4 Blinds</i>	Type of control, stop behaviour and block function
<i>F1..F4 Double-click</i>	Additional telegrams for <i>Dimming</i> and <i>Blinds</i> .

6.4.2 Switch actuator C1

Parameter page	Description
<i>Configuration options</i>	Characteristics of channel and activation of additional functions (scenes, operation, etc.).
<i>Contact characteristics</i>	Type of contact and status after download, bus failure, etc.
<i>threshold</i>	Settings for triggering channel function through exceeding threshold.
<i>Block function</i>	Type of block telegram and response to blocking.
<i>Scenes</i>	Selection of scene numbers relevant to the channel.
<i>Feedback</i>	Status of feedback object, etc.
<i>Hour counter and service</i>	Type of hour counter and, if applicable, service interval, etc.
<i>Operation</i>	Selection of logical operation.

⁴ (Position) describes the position of the push button, e.g. top left button

6.5 General parameter page

Designation	Values	Description
<i>Use</i>	<i>2-way push button</i> <i>4-way push button</i>	A single rocker must be mounted on the device There are 2 button points available A double rocker must be mounted on the device There are 4 button points available
<i>Operation left</i> (only available if 4-way push button is selected, for 2-way push button left and right are combined)	<i>Single push button</i> <i>Rocker</i>	The two push buttons at the top left and bottom left are used as single push button. Different functions can be assigned via F1 and F2. The rocker function combines the two push buttons on the top left and bottom left into one rocker. This combines the functions F1 and F2 into one function.
<i>Operation right</i> (only available if 4-way push button is selected)	<i>Single push button</i> <i>Rocker</i>	The two push buttons at the top left and bottom left are used as single push button. Different functions can be assigned via F3 and F4. The rocker function combines the two push buttons on the top left and bottom left into one rocker. This combines the functions F3 and F4 into one function.
<i>Control actuator directly</i>	<i>No</i> <i>Yes</i>	The F1 button is used purely as a momentary-contact sensor, there is no internal connection to the switch actuator. The F1 button is used exclusively as an input for switch actuator channel C1. F1 is connected to C1 internally and has no communication objects
<i>Time for double-click</i>	<i>300 ms, 400 ms</i> <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>Long button push starting at</i>	<i>300 ms, 400 ms</i> <i>500 ms, 600 ms</i> <i>700 ms, 800 ms</i> <i>900 ms, 1 s</i>	Serves to 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.

Designation	Values	Description
Block telegram (direction of action applies to all channels)	Block with 1 (standard) Block with 0	0 = cancel block 1 = block 0 = block 1 = cancel block
Excess temperature alarm	Always Only in the event of malfunction	The status of the object is always sent with the selected cycle time, regardless of the status The status of the object is only sent in the event of an alarm and with the selected cycle time
Cycle time	every min every 2 min every 3 min ... every 30 min every 45 min every 60 min	Cycle time for the alarm excess temperature object

i First of all, the *Use* parameter should be used to define whether the device is to be used as a 2-way or a 4-way push button.

6.6 Parameter page F1..F4 button [position]⁵

Designation	Values	Description
Button F1		
<i>Description</i>	<i>Text field</i>	User-defined text for use as a function name.
<i>Function</i>	Switching (1 bit) <i>Dimming</i> <i>Blinds</i> Priority (2 bit) <i>Value 0-255 (1 byte)</i> <i>Percentage value (1 byte)</i>	Further parameter pages appear depending on the selected function
<i>Double-click additional function⁶</i>	no	No double-click function
	yes	The Double-click parameter page is displayed.
<i>How many telegrams are to be sent⁷</i>	One telegram <i>Two telegrams</i>	Each function has 2 output objects and can thus send up to 2 different telegrams.
The F2-F4 button, see the F1 button		

i The content of parameter pages F1 to F4 is identical, unless *Control actuator directly* is used, in which case F1 is internally connected to C1

6.6.1 Control directly parameter page

This parameter page appears if the *Control actuator directly* parameter has been selected on the *General* page.

Designation	Values	Description
<i>Response after short operation</i>	<i>No response</i> Switching	Determines how to respond to a short button push
<i>switching status</i>	Change over <i>On</i> <i>Off</i>	Invert current state (ON-OFF-ON etc.) Switch actuator C1 = On Switch actuator C1 = Off
<i>Response after long operation</i>	No response <i>Switching</i>	Determines how to respond to a short button push
<i>switching status</i>	See above: Same object type as with short operation.	
<i>Response after double-click</i>	No response <i>Switching</i>	Determines how to respond to a short button push
<i>switching status</i>	See above: Same object type as with short operation.	

⁵ (Position) describes the position of the push button, e.g. top left button

⁶ Only available with the dimming and blinds function

⁷ Only available with the switching, priority, value and percentage value functions

6.6.2 Parameter page objects 1, 2 (operation = single push button)

Each of the two objects can be configured individually on its own parameter page, whereby the object type of object 1 is specified via the function of the button.

Designation	Values	Description
Object type (for object 2 if used)	Switching (1 bit) Priority (2 bit) Value 0-255 Percentage value (1 byte)	Telegram type for this object.
Send after short operation	Do not send Send telegram	Respond to short button push?
Telegram	With object type = switching 1 bit	
	Change over	Invert current state (ON-OFF-ON etc.)
	On	Send switch-on command
	Off	Send switch-off command
	With object type = priority 2 bit	
	No priority	Function: Priority not active (no control) Value: 0 (00 _{bin})
	Priority On	Function: Priority ON (control: enable, on) Value: 3 (11 _{bin})
	Priority Off	Function: Priority OFF (control: disable, off) Value: 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.
Send after long operation	do not send Send telegram	Respond to long button push?
Telegram	See above: Same object type as with short operation.	
Send after double-click	do not send Send telegram	Respond to double-click?
Telegram	See above: Same object type as with short operation.	
Use block function	No Yes	Block object for the respective channel is displayed, use can be configured individually for each object.



If a channel object is blocked, no telegrams are sent from this object. The second channel object can continue to send or can also be blocked.

