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Water-protected surface-mounted push-button bus coupler

Order No. 5151 30, 5152 30, 5161 30, 5162 30

Contents

1 Product definition

1.1 Product catalogue

Description: Water-prot surf-mnt push-butn bus coup

Use: Sensor

Design: FM (flush-mounted)

Order No. 5151 30, 5152 30, 5161 30, 5162 30

1.2 Function

The KNX bus coupler push-button (BA push-button) combines the functions of a simple push-button and bus coupler in just one device. The bus coupler push-button must be configured with the ETS and put into operation. The devices described in this documentation are suitable for water-protected surface-mounting (device versions 5151 30, 5152 30, 5161 30, 5162 30).

In the "two-point operation" device version, the rocker switch can also be operated on both sides (top or bottom). In the ETS, the operation concept can then be configured to rocker function (the same KNX function on both control elements) or alternatively to push-button function (the same or different KNX functions on the control elements). In the "two-point operation" version, the rocker switches are upright when they are not pressed.
In the "single-point operation" device version, the rocker switch can only be operated on one side (e.g. at the bottom), so that only push-button functions are executable. In this case, the rocker switch is slanting when it is not pressed.
In the ETS, the KNX functions "Switch", "Dim" and "Venetian blind" are configurable for rocker switch operation concepts. In the pushbutton control concepts, the KNX functions 'Switching', 'Dimming', 'Venetian blind', '1-byte value transmitter' and 'scene extension' are configurable.

With the "1-gang" device variants a single-colour LED can optionally be used for orientation lighting or for button-press display. In addition, the LEDs can also be used as a status indicator. In this case, the LED has its own 1-bit communication object for activation.

This product documentation describes the product variants listed in the following table...

Name	Ordering number	Desi-gn
1-gang water-protected surface-mounted push-button bus coupler with single-point operation	5151 30	SM
1-gang water-protected surface-mounted push-button bus coupler with two-point operation	5152 30	SM
2-gang water-protected surface-mounted push-button bus coupler with single-point operation	5161 30	SM
2-gang water-protected surface-mounted push-button bus coupler with two-point operation	5162 30	SM

2 Installation, electrical connection and operation

2.1 Safety instructions

Electrical equipment may only be installed and fitted by electrically skilled persons. The applicable accident prevention regulations must be observed.

Failure to observe the instructions may cause damage to the device and result in fire and other hazards.

Make sure during the installation that there is always sufficient insulation between the mains voltage and the bus. A minimum distance of at least 4 mm must be maintained between bus conductors and mains voltage cores.

The device may not be opened or operated outside the technical specifications.
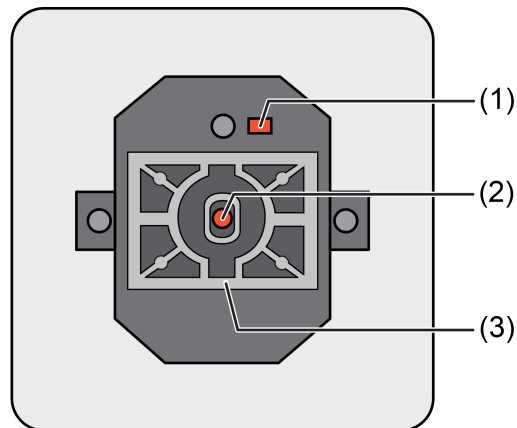
2.2 Device components

Figure 1: "1-gang" WP surface-mounted version device component
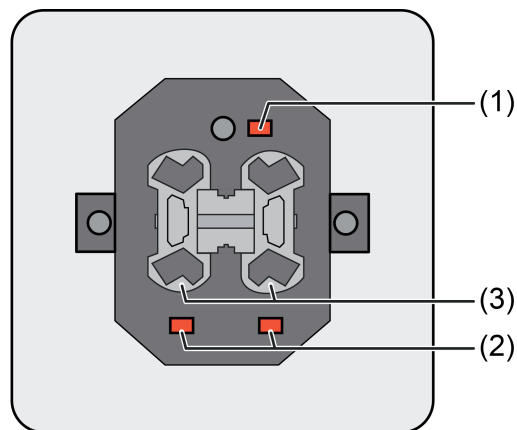
Figure 2: "2-gang" WP surface-mounted version device component

(1) Programming button with LED
(2) Status LED
(3) Sockets for operating rockers

ℹ️ The status LEDs (2) for the device variant "2-gang" are only in the function in the as-delivered state (LEDs light up when pressing the corresponding rocker switch) . After commissioning by the the ETS, the status LEDs are functionless.

2.3 Fitting and electrical connection

Mounting and connecting the device

- Install the SM appliance box on the wall. Insert the bus line into the appliance box and connect to the bus connection at the back of the push-button insert using the terminal.

- Insert the push-button insert carefully into the SM appliance box. When doing so, ensure that no cables are squashed.

- Fit the SM appliance box cover and fasten with screws.

ⓘ Before final fitting of the rocker covers, the physical address has to be loaded into the device (see page 7).