6.6.3 Parameter page objects 1, 2 (operation = rocker)

Each of the two objects can be configured individually on its own parameter page, whereby the object type of object 1 is specified via the function of the button.

Designation	Values	Description
Object type (for object 2 if used)	Switching (1 bit) Priority (2 bit) Value 0-255 Percentage value (1 byte)	Telegram type for this object.
Send after short operation	do not send Send telegram	Respond to short button push?
Telegram	With object type = switching 1 bit	
	Top On / bottom Off	Top button switch-on command Bottom button switch off command
	top change over / bottom change over	Top button change over command Bottom button change over command
	top Off / bottom On	Top button switch off command Bottom button switch on command
	top Off / bottom Off	Top button switch off command Bottom button switch off command
	top On / bottom On	Top button switch-on command Bottom button switch on command
	With object type = priority 2 bit	
	Telegram top button	Function
	No priority	Priority not active (no control)
	Priority On	Priority ON (control: enable, on)
	Priority Off	Priority OFF (control: disable, off)
	Telegram bottom button	Function
	No priority	Priority not active (no control)
	Priority On	Priority ON (control: enable, on)
	Priority Off	Priority OFF (control: disable, off)
	With object type = value 0-255	
	Telegram top button	
	0-255	Any value between 0 and 255 can be sent.
	Telegram bottom button	
	0-255	Any value between 0 and 255 can be sent.
	With object type = percentage value 1 byte	
	Telegram top button	

Designation	Values	Description
	0-100%	Any percentage value between 0 and 100% can be sent.
	Telegram bottom button	
	0-100%	Any percentage value between 0 and 100% can be sent.
Send after long operation	do not send Send telegram	Respond to long button push?
Telegram	See above: Same object type as with short operation.	
Send after double-click	do not send Send telegram	Respond to double-click?
Telegram	See above: Same object type as with short operation.	
Use block function	No Yes	Block object for the respective channel is displayed, use can be configured individually for each object.

i If a channel object is blocked, no telegrams are sent from this object. The second channel object can continue to send or can also be blocked.

6.6.4 Dimming parameter page (operation = single push button)

i This function is available for channels F1-F4 if the function has been selected on the *button* or *rocker* parameter page. The respective channel object 2 is then omitted

Designation	Values	Description
<i>Response to long/short</i>	One button operation The dimmer is operated with a single push button. Short = On/Off Long = brighter/darker Release = stop With the following variants, the dimmer is operated using 2 buttons (rocker). <i>Brighter / On</i> Short button push = On Long button push = brighter Release = stop <i>Brighter / change over</i> Short = On / Off Long button push = brighter Release = stop <i>Darker / Off</i> Short button push = Off Long button push = darker Release = stop <i>Darker / change over</i> Short = On / Off Long = darker Release = stop	The input distinguishes between a long and a short button push, and can thus carry out 2 functions.
<i>Increment for dimming</i>	100% 50% 25% 12.5% 6% 3% 1.5%	With a long button push, the dimming value is: Increased (or decreased) until the button is released. Increased by the selected value (or reduced)
<i>Use block function</i>	No Yes	Block object for the respective channel is displayed, use can be configured individually for each object.

i If a channel object is blocked, no telegrams are sent from this object. The second channel object (double-click) can continue to send or can also be blocked.

6.6.5 Double-click parameter page (operation = single push button)

Designation	Values	Description
<i>Object type</i>	Switching (1 bit) <i>Priority (2 bit)</i> <i>Value 0-255</i> <i>Percentage value (1 byte)</i>	Telegram type for this object.
<i>Telegram</i>	With object type = switching 1 bit	
	Change over	Invert current state (ON- OFF-ON etc.)
	<i>On</i>	Send switch-on command
	<i>Off</i>	Send switch-off command
	With object type = priority 2 bit	
	<i>No priority</i>	Function Priority not active (no control)
	Priority On	Value Priority On (control: enable, on)
	<i>Priority Off</i>	Priority Off (control: disable, off)
	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.
<i>Use block function</i>	No Yes	Block object for the respective channel is displayed, use can be configured individually for each object.

i If a channel object is blocked, no telegrams are sent from this object. The second channel object (double-click) can continue to send or can also be blocked.

6.6.6 Dimming parameter page (*operation = rocker*)

Designation	Values	Description
<i>Response to long/short</i>	<i>Top brighter / On, Bottom darker / Off</i> <i>Top brighter / change over, Bottom darker / change over</i>	The input distinguishes between a long and a short button push, and can thus carry out 2 functions. Top button: Short button push = On Long button push = brighter Release = stop Bottom button: Short button push = Off Long button push = darker Release = stop Top button: Short button push = On / Off Long button push = brighter Release = stop Bottom button: Short button push = On / Off Long button push = darker Release = stop
<i>Increment for dimming</i>	100% 50% 25% 12.5% 6% 3% 1.5%	With a long button push, the dimming value is: Increased (or decreased) until the button is released. Increased by the selected value (or reduced)
<i>Use block function</i>	No Yes	Block object for the respective channel is displayed, use can be configured individually for each object.

 If a channel object is blocked, no telegrams are sent from this object. The second channel object (double-click) can continue to send or can also be blocked.

6.6.7 Double-click parameter page (*operation = rocker*)

Designation	Values	Description
<i>Object type</i>	Switching (1 bit) <i>Priority (2 bit)</i> <i>Value 0-255</i> <i>Percentage value (1 byte)</i>	Telegram type for this object.
<i>Telegram</i>	With object type = switching 1 bit	
	Top On / bottom Off	Top button switch-on command Bottom button switch off command
	<i>Top change over / bottom change over</i>	Top button change over command Bottom button change over command
	<i>Top Off / bottom On</i>	Top button switch off command Bottom button switch on command
	<i>Top Off / bottom Off</i>	Top button switch off command Bottom button switch off command
	<i>Top On / bottom On</i>	Top button switch-on command Bottom button switch on command
	With object type = priority 2 bit	
	Telegram top button	Function
	<i>no priority</i>	Priority not active (no control)
	Priority On	Priority On (control: enable, on)
	<i>Priority Off</i>	Priority Off (control: disable, off)
	Telegram bottom button	Function
	<i>no priority</i>	Priority not active (no control)
	Priority On	Priority On (control: enable, on)
	<i>Priority Off</i>	Priority Off (control: disable, off)
	With object type = value 0-255	
	Telegram top button	
	0-255	Any value between 0 and 255 can be sent.
	Telegram bottom button	
	0-255	Any value between 0 and 255 can be sent.
	With object type = percentage value 1 byte	
	Telegram top button	
	0-100%	Any percentage value between 0 and 100% can be sent.
	Telegram bottom button	
	0-100%	Any percentage value between 0 and 100% can be sent.
<i>Use block function</i>	No Yes	Block object for the respective channel is displayed, use can be configured individually for each object.