- Attach rocker switches to the sockets.

2.4 Commissioning

Loading the physical address and application software

The commissioning of the device is basically confined to programming of the physical address and the application data with the ETS.

Configuring and commissioning of the device using the ETS3 (from version d with patch A) or using the ETS4.

The device must have been connected and ready for use.

An appropriate device must be created and configured in the ETS project.

The programming button is located on the front of the device. Before final fitting of the rocker covers, the physical address has to be loaded into the device.

- Activating Programming mode: press the programming button (1).

  The programming LED lights up red.

- Program the physical address with the help of the ETS.

  The programming LED goes out.

- Load the application data into the device using the ETS.

- Install rocker cover(s).

2.5 Operation

The KNX bus coupler push-button (push-button BCU) fulfills the functions of a simple push-button. The device must be configured and put into operation using the ETS. In the unprogrammed delivery state, the device does not function. Only the status-LEDs of the rockers will be activated.

Depending on the device version - 1-gang or 2-gang - rocker switches or two-circuit switching rockers are used. In the "two-point operation" device version, the rocker switch can also be operated on both sides (top or bottom). With this version, the rocker switches are upright when they are not pressed. In the "single-point operation" device version, the rocker switch can only be operated on one side (e.g. at the bottom), so that only push-button functions are executable. In this case, the rocker switch is slanting when it is not pressed.

The ETS configuration has a significant influence over the function of the device. In the "two-point operation" device version, the operation concept can be configured to rocker switch function (the same KNX function on both control elements), or alternatively, to push-button function (the same or different KNX functions on both operating elements).
In the ETS, the KNX functions "Switching", "Dimming" and "Venetian blind" are configurable for rocker switch operation concepts. In the pushbutton control concepts - as well as generally with the "single-point operation" device variant - the KNX functions "Switching", "Dimming", "Venetian blind", "1 byte value transmitter" and "scene extension" are configurable.

3 Technical data

General

Protection class	III
Mark of approval	KNX/EIB
Ambient temperature	-25 ... +55°C
Storage/transport temperature	-25 ... +70°C
Relative humidity	5 ... 93% (No moisture condensation)

KNX/EIB supply

KNX medium	TP
Commissioning mode	S-mode
Rated voltage KNX	DC 21 ... 32V SELV
Power consumption KNX	typical 150mW
Connection mode KNX	Connection terminal

4 Software description

4.1 Software specification

ETS search paths:

- Push-button / Push-button, 1-gang / Water-prot surf-mnt push-butn bus coup
- Push-button / Push-button, 2-gang / Water-prot surf-mnt push-butn bus coup

Configuration: S-mode standard
AST type: "00"$_{Hex}$ / "0" $_{Dec}$
PEI connector: No connector

Application for the push-button bus coupler 1-gang single-point operation

No.	Short description	Name	Version	from mask version
1	Push-button bus coupler application with one one-sided operated control surface (1 x button).	Switching, dimming, Venetian blind, value, scene 10FA12	1.2 for ETS3.0 Version d onwards patch A or ETS4	705

Application for the push-button bus coupler 1-gang two-point operation

No.	Short description	Name	Version	from mask version
1	Push-button bus coupler application with one two-sided operated control surface (1 x rocker switch or 2 x button).	Switching, dimming, Venetian blind, value, scene 10FB12	1.2 for ETS3.0 Version d onwards patch A or ETS4	705

Application for the push-button bus coupler 2-gang single-point operation

No.	Short description	Name	Version	from mask version
1	Push-button bus coupler application with two one-sided operated control surfaces (2 x button).	Switching, dimming, Venetian blind, value, scene 10FC13	1.3 for ETS3.0 Version d onwards patch A or ETS4	705

Application for the push-button bus coupler 2-gang two-point operation

No.	Short description	Name	Version	from mask version
1	Push-button bus coupler application with two two-sided operated control surfaces (2 x rocker switch / 4 x button).	Switching, dimming, Venetian blind, value, scene 10FD13	1.3 for ETS3.0 Version d onwards patch A or ETS4	705

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4.2 Software "10Fx12" / "10Fx13"

4.2.1 Scope of functions

General:
- 4 application programs adjusted to the device variants. Only one application program is required per device variant.
- In the "two-point operation" device variant, the operation concept of a control surface can be set to "rocker switch" (the same KNX function on both control elements) or to "button" (the same or different KNX functions on the control elements). In the "single-point operation" variant, push-button functions are exclusively configurable because each rocker cover only has one actuation pressure point.
- In the ETS, the KNX functions "Switch", "Dim" and "Venetian blind" are configurable for rocker switch operation concepts. In the pushbutton control concepts, the KNX functions 'Switching', 'Dimming', 'Venetian blind', '1-byte value transmitter' and 'scene extension' are configurable.