6.6.8 Blinds parameter page (operation = single push button)

i This function is available for channels F1-F4 if the function has been selected on the *button* or *rocker* parameter page. The respective channel object 2 is then omitted

Designation	Values	Description
<i>Operation</i>	One button operation <i>Down</i> <i>Up</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. Short button push = step. Long button push = lower. Short button push = step. Long button push = raise.
<i>Movement is stopped by</i>	<i>Releasing the button</i> Short operation	Defines how the stop command is to be triggered.
<i>Use block function</i>	No <i>Yes</i>	Block object for the respective channel is displayed, use can be configured individually for each object.

6.6.9 Double-click parameter page (operation = single push button)

Designation	Values	Description
<i>Object type</i>	Switching (1 bit) <i>Priority (2 bit)</i> <i>Value 0-255</i> <i>Percentage value (1 byte)</i> <i>Height % + slat %</i>	Telegram type for this object.
<i>Telegram</i>	With object type = switching 1 bit	
	Change over	Invert current state (ON- OFF- ON etc.)
	<i>On</i>	Send switch-on command
	<i>Off</i>	Send switch-off command
	With object type = priority 2 bit	
	<i>no priority</i>	Function Priority not active (no control) Value 0 (00 _{bin})
	Priority On	Priority ON (control: enable, on) 3 (11 _{bin})
	<i>Priority Off</i>	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.
	With object type = height % + slat %	
		Upon double-click two telegrams are sent simultaneously:
	<i>Height</i>	Desired height of blinds in per cent
	<i>Slat</i>	Desired slat position in per cent
<i>Use block function</i>	No <i>Yes</i>	Block object for the respective channel is displayed, use can be configured individually for each object.

6.6.10 Blinds parameter page (operation = rocker)

Designation	Values	Description
<i>Operation</i>	Top button Up Bottom button Down (This value is fixed and cannot be changed)	The input distinguishes between a long and a short button push, and can thus carry out 2 functions. Top button: Short button push = step. Long button push = raise. Bottom button: Short button push = step. Long button push = lower.
<i>Movement is stopped by</i>	<i>Releasing the button</i> Short operation	Defines how the stop command is to be triggered.
<i>Use block function</i>	No Yes	Block object for the respective channel is displayed, use can be configured individually for each object.

6.6.11 Double-click parameter page (operation = rocker)

Designation	Values	Description
<i>Object type</i>	Switching (1 bit) <i>Priority (2 bit)</i> <i>Value 0-255</i> <i>Percentage value (1 byte)</i> <i>Height % + slat %</i>	Telegram type for this object.
<i>Telegram</i>	With object type = switching 1 bit	
	Top On / bottom Off	Top button switch-on command Bottom button switch off command
	<i>Top change over / bottom change over</i>	Top button change over command Bottom button change over command
	<i>Top Off / bottom On</i>	Top button switch off command Bottom button switch on command
	<i>Top Off / bottom Off</i>	Top button switch off command Bottom button switch off command
	<i>Top On / bottom On</i>	Top button switch-on command Bottom button switch on command
	With object type = priority 2 bit	
	Telegram top button	Function Value

Designation	Values	Description
	<i>No priority</i>	Priority not active (no control) 0 (00 _{bin})
	Priority On	Priority ON (control: enable, on) 3 (11 _{bin})
	<i>Priority Off</i>	Priority OFF (control: disable, off) 2 (10 _{bin})
	Telegram bottom button	Function Value
	<i>No priority</i>	Priority not active (no control) 0 (00 _{bin})
	Priority On	Priority ON (control: enable, on) 3 (11 _{bin})
	<i>Priority Off</i>	Priority OFF (control: disable, off) 2 (10 _{bin})
	With object type = value 0-255	
	Telegram top button	
	0-255	Any value between 0 and 255 can be sent.
	Telegram bottom button	
	0-255	Any value between 0 and 255 can be sent.
	With object type = percentage value 1 byte	
	Telegram top button	
	0-100%	Any percentage value between 0 and 100% can be sent.
	Telegram bottom button	
	0-100%	Any percentage value between 0 and 100% can be sent.
	With object type = height % + slat %	
	Telegram top button	Upon double-click two telegrams are sent simultaneously:
	<i>Height</i>	Desired height of blinds in per cent
	<i>Slat</i>	Desired slat position in per cent
	Telegram bottom button	Upon double-click two telegrams are sent simultaneously:
	<i>Height</i>	Desired height of blinds in per cent
	<i>Slat</i>	Desired slat position in per cent
<i>Use block function</i>	No Yes	Block object for the respective channel is displayed, use can be configured individually for each object.

6.7 Parameters for the switch actuator channel C1

6.7.1 Configuration options parameter page

Designation	Values	Description
Description	Text field	User-defined text for use as a function name.
<i>Channel function</i>	Switching On/Off <i>Switch-on/off delay</i> <i>Pulse function</i> <i>Staircase light time switch with forewarning function</i> Flashing	Determines the basic functionality of the channel.
<i>Activation of function via</i>	Switch object <i>Exceeding the threshold</i>	The channel is operated via a 1-bit object. The channel is operated through exceeding a 1- or 2-byte threshold. See Threshold parameter page
<i>Adjust block function</i>	Yes No	The block function can be individually adjusted. The relevant parameter page is shown. The block function works with the standard parameters: - <i>Block with 1 (standard)</i> - <i>When the block is set: Unchanged</i> - <i>When cancelling: Update.</i>
<i>Activate scenes</i>	Yes No	Defines whether scenes should be used.
<i>Adjust feedback</i>	Yes	The feedback function can be individually adjusted. The relevant parameter page is shown.

Designation	Values	Description
	No	The <i>Feedback</i> function works with the standard parameters: - <i>not inverted</i> - <i>do not send cyclically</i>
<i>Activate hour counter</i>	Yes No	Defines whether the hour counter / service interval function should be used
<i>Activate operation</i>	Yes No	Defines whether logical links should be used with the channel object

6.7.2 Contact properties parameter page

Designation	Values	Description
<i>type of contact</i>	NO contact <i>Opening contact</i>	Standard: The relay contact is closed when a switch-on command is issued. Inverted: The relay contact is opened when a switch-on command is issued.
<i>Condition after download or mains restoration</i>	<i>Off</i> <i>On</i> same as before failure	After return of mains voltage... ..the relay is switched off. ..the relay switches on. ...the relay remains in the same state as before.

6.7.3 Time function parameter page

6.7.3.1 Function: Switch-on/off delay

This parameter page appears if *Switch-on/off delay* has been selected as the *Channel function*.

Designation	Values	Description
<i>Switch-on delay</i>		
<i>Hours</i>	<i>0..3</i>	Input of desired switch-on delay in hours.
<i>Minutes</i>	<i>0..60</i>	Input of desired switch-on delay in minutes.
<i>Seconds</i>	<i>0..255</i>	Input of desired switch-on delay in seconds.
<i>Switch-off delay</i>		
<i>Hours</i>	<i>0..3</i>	Input of desired switch-off delay in hours.
<i>Minutes</i>	<i>0..60</i>	Input of desired switch-off delay in minutes.
<i>Seconds</i>	<i>0..255</i>	Input of desired switch-off delay in seconds.

6.7.3.2 Function: Pulse

This parameter page appears if *Pulse function* has been selected as the *Channel function*.

Designation	Values	Description
<i>Hours</i>	<i>0..3</i>	Input of desired pulse duration in hours.
<i>Minutes</i>	<i>0..60</i>	Input of desired pulse duration in minutes.
<i>Seconds</i>	<i>0..255</i>	Input of desired pulse duration in seconds.
<i>Pulse can be retriggered (with 1 on switch object)</i>	<i>Yes</i>	The pulse can be extended as often as desired via a 1-telegram
	<i>No</i>	The pulse cannot be extended.
<i>Pulse can be reset (with 1 on switch object)</i>	<i>Yes</i>	The pulse can be ended early at any time via a 0-telegram.
	<i>No</i>	The pulse cannot be ended prematurely

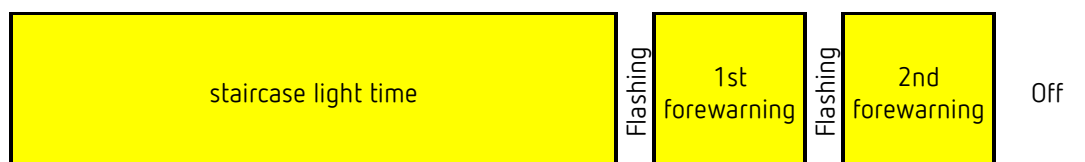
6.7.3.3 Function: Staircase light with forewarning function

This parameter page appears if *Staircase light with forewarning function* has been selected as the *Channel function*.

The user can press a push button again to extend the staircase light time at any time.

Designation	Values	Description
<i>Staircase light time (min. 1 s)</i>		
<i>Hours</i>	0..3	Input of desired switch-on delay in hours.
<i>Minutes</i>	0..60	Input of desired switch-on delay in minutes.
<i>Seconds</i>	0..255	Input of desired switch-on delay in seconds.
<i>The maximum sum of pulses</i>	1..40 Default value = 5	Determines how often the staircase light time can be extended (restarted) by another button push.
<i>Duration of the 1st forewarning in s</i>	0 1..60 Default value = 10	The light switches off immediately once the staircase light time is completed. Once the staircase light time has expired, the light should flash briefly and then stay on for the duration of the forewarning
<i>Duration of the 2nd forewarning in s</i>	0 1..60 Default value = 30	No 2nd forewarning. At the end of the 1st forewarning, the light will be switched off. Second forewarning: After expiry of the 1st forewarning, the light should flash briefly and then stay on for the duration of the 2nd forewarning After this time, the light will be switched off.

Example: forewarning function



6.7.3.4 Function: Flashing

This parameter page appears if *Flashing* has been selected as the *Channel function*.

Designation	Values	Description
On phase of the flash pulse		
<i>Hours</i>	0..3	Input of desired pulse time in hours.
<i>Minutes</i>	0..60	Input of desired pulse time in minutes.
<i>Seconds</i>	0..255	Input of desired pulse time in seconds.
Off phase of the flash pulse		
<i>How often should it flash</i>	<i>Until it switches off</i> 1 x 2 x 3 x 4 x 5 x 7 x 10 x 15 x 20 x 30 x 50 x	The channel flashes until a switch-off telegram is received. The channel flashes as often as set here.
<i>Hours</i>	0..3	Input of desired length of break in hours.
<i>Minutes</i>	0..60	Input of desired length of break in minutes.
<i>Seconds</i>	0..255	Input of desired length of break in seconds.

6.7.4 Threshold parameter page

This page is shown if the *Activation of the function by exceeding threshold parameter* is set.