KNX "Switching" function:
- Available with rocker switches or button operation concept.
- With rocker switch: Command on pressing rocker switch at the top and at the bottom is configurable (ON, OFF, TOGGLE; no reaction).
- With button: Command on pressing and releasing the buttons is configurable (ON, OFF, TOGGLE, no reaction).

KNX function "Dimming" :
- Available with rocker switches or button operation concept.
- With rocker switch: Command on pressing rocker switch at the top and at the bottom is configurable (Brighter ON, Darker OFF, Brighter/Darker TOGGLE, Brighter TOGGLE, Darker TOGGLE; no reaction).
- With button: Command on pressing the buttons is configurable (Brighter ON, Darker OFF, Brighter/Darker TOGGLE, Brighter TOGGLE, Darker TOGGLE, no reaction).
- Time between switching and dimming can be set.
- Sending a stop telegram at the end of the actuation.
- Telegram repeat if pressed long.

KNX function "Venetian blind":
- Available with rocker switches or button operation concept.
- With rocker switch: Command on pressing rocker switch is configurable (rocker switch at the top: UP / rocker switch at the bottom: DOWN, rocker switch at the top: DOWN / rocker switch at the bottom: UP).
- With button: Command on pressing the buttons is configurable (UP, DOWN, no reaction).
- Time between short and long time commands can be set.

KNX function "Value transmitter 1 byte":
- Available with button operation concept.
- Function is configurable (0...255, 0...100%).
- Value on pressing the buttons is configurable.

KNX function "Scene extension":
- Available with button operation concept.

- Function configurable (with or without save function on long button-press).
- Scene number (1...64) on pressing the buttons is configurable.

Functions of the status LED (only in the device variant "1-gang"):

- Single-colour LED can optionally be used for orientation lighting or for button-press display. The light period of button-press display is configurable.
- The LED can also be used as a status indicator. In this case, the LED has its own 1-bit communication object for activation.

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4.2.2 Notes on software

ETS project design and commissioning
For configuration and commissioning of the device, ETS3.0 from Version "d" Patch "A" onwards or ETS4 is required. Through use of these ETS version, advantages are gained with regard to the programming process and the parameter presentation.

Using the application programs

The device variants...
- 1-gang single-point operation
- 1-gang two-point operation
- 2-gang single-point operation
- 2-gang two-point operation
...each have their own application programs. When project design and commissioning the push-button bus coupler, make sure that the product catalogue entry used in the ETS project matches the application program for the installed device hardware.
The ETS prevents the programming of application programs of devices with single-point operation in devices with two-point operation or vice versa. The ETS does not intercept the programming of an application program of the 1-gang device variant in a 2-gang device (or vice versa). Undesirable functions can result here due to missing or redundant buttons/LED if the wrong application programs are used.

4.2.3 Object table

|	
Number of communication objects:	Depends on the device variant and the set function. max. 9 (largest object number: 16)
Number of addresses (max):	100
Number of assignments (max):	100
Dynamic table management	no
Maximum table length	---

Objects for "switching"

Function:	Switching				
Object	Function	Name	Type	DPT	Flag
□↵ [0, 2]	Switching	Rocker 1-2 [1]	1-bit	1.xxx	C, W, T

Description   1-bit object for transmission of switching telegrams (ON, OFF). This object is only visible with rocker functions.

Function:	Switching				
Object	Function	Name	Type	DPT	Flag
□↵ [0, 1, 2, 3]	Switching	Button 1-4[1]	1-bit	1.xxx	C, W, T

Description   1-bit object for transmission of switching telegrams (ON, OFF). This object is only visible with button functions.

Objects for "dimming"

Function:	Switching				
Object	Function	Name	Type	DPT	Flag
□↵ [0, 2]	Switching	Rocker 1-2 [1]	1-bit	1.xxx	C, W, T

Description   1-bit object for transmission of switching telegrams (ON, OFF). This object is only visible with rocker functions.

Function:	Dimming				
Object	Function	Name	Type	DPT	Flag
□↵ [8, 10]	Dimming	Rocker 1-2 [1]	4-bit	3.007	C, W, T

Description   4-bit object for relative brightness adjustment between 0% and 100 %. This object is only visible with rocker functions.

1: The number of rockers or buttons depends on the planned device variant.

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Function: Switching

Object	Function	Name	Type	DPT	Flag
□↵ 0, 1, 2, 3	Switching	Button 1-4 [1]	1-bit	1.xxx	C, W, T

| Description	1-bit object for transmission of switching telegrams (ON, OFF). This object is only visible with button functions.

Function: Dimming

Object	Function	Name	Type	DPT	Flag
□↵ 8, 9, 10, 11	Dimming	Button 1-4 [1]	4-bit	3.007	C, W, T

Description	4-bit object for relative brightness adjustment between 0% and 100 %. This object is only visible with button functions.

Objects for "Venetian blind"

Function: Venetian blind

Object	Function	Name	Type	DPT	Flag
□↵ 0, 2	Short time operation	Rocker 1-2 [1]	1-bit	1.007	C, -, T

Description	1-bit object for short-time operation of a blind or roller shutter. This object is only visible with rocker functions.