Designation	Values	Description
<i>Type of threshold object</i>	Per cent (DPT5.001) <i>Counter value 0..255 (DPT 5.010)</i> <i>Counter value 0..65535 (DPT 7.001)</i> <i>Floating-point number (DPT9) e.g. temperature, brightness</i>	Threshold format
Parameter for threshold object <i>Per cent</i>		
<i>threshold</i>	1..99% <i>Default value = 50%</i>	Desired threshold. Example of NO contact with response as switch object = 1: Switches on when: Object value > threshold Switches off when: Object value < threshold - hysteresis
<i>Hysteresis (in %)</i>	1..99% <i>Default value = 10%</i>	The hysteresis prevents frequent switching after small fluctuations in readings.
Parameter for threshold object <i>Counter value 0..255</i>		

Designation	Values	Description
<i>threshold</i>	1..254 <i>Default value = 127</i>	Desired threshold. Example of NO contact with response as switch object = 1: Switches on when: Object value > threshold Switches off when: Object value < threshold - hysteresis
<i>hysteresis</i>	1..254 <i>Default value = 5</i>	The hysteresis prevents frequent switching after small fluctuations in readings.
Parameter for threshold object <i>Counter value 0..65535</i>		
<i>threshold</i>	1..65534 <i>Default value = 1000</i>	Desired threshold. Example of NO contact with response as switch object = 1: Switches on when: Object value > threshold Switches off when: Object value < threshold - hysteresis
<i>hysteresis</i>	1..65534 <i>Default value = 5</i>	The hysteresis prevents frequent switching after small fluctuations in readings.
Parameter for threshold object <i>Floating-point number (DPT9), e.g. temperature, brightness, etc.)</i>		
<i>threshold</i>	-671088.64.. 670433.28 <i>Default value = 20</i>	Desired threshold. Example of NO contact with response as switch object = 1: Switches on when: Object value > threshold Switches off when: Object value < threshold - hysteresis
<i>hysteresis</i>	0.. 670433.28 <i>Default value = 1</i>	The hysteresis prevents frequent switching after small fluctuations in readings.
<i>Response on exceeding the threshold</i>	<i>As switch object = 0</i> <i>As switch object = 1</i>	Should the channel switch on or off on exceeding the threshold? The set type of contact must be taken into account here. NO contact: the relay switches off when exceeding. Opening contact: the relay switches on when exceeding. NO contact: the relay switches on when exceeding. Opening contact: the relay switches off when exceeding.

6.7.5 Block function parameter page

This page appears when *Activate block function* is selected on the *Configuration options* parameter page.

Designation	Values	Description
<i>Block telegram</i>	<i>Block with 1 (standard)</i> <i>Block with 0</i>	0 = Cancel block 1 = block 0 = block 1 = cancel block Note: The block is always deactivated after reset.
<i>Response when setting the block</i>	<i>Off</i> <i>On</i> <i>Unchanged</i>	Switch off Switch on No response
<i>Response when the block is cancelled</i>	<i>Off</i> <i>On</i> <i>Unchanged</i>	Switch off Switch on No response

6.7.6 Scenes parameter page

This page appears when *Activate scenes* is selected on the **Configuration options** parameter page.

Each channel can participate in up to 8 scenes.

Designation	Values	Description
<i>Block telegram for scenes</i>	Block with 1 (standard) <i>Block with 0</i>	0 = cancel block 1 = block 0 = block 1 = cancel block Note: With this setting, the scenes are always blocked immediately after reset or download.
<i>All channel scene statuses</i>	Overwrite on download <i>Unchanged after download</i>	A download deletes all scene memories of a channel, i.e. all previously taught-in scenes. When a scene number is called up, the channel assumes the configured status after download. See appendix: Teaching in scenes without telegrams All previously taught-in scenes are saved. However, the scene numbers to which the channel should react can be changed (see below: Channel reacts to).
<i>Channel reacts to⁸</i>	<i>No scene number</i> Scene number 1 : <i>Scene number 63</i>	First of the 8 possible scene numbers to which the channel is to react.
<i>Assigned status⁸</i>	Off On	New switching status which is to be allocated to the selected scene number. Only possible if the scene statuses are to be overwritten after download.
<i>Permit teach-in⁸</i>	No Yes	Scenes can only be called up. The user can both call up and teach in or amend scenes.

⁸ This parameter is available once for each of the 8 options

6.7.7 Feedback parameter page

Designation	Values	Description
<i>Reported status</i>	<i>Not inverted</i> <i>inverted</i>	Channel switched on: feedback object sends a 1 Channel switched on: feedback object sends a 0
<i>Send feedback cyclically</i>	No <i>Yes</i>	Send at regular intervals?
<i>Time for cyclical transmission of feedback</i>	<i>2 min</i> <i>3 min</i> <i>5 min</i> <i>10 min</i> 15 min <i>20 min</i> <i>30 min</i> <i>45 min</i> <i>60 min</i>	At what interval?

6.7.8 Hour counter and service parameter page

This page appears when *Activate hour counter* is selected on the *Configuration options* parameter page.

Designation	Values	Description
<i>Type of hour counter</i>	Hour counter	Forward counter for channel duty cycle.
	<i>Counter for time to next service</i>	Backward counter for channel duty cycle.
Hour counter		
<i>Reporting of operating hours in the event of a change (0 = no report)</i>	0..100 h Default value = 10	At what interval is the current counter reading to be sent? Example: 10 = Send each time the counter reading increases by another 10 hours.
<i>Report operating hours cyclically</i>	No Yes	Send at regular intervals?
<i>Time for cyclical transmission</i>	2 min 3 min 5 min 10 min 15 min 20 min 30 min 45 min 60 min	At what interval?
Counter for time to next service		
<i>Service interval (x10 h)</i>	0..2000 Default value = 100	Desired time between 2 services. Example: 10 = 10 x 10 h = 100 hours
<i>Reporting of time to service in the event of a change (0 = do not report)</i>	0..100 Default value = 10	At what interval is the current counter reading to be sent? Example: 10 = Send each time the counter reading decreases by another 10 hours.
<i>Report time to service cyclically</i>	No Yes	Send remaining time to next service at regular intervals? → Object <i>Time to next service</i> .
<i>Report service cyclically</i>	No Yes	Send at regular intervals? → Object <i>Service required</i> .
<i>Time for cyclical transmission (if used)</i>	2 min, 3 min, 5 min, 10 min, 15 min, 20 min, 30 min, 45 min, 60 min	At what interval?

6.7.9 Link parameter page

Designation	Values	Description
<i>Activate operation</i>	AND operation <i>OR operation (override)</i> <i>XOR operation</i>	Selection of logical operation with the channel object The <i>Logic input in AND gate</i> object appears. The <i>Logic input in OR gate</i> object appears. The <i>Logic input in XOR gate</i> object appears.
<i>Block object affects logic object</i>	No <i>Yes</i>	The block object only affects the input object. If required, the link object can activate the channel function despite block (with OR and XOR operation). The block object affects the input object and the logic object. The channel function is completely blocked if the block is active.

7 Typical applications

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

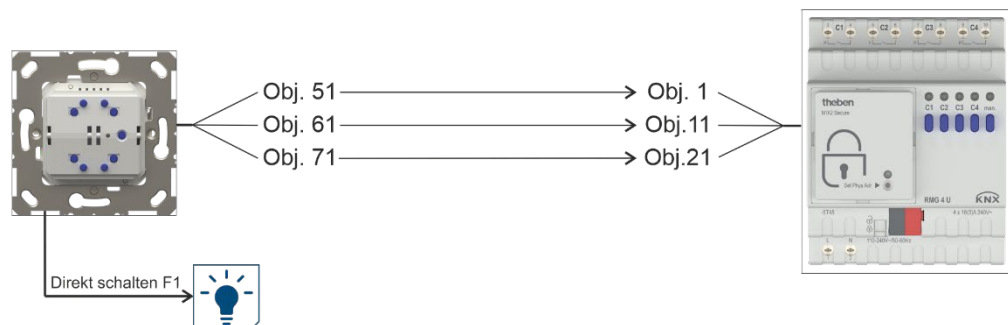
7.1 Switching light

In this configuration, the switch actuator channel C1 of the wireless push button PS 1 RF KNX is operated directly with the F1 button. Each time the button is pressed, the relay is switched. The F2-F4 buttons control 3 channels of the switch actuator RMG 4 U.

7.1.1 Devices

- PS 1 RF KNX (4941625)
- RMG 4 U (4930223) with application version 2.1

7.1.2 Overview



7.1.3 Objects and links

Links:

No.	PS 1 RF KNX Object name	No.	RMG 4 U Object name	Comment
51	<i>F2.1 switching</i>	1	<i>RMG 4 U C1</i>	PS 1 RF KNX sends switch commands to RMG 4 U
61	<i>F3.1 switching</i>	11	<i>RMG 4 U C2</i>	
71	<i>F4.1 switching</i>	21	<i>RMG 4 U C3</i>	

7.1.4 Important parameter settings

PS 1 RF KNX:

Parameter page	Parameters	Setting
General	<i>Use</i>	<i>4-way push button</i>
	<i>Operation left</i>	<i>Single push button</i>
	<i>Operation right</i>	<i>Single push button</i>
	<i>Control actuator directly</i>	<i>Yes</i>
F1 button top left		
Control directly	<i>Response after short operation</i>	<i>Change over</i>
F2 button bottom left	<i>Function</i>	<i>Switching</i>
Object1 - switching	<i>Send after short operation</i>	<i>Send telegram</i>
	<i>Telegram</i>	<i>Change over</i>
F3 button top right	<i>Function</i>	<i>Switching</i>
Object1 - switching	<i>Send after short operation</i>	<i>Send telegram</i>
	<i>Telegram</i>	<i>Change over</i>
F4 button bottom right	<i>Function</i>	<i>Switching</i>
Object1 - switching	<i>Send after short operation</i>	<i>Send telegram</i>
	<i>Telegram</i>	<i>Change over</i>

RMG 4 U:

Parameter page	Parameters	Setting
RMG 4 U channel C1-C3: Configuration options	<i>Channel function</i>	<i>Switching On/Off</i>
	<i>Activation of function via</i>	<i>Switch object</i>

7.2 Two dimming lighting groups (single button operation), actuator via bus

The wireless push button PS 1 RF KNX controls both channels of the dimming actuator DMG 2 T. One single push button of the 4-way push-button is used for each lighting group (dimming actuator channel). In addition, the switch actuator channel of the PS 1 RF KNX is controlled with the aid of a KNX push button interface (TA 2 S).⁹

One short button push (F1 or F2) switches the light on or off.

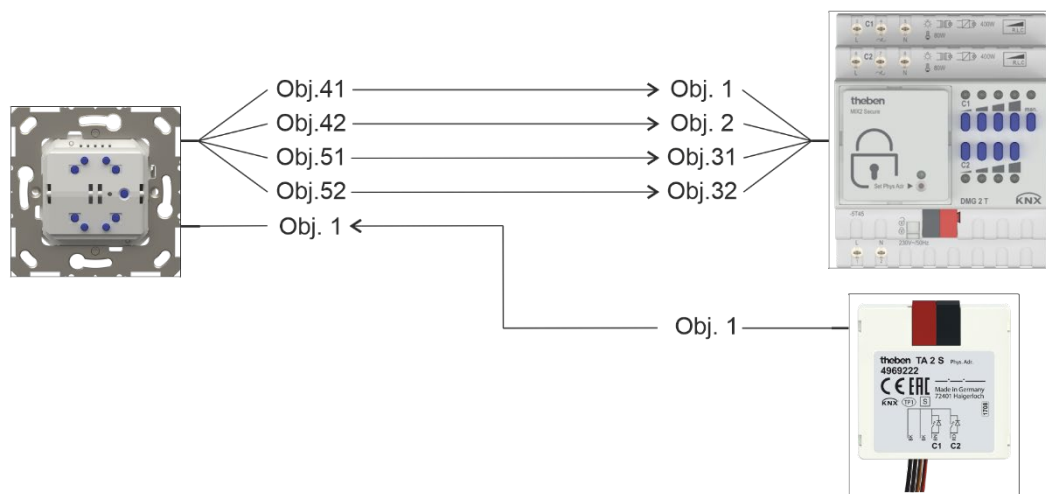
With a long button push (F1 or F2) the brightness changes.