Function: Venetian blind

Object	Function	Name	Type	DPT	Flag
□↵ 8, 10	Long-time operation	Rocker 1-2 [1]	1-bit	1.008	C, W, T

Description	1-bit object for long-time operation of a blind or roller shutter. This object is only visible with rocker functions.

Function: Venetian blind

Object	Function	Name	Type	DPT	Flag
□↵ 0, 1, 2, 3	Short time operation	Button 1-4 [1]	1-bit	1.007	C, -, T

Description	1-bit object for short-time operation of a blind or roller shutter. This object is only visible with button functions.

Function: Venetian blind

Object	Function	Name	Type	DPT	Flag
□↵ 8, 9, 10, 11	Long-time operation	Button 1-4 [1]	1-bit	1.008	C, W, T

| Description	1-bit object for long-time operation of a blind or roller shutter. This object is only visible with button functions.

1: The number of rockers or buttons depends on the planned device variant.

Objects for "1 byte value transmitter"

Function:	Value transmitter				
Object	Function	Name	Type	DPT	Flag
□↵ 0, 2	Value	Rocker 1-2 [1]	1 byte	5.xxx	C, -, T

Description	1-byte object for the transmission of values from 0 to 255 (0 ... 100 %). This object is only visible with rocker functions.

Function:	Value transmitter				
Object	Function	Name	Type	DPT	Flag
□↵ 0, 1, 2, 3	Value	Button 1-4 [1]	1 byte	5.xxx	C, -, T

| Description	1-byte object for the transmission of values from 0 to 255 (0 ... 100 %). This object is only visible with button functions.

Objects for "scene extension"

Function:	Scene extension				
Object	Function	Name	Type	DPT	Flag
□↵ 0, 2	Scene extension	Rocker 1-2 [1]	1 byte	18.001	C, -, T

Description	1-byte object for recalling or for storing a scene. This object is only visible with rocker functions.

Function:	Scene extension				
Object	Function	Name	Type	DPT	Flag
□↵ 0, 1, 2, 3	Scene extension	Button 1-4 [1]	1 byte	18.001	C, -, T

Description	1-byte object for recalling or for storing a scene. This object is only visible with button functions.

Objects for status LED

Function:	Status LED				
Object	Function	Name	Type	DPT	Flag
□↵ 16	Status indication	LED	1-bit	1.xxx	C, W, -

Description	1-bit object for activation of the status LED (polarity configurable). Only visible with the LED function equal to "status indicator" or "inverted status indication"!

1: The number of rockers or buttons depends on the planned device variant.

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4.2.4 Functional description

4.2.4.1 Rocker switch and button arrangement

In the push-button bus coupler, switches are used depending on the device version - 1-gang or 2-gang - rocker switches or two-circuit switching rockers. In the "two-point operation" device version ((8) + (9)), the rocker switch can also be operated on both sides (top or bottom). In the ETS, the operation concept can then be configured to rocker function (the same KNX function on both control elements) or alternatively to push-button function (the same or different KNX functions on the control elements). In the "two-point operation" version, the rocker switches are upright when they are not pressed.
In the "single-point operation" version ((6) + (7)), the rocker switch can only be operated on one side (e.g. at the bottom), so that only push-button functions are executable. In this case, the rocker switch is slanting when it is not pressed.

The figure below shows the device variants and illustrates the position of the rocker switches and buttons and the status-LED.
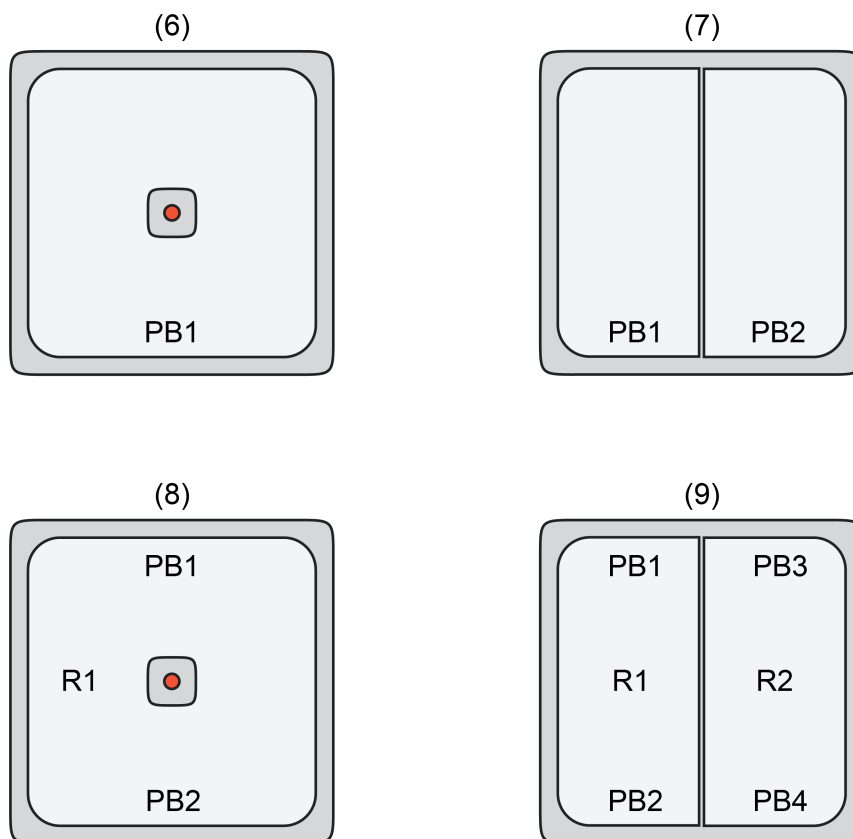
Figure 3: Position of the rocker switches, buttons and status-LED of the device variants