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

7.2.1 Devices

- PS 1 RF KNX (4941625)
- DMG 2 T (4930270) with application version 2.1
- TA 2 S (496922)

7.2.2 Overview



⁹ Normal KNX operation, without direct control

7.2.3 Objects and links

Links:

No.	PTU 4 RF Object name	No.	DMG 2 T Object name	Comment
41	F1 Switching	1	DMG 2 T C 1 Switching On/Off	Long button push for brighter/darker dimming commands.
42	F1 Brighter/darker	2	DMG 2 T C 1 Brighter/darker	
51	F2 Switching	31	DMG 2 T C 2 Switching On/Off	Short button push for On/Off commands.
52	F2 Brighter/darker	32	DMG 2 T C 2 Brighter/darker	

No.	TA 2 S Object name	No.	PS 1 RF KNX KNX Object name	Comment
1	Channel I1.1	1	Switch actuator switch	PS 1 RF KNX KNX receives switching command from the TA 2 S

7.2.4 Important parameter settings

PS 1 RF KNX:

Parameter page	Parameters	Setting
General	Operation left	Single push button
F1 button top left	Function	Dimming
F1 Dimming	Response to long/short	One button operation
F2 button top left	Function	Dimming
F2 Dimming	Response to long/short	One button operation

DMG 2 T:

Parameter page	Parameters	Setting
Dimming response (C1 and C2)	Switching on/off with a 4 bit Telegram	no

TA 2 S:

Parameter page	Parameters	Setting
Channel 1 configuration options	Channel 1 function	Push button
Push button object 1	Object type	Switching (1 bit)
	Send after short operation	Send telegram
	Value	Change over

7.3 Dimming two lighting groups (2 rocker buttons), switch actuator by double-click

The wireless push button PS 1 RF KNX controls both channels of the 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

Double-clicking any button switches the switch actuator channel On/Off



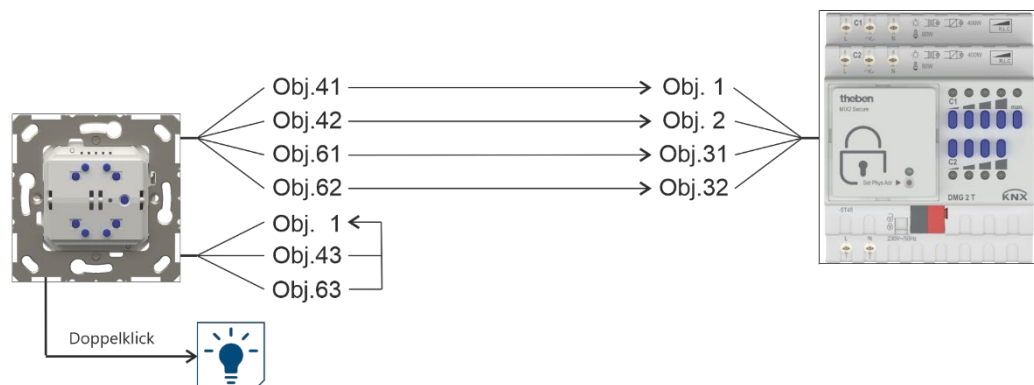
One rocker button, i.e. 2 inputs are used for each lighting group.

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

7.3.1 Devices

- PS 1 RF KNX (4941625)
- DMG 2 T (4930270) with application version 2.1

7.3.2 Overview



7.3.3 Objects and links

Links:

No.	PS 1 RF KNX Object name	No.	DMG 2 T Object name	Comment
41	<i>F1 Switching</i>	1	<i>DMG 2 T C1 Switching On/Off</i>	First lighting group: Sends at short button push On/Off commands to the dimming actuator.
42	<i>F1 Brighter/darker</i>	2	<i>DMG 2 T C1 Brighter/darker</i>	Sends brighter/darker commands to the dimming actuator with a long button push.
61	<i>F3 Switching</i>	31	<i>DMG 2 T C2 Switching On/Off</i>	Second lighting group: Sends at short button push On/Off commands to the dimming actuator.
62	<i>F3 Brighter/darker</i>	32	<i>DMG 2 T C2 Brighter/darker</i>	Sends brighter/darker commands to the dimming actuator with a long button push.

No.	PS 1 RF KNX Object name	No.	PS 1 RF KNX Object name	Comment
43	<i>F1.1 Send/Recive</i>	1	<i>Switch actuator switch</i>	Double-clicking sends changeover command to own switch actuator channel ¹⁰
63	<i>F3.1 Send/Recive</i>	1	<i>Switch actuator switch</i>	

¹⁰ The three objects are linked to the same group address

7.3.4 Important parameter settings

PS 1 RF KNX

Parameter page	Parameters	Setting
General	<i>Use</i>	<i>4-way push button</i>
	<i>Operation left</i>	<i>Rocker</i>
	<i>Operation right</i>	<i>Rocker</i>
	<i>Control actuator directly</i>	<i>No</i>
F1 rocker left	<i>Function</i>	<i>Dimming</i>
	<i>Double-click additional function</i>	<i>Yes</i>
F1 Dimming	<i>Response to long/short</i>	<i>Top brighter/On, Bottom darker/Off¹¹</i>
F1 Double-click	<i>Object type</i>	<i>Switching</i>
	<i>Telegram</i>	<i>Top change over / bottom change over</i>
	<i>Telegram</i>	<i>Change over</i>
F3 rocker right	<i>Function</i>	<i>Dimming</i>
F3 Dimming	<i>Response to long/short</i>	<i>Top brighter/On, Bottom darker/Off</i>
F3 Double-click	<i>Object type</i>	<i>Switching</i>
	<i>Telegram</i>	<i>Top change over / bottom change over</i>
	<i>Telegram</i>	<i>Change over</i>

DMG 2 T

Parameter page	Parameters	Setting
Dimming response (C1 and C2)	<i>Switching on/off with a 4 bit Telegram</i>	<i>no</i>

¹¹ Top brighter/change over, bottom darker/change over is also possible.

8 Appendix

8.1 General information about KNX RF

As with KNX TP, KNX RF also distinguishes between Standard and Easy mode.