(6) Push-button bus coupler 1-gang single-point operation

(7) Push-button bus coupler 2-gang single-point operation

(8) Push-button bus coupler 1-gang two-point operation

(9) Push-button bus coupler 2-gang two-point operation

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4.2.4.2 Rockers and button functions

KNX function "Switching"

For each rocker or button with the function set to "Switching", the ETS indicates a 1-bit communication object. The parameters of the rocker or button permit fixing the value this object is to adopt on pressing and / or on releasing (ON, OFF, TOGGLE – toggling of the object value). No distinction is made between a brief or long press.

KNX function "Dimming"

For each rocker or button with the function set to "Dimming", the ETS indicates a 1-bit object and a 4-bit object. Generally, the device transmits a switching telegram after a brief press and a dimming telegram after a long press. The time needed by the push button before it is identified as "long" actuation can be set in the parameters.

Single-surface and double-surface operation in the dimming function
There are two control surfaces in the two button operation, which are either connected to together mechanically (1 rocker switch), or are mechanically independent, but belong together functionally (2 buttons). When using buttons, two buttons must therefore by set to the KNX function dimming.
The control surfaces connected together mechanically or functionally in the two button operation usually execute contrary commands. This means, for example, that the upper button transmits a telegram for switching on after a brief press, and a telegram for increasing the brightness is transmitted after a long press ("Brighter"). Similarly, the lower button transmits a telegram for switching off after a brief press and transmits a telegram for reducing the brightness after a long press ("Darker").
In the single-surface operation there is only one actuation point for dimming. The device toggles the dimming and/or switching command each time the button is pressed. Individual buttons are normally configured to single-surface operation. Rocker switches can also be configured in the ETS to the toggle command "TOGGLE" resulting in a large control surface with two actuation points that have functionally identical commands.
The parameters "Command on pressing the button" and "Command on pressing the rocker switch top / bottom" define the single-surface or double-surface dimming function. For the rockers and also for the button functions, the command issued on pressing the button or rocker can basically be selected at the user's discretion.

> [i] If, for example, a dimmer actuator can be controlled from several sensors, a faultless single-surface operation requires that the activated actuator reports its switching state back to the 1-bit object of the button or rocker switch. In addition, the 4-bit objects must be interconnected via an identical group address. Otherwise, a rocker switch or button cannot detect if the dimmer actuator has been controlled from another sensor.
> By reporting back the status of the actuator and interconnecting the dimming objects, a rocker switch or button does not have to be actuated twice during the next application in order to achieve the desired reaction.

Advanced parameters
The advanced parameters can be used to determine whether the device is to cover the full adjusting range of the actuator with one dimming telegram continuously ("Increase brightness by 100 %", "Reduce brightness by 100 %") or whether the dimming range is to be divided into several small levels (50 %, 25 %, 12.5 %, 6 %, 3 %, 1.5 %). In the continuous dimming mode (100%), the device transmits a telegram only at the beginning of a long press in order to start the dimming process. A stop telegram is normally then transmitted after the end of the press.
For dimming in small levels it may be useful if the device repeats the dimming telegram in case of a sustained press for a presettable time (parameter "Telegram repetition"). The stop telegram after the end of the press is then not needed.

KNX function "Venetian blind"

For each rocker or button with the function set to "Venetian blind", the ETS indicates the two 1-bit objects "Short-time operation" and "Long-time operation".

Operation concept of the Venetian blind function
For the control of Venetian blind, roller shutter, awning or similar drives, the device supports the "short - long" operation concept.
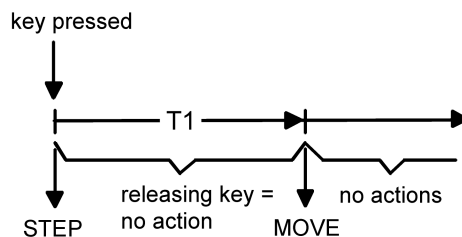

Figure 4: Operation concept "short – long"

In the operation concept "short - long" the telegrams are transmitted in a specific time sequence...

- Immediately on pressing the rocker switch or button, the device transmits a short time telegram (step) to the bus. Pressing the button stops a running drive and starts time T1 ("time between short time and long time command"). If, within T1, the button is released again, the device transmits no further telegram. The purpose of transmitting the short time telegram is to stop a continuous movement.
The "time between short time and long time command" should be selected shorter than the short time operation of the actuator to prevent a jerky movement of the blind.
- If the rocker switch or button is kept depressed longer than T1, the device transmits a long time telegram after the end of T1 (Move) for the continuous movement of the drive.
- No further telegram is transmitted by the device when the button or the rocker is released. The drive remains on until the end position is reached.

Command of the Venetian blind function
The parameters "Command on pressing the button" and "Command on pressing the rocker switch" define the command transmitted to the bus on pressing a button. In a rocker switch, the configurable commands for both actuation pressure points are always contrary (at the top: UP / at the bottom: DOWN, at the top DOWN / at the bottom: UP). The commands can be allocated arbitrarily for buttons.

KNX function "Value transmitter 1 byte"

For each button with the function set to "Value transmitter 1-byte", the ETS indicates a 1-byte communication object. On pressing a button, the value configured in the ETS is transmitted to the bus.

The "Function" parameter determines the value range used by the value transmitter.
As a 1-byte value transmitter, the push button sensor can optionally transmit integers from 0 … 255 or relative values within a range of 0 … 100 % (e.g. as dimming value transmitter). The value matching these areas to be transmitted to the bus on pressing a button, can be configured by the parameter "value on pressing the button".

ⓘ The function "Value transmitter 1 byte" is only available for buttons.

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KNX function "Scene extension"

For each button with the function set to "scene extension unit" the ETS indicates a 1-byte communication object and the "Function" parameter which distinguishes between the following settings...
- "Scene extension without storage function",
- "Scene extension with storage function",

In the scene extension function, the device transmits a scene number (1…64) to the bus, which is preset in the ETS via a separate communication object after a button-press according to KNX data type 18.001. This feature permits recalling scenes stored in other devices and also storing them, if the storage function is used.
In the setting "Scene extension without storage function", a button-press triggers the simple recall of a scene. The device then transmits the configured scene number immediately on pressing the button. A long button-press has no additional effect.
In the setting "scene extension with storage function", the device monitors the length of the actuation. A button-press of less than a second results in a simple recall of the scene as mentioned above. After a button-press of more than five seconds, the device generates a storage instruction and transmits a storage telegram to the bus according to KNX data type 18.001.
An operation lasting between one and five seconds will be discarded as invalid. The device then does not react to the button-press.

The parameter "Scene number on pressing the button" specifies which of the maximum of 64 external scenes is to be activated after a button-press.

i   The "Scene extension" function is only available for buttons.

The KNX function "Scene extension with storage function" can particularly affect the status LED allocated to the actuated button. If the status LED is configured to "button-press display", the LED always lights up for the configured light period when the button is pressed (1...5 s). When transmitting a storage telegram after pressing the button for a long time (> 5 s), the status-LED is additionally activated for 3 seconds in order to indicate that the storage instruction was transmitted to the bus.

4.2.4.3 Status LED

In the case of the 1-gang bus coupler push-button, a single-colour LED can optionally be used for orientation lighting, for button-press display or as a status display. In the case of a status display, the LED has its own 1-bit communication object for activation.
The status LED is configured on a separate parameter page. The parameter "Function" on this parameter page defines the LED display function.

ⓘ In the device variant "2-gang WP surface-mounted version" no status LED is available after commissioning by the ETS. No Status LEDs can be parameterized in the application program of these device versions.

The following LED functions are available for selection in the configuration...

- "always OFF"
  The status-LED is always off in this parameter setting.
- "always ON"
  The status-LED is always on in this parameter setting (orientation lighting).
- "button-press display"
  At the same time, the device switches on the status LED for the "Light period of status LED for button-press indicator" as soon as a corresponding rocker switch or button is pressed. The period is configured on the "General" parameter page. The status LED lights up when the rocker or button is pressed even if the telegram is transmitted by the device only when the button or rocker is released.

ⓘ The KNX function "Scene extension with storage function" can particularly affect the status LED allocated to the actuated button. If the status LED is configured to "button-press display", the LED always lights up for the configured light period when the button is pressed (1...5 s). When transmitting a storage telegram after pressing the button for a long time (> 5 s), the status-LED is additionally activated for 3 seconds in order to indicate that the storage instruction was transmitted to the bus.

- "Status indicator (via LED object)"
  At the same time, the status LED can indicate the state of a separate 1-bit communication object. It is possible to switch the LED on or off statically via the 1-bit object value received (object value "0" = OFF, "1" = ON).
  After a bus reset or after ETS programming, the value of the LED object is always "0".
- "inverted status indicator (via LED object)"
  At the same time, the status LED can indicate the state of a separate 1-bit communication object in inverted form. It is possible to switch the LED on or off statically via the 1-bit object value received (object value "1" = OFF, "0" = ON).
  After a bus reset or after ETS programming, the value of the LED object is always "0".

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4.2.4.4 Delivery state

In the unprogrammed delivery state, the device reacts passively, i. e. no telegrams are sent out to the bus during a pushbutton/rocker switch operation. The physical address is preset to 15.15.255 The device can be programmed and put into operation via the ETS after the installation.

If a button is pressed, the status LED lights up for the length of the button press (simple function test). This condition persists until the application is programmed into the device by the ETS.

ⓘ Unloading of the application program by the ETS completely deactivates the device function. In this case, the device is not reset to the delivery state described above. The operating rockers and the status LED are then without any function.

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4.2.5 Parameters

Description	Values	Comment
☐⏎ General		
Light period of status LED for button-press indicator	1 sec 2 sec **3 sec** 4 sec 5 sec	This parameter defines the switch-on time the status LED is lit up to indicate actuation. The setting concerns status LEDs whose function is set to "Button-press display".

☐⏎ Operation concept (only visible in the device variants "two-point operation!)

Rocker 1	Button function **Rocker function**	This parameter defines for the rocker switch 1 whether it is to be used as a rocker switch with a common basic function or as two different buttons with completely independent functions. Depending on this setting, the ETS displays different communication objects and parameter pages.
		ⓘ This parameter is only visible in the device variant "1-gang two-point operation"!
Rocker 1 left	Button function **Rocker function**	This parameter defines for the rocker switch 1 whether it is to be used as a rocker switch with a common basic function or as two different buttons with completely independent functions. Depending on this setting, the ETS displays different communication objects and parameter pages.
		ⓘ This parameter is only visible in the device variant "2-gang two-point operation"!
Rocker 2 right	Button function **Rocker function**	This parameter defines for the rocker switch 2 whether it is to be used as a rocker switch with a common basic function or as two different buttons with completely independent functions. Depending on this setting, the ETS displays different communication objects and parameter pages.
		ⓘ This parameter is only visible in the device variant "2-gang two-point operation"!

☐⏎ Rocker switch 1 (only visible in the device variants "two-point operation" and operation concept "rocker switch function"!)

Function	No function **Switching** Dimming	This KNX function of the rocker is defined here. Additional parameters and objects are visible depending on this

Venetian blind	parameter setting.

With function "Switching"...

Command on pressing the top rocker	No reaction	This parameter defines the command on pressing the rocker switch at the upper pressure point.
	ON	
	OFF	
	TOGGLE	

Command on pressing the bottom rocker	No reaction	This parameter defines the command on pressing the rocker switch at the lower pressure point.
	ON	
	OFF	
	TOGGLE	

With function "Dimming"...

Command on pressing the top rocker	No reaction	This parameter defines the command on pressing the rocker switch briefly and long at the upper pressure point.
	Brighter (ON)	
	Darker (OFF)	
	Brighter / darker (TOGGLE)	
	Brighter (TOGGLE)	
	Darker (TOGGLE)	

Command on pressing the bottom rocker	No reaction	This parameter defines the command on pressing the rocker switch briefly and long at the lower pressure point.
	Brighter (ON)	
	Darker (OFF)	
	Brighter / darker (TOGGLE)	
	Brighter (TOGGLE)	
	Darker (TOGGLE)	

Increase brightness by	1.5 %	This parameter sets the relative dimming level when the brightness is increased. On each long operation, the brightness is changed at maximum by the configured level.
	3 %	
	6 %	
	12.5 %	
	25 %	

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	50 % **100 %**	
Reduce brightness by	1.5 % 3 % 6 % 12.5 % 25 % 50 % **100 %**	This parameter sets the relative dimming level when the brightness is reduced. On each long operation, the brightness is changed at maximum by the configured level.
Time between switching and dimming	300 ms **400 ms** 500 ms 700 ms 1s	This parameter defines how long the rocker switch must be pressed for the device to transmit a dimming telegram (time for long button-press).
Transmit stop telegram?	**Yes** No	On "Yes" the device transmits a telegram for stopping the dimming process when the rocker is released. When the device transmits telegrams for dimming in small steps, the stop telegram is generally not needed (setting: "No").
Telegram repeat?	Yes **No**	This parameter can be used to activate telegram repetition for dimming. With the rocker switch held down at the top or bottom, the pushbutton sensor will then transmit the relative dimming telegrams (in the programmed level width) until the rocker/button is released again.
Time between two telegrams	**200 ms** 300 ms 400 ms 500 ms 750 ms 1 sec 2 sec	This parameter defines the interval at which the dimming telegrams are automatically repeated in the telegram repetition mode. This parameter is visible only if "Telegram repetition ? = Yes"!

With function "Venetian blind"...

Command on pressing rocker	**Rocker up: UP /** **Rocker down: DOWN** Rocker up: DOWN / Rocker down: UP	Defines the command when the rocker switch is pressed at the top and at the bottom.

Time between short-time and long-time command	300 ms **400 ms** 500 ms 700 ms 1s	This parameter defines the time between a short-time and a long-time telegram.

☐↵ For rocker 2 see rocker 1. (Rocker switch 2 only in device version "2-gang two-point position" and operation concept "rocker switch function".)

☐↵ Button 1 (In the device variants "neutral position" only visible in the operation concept "push-button function"!)

Function	No function **Switching** Dimming Venetian blind 1-byte value transmitter Scene extension	The KNX function of the button is defined here. Additional parameters and objects are visible depending on this parameter setting.

With function "Switching"...

Command on pressing the button	No reaction **ON** OFF TOGGLE	This parameter defines the command on pressing the button.

Command on releasing the button	**no reaction** ON OFF TOGGLE	This parameter defines the command on releasing the button.

With function "Dimming"...

Command on pressing the button	No reaction **Brighter (ON)** Darker (OFF) Brighter / darker (TOGGLE) Brighter (TOGGLE) Darker (TOGGLE)	This parameter defines the command for a short and long button-press.

Increase brightness by	1.5 % 3 % 6 % 12.5 % 25 % 50 % **100 %**	This parameter sets the relative dimming level when the brightness is increased. During each long operation, the brightness is changed at maximum by the configured level.
Reduce brightness by	1.5 % 3 % 6 % 12.5 % 25 % 50 % **100 %**	This parameter sets the relative dimming level when the brightness is reduced. During each long operation, the brightness is changed at maximum by the configured level.
Time between switching and dimming	300 ms **400 ms** 500 ms 700 ms 1s	This parameter defines how long the rocker switch must be pressed for the device to transmit a dimming telegram (time for long button-press).
Transmit stop telegram?	**Yes** No	On "Yes" the device transmits a telegram for stopping the dimming process when the button is released. When the device transmits telegrams for dimming in small steps, the stop telegram is generally not needed (setting: "No").
Telegram repeat?	Yes **No**	This parameter can be used to activate telegram repetition for dimming. With the button held down, the device will then transmit the relative dimming telegrams (in the programmed level width) until the button is released again.
Time between two telegrams	**200 ms** 300 ms 400 ms 500 ms 750 ms 1 sec 2 sec	This parameter defines the interval at which the dimming telegrams are automatically repeated in the telegram repetition mode. This parameter is visible only if "Telegram repetition ? = Yes"!

With function "Venetian blind"...

Command on pressing the button	No reaction **UP**	Defines the command when a button is pressed.

DOWN

Time between short-time and long-time command	300 ms **400 ms** 500 ms 700 ms 1s	This parameter defines the time between a short-time and a long-time telegram.

With function "Value transmitter 1 byte"...

Function	**Value transmitter 0...255** Value transmitter 0…100 %	A button configured as "Value transmitter 1 byte" permits selecting whether the values to be transmitted are interpreted as integers from 0 to 255 or as a percentage from 0 % to 100 %.
Value on pressing the button (0...255)	0...**255**	This parameter defines the value to be transmitted to the bus when the button is pressed. Visible only if "Function = 0...255"!
Value on pressing the button (0...100 %)	0...**100**	This parameter defines the value to be transmitted to the bus when the button is pressed. Visible only if "Function = 0...100 %"!

With function "Scene extension"...

Function	**Scene extension without storage function** Scene extension with storage function	In the setting "Scene extension without storage function", a button-press triggers the simple recall of a scene. The device then transmits the configured scene number immediately on pressing the button. A long button-press has no additional effect. In the setting "Scene extension with storage function", the device monitors the length of the actuation. A button-press of less than a second results in a simple recall of the scene. After a button-press of more than five seconds, the device generates a storage instruction and transmits a storage telegram to the bus according to KNX data type 18.001.
Scene number on pressing the button (1...64)	**1**...64	In accordance with the KNX standard, objects with data type 18.001 "Scene Control" can recall or store up to 64 scenes by their numbers. The

parameter defines the scene number to be transmitted when the button is pressed.

☐↵ Buttons 2-4 see Button 1! (in the device variants "two-point operation" only visible in the operation concept "push-button function"! / buttons 3 & 4 only in device version "2-gang two-point operation".)

☐↵ Button 1 - LED (Only visible in the "1-gang single-point operation" device variant!)

☐↵ Button 1/2 - LED (In the "1-gang two-point operation" device variants, only visible in the "push-button function" operation concept!)

☐↵ Rocker switch 1 - LED (Only visible in the "1-gang two-point operation" device variants and only in the "rocker switch function" operation concept!)

Function	always OFF	The status-LED is always off in this parameter setting.
	always ON	The status-LED is always on in this parameter setting (orientation lighting).
	Button-press display	With this setting, the device switches on the status LED for the "Light period of status LED for button-press indicator" as soon as a corresponding rocker switch or button is pressed. The ON time is configured jointly as button-press display for all status LEDs on the "General" parameter page. The status LED lights up when the rocker or button is pressed even if the telegram is transmitted by the device only when the button or rocker is released.
		ⓘ The KNX function "Scene extension with storage function" can