The standard mode is called "KNX RF1.R S mode". The carrier frequency is 868.3 MHz. This relatively low frequency offers excellent signal propagation compared to higher frequencies (Bluetooth: 2.4 GHz or WLAN: 2.4/5 GHz) and a good balance between power consumption and range. The range in the free field is up to 100 m. Inside buildings, the range depends on structural factors and conditions.

The structural conditions and distances between the radio products must already be taken into account when planning the electrical installation. The radio signals are mainly dampened by e.g. concrete components with steel reinforcement or metal components. The more dampening components between transmitter and receiver and the greater the distance, the more critical for the radio communication. For a system with TP and RF lines, the placement of the media coupler must be planned as much in the centre as possible.

Furthermore, the frequency range used by KNX RF is not exclusively available to KNX. This means other radio systems might also be in a building and influence the KNX RF communication (e.g. garage door drives, alarm systems, weather stations, etc.).

Other devices, such as ballasts and lamps, can also be potential sources of interference for KNX RF systems due to the emission of electromagnetic waves.

The ETS app *KNX RF Field Strength Analyzer* from Tapko Technologies GmbH shows the receiving field strength of selected KNX RF products and can support start-up and troubleshooting.

In ETS 5, the "RF" transmission medium can be selected for a line. The KNX RF products are included in this line. For each line with "RF" medium, the ETS generates a unique domain address. The KNX RF products added in the RF line are assigned to this domain address. This ensures that pieces of information from neighbouring KNX RF lines will not influence each other. Only devices with the same domain address communicate with each other. The domain address is automatically transmitted by the ETS when programming the KNX RF products. An RF line can have a maximum of 256 devices (addresses 0...255). If the system consists of several RF lines or a combination of TP and RF media, the first device in the RF line is always a media coupler with the physical address x.x.0 (e.g. 1.2.0). The media coupler transmits the information across all lines via the TP medium. KNX-RF products can be easily recognised in the ETS product catalogue thanks to the specific wireless symbol. 

8.2 Scenes

8.2.1 Principle

The current status of a channel, or of a complete device, can be stored and retrieved later at any time via the scene function.

Each channel can participate simultaneously in up to 8 scenes.
Scene numbers 1 to 64 are permitted.

Permission to participate in scenes must be granted for the relevant channel via parameter.
See *Activate scenes* parameter and *Scenes* parameter page.

The current status is allocated to the appropriate scene number when a scene is saved.

The previously saved status is restored when a scene number is called up.

This allows a device to be easily and conveniently integrated into any user scene.

The scenes are permanently stored and can be retained even after the application has been downloaded again. See *All channel scene statuses* parameter on the *Scenes* parameter page.

8.2.1 Calling up or saving scenes:

To call up or save a scene, the relevant code is sent to the corresponding scene object.

Scene	Call up		Save	
	Hex.	Dec.	Hex.	Dec.
1	\$00	0	\$80	128
2	\$01	1	\$81	129
3	\$02	2	\$82	130
4	\$03	3	\$83	131
5	\$04	4	\$84	132
6	\$05	5	\$85	133
7	\$06	6	\$86	134
8	\$07	7	\$87	135
9	\$08	8	\$88	136
10	\$09	9	\$89	137
11	\$0A	10	\$8A	138
12	\$0B	11	\$8B	139
13	\$0C	12	\$8C	140
14	\$0D	13	\$8D	141
15	\$0E	14	\$8E	142
16	\$0F	15	\$8F	143
17	\$10	16	\$90	144
18	\$11	17	\$91	145
19	\$12	18	\$92	146
20	\$13	19	\$93	147
21	\$14	20	\$94	148
22	\$15	21	\$95	149
23	\$16	22	\$96	150
24	\$17	23	\$97	151
25	\$18	24	\$98	152

Scene	Call up		Save	
	Hex.	Dec.	Hex.	Dec.
26	\$19	25	\$99	153
27	\$1A	26	\$9A	154
28	\$1B	27	\$9B	155
29	\$1C	28	\$9C	156
30	\$1D	29	\$9D	157
31	\$1E	30	\$9E	158
32	\$1F	31	\$9F	159
33	\$20	32	\$A0	160
34	\$21	33	\$A1	161
35	\$22	34	\$A2	162
36	\$23	35	\$A3	163
37	\$24	36	\$A4	164
38	\$25	37	\$A5	165
39	\$26	38	\$A6	166
40	\$27	39	\$A7	167
41	\$28	40	\$A8	168
42	\$29	41	\$A9	169
43	\$2A	42	\$AA	170
44	\$2B	43	\$AB	171
45	\$2C	44	\$AC	172
46	\$2D	45	\$AD	173
47	\$2E	46	\$AE	174
48	\$2F	47	\$AF	175
49	\$30	48	\$B0	176
50	\$31	49	\$B1	177
51	\$32	50	\$B2	178
52	\$33	51	\$B3	179
53	\$34	52	\$B4	180
54	\$35	53	\$B5	181
55	\$36	54	\$B6	182
56	\$37	55	\$B7	183
57	\$38	56	\$B8	184
58	\$39	57	\$B9	185
59	\$3A	58	\$BA	186
60	\$3B	59	\$BB	187
61	\$3C	60	\$BC	188
62	\$3D	61	\$BD	189
63	\$3E	62	\$BE	190
64	\$3F	63	\$BF	191

Examples (central or channel-related):

Call up status of scene 5:

→ Send \$04 to the relevant scene object.

Save current status with scene 5:

→ Send \$84 to the relevant scene object.

8.2.2 Teaching in scenes without telegrams

Instead of defining scenes individually by telegram, this can be done in advance in the ETS. This merely requires the *All channel scene statuses* parameter (*Scenes* parameter page) to be set to *Overwrite on download*.

The required status can then be selected for each of the 8 possible scene numbers of a channel (= *Status after download* parameter).

After the download, the scenes are already programmed into the device.

Later changes via teach-in telegrams are possible if required and can be permitted or blocked via a parameter.

8.3 Conversion of percentages to decimal and hexadecimal values

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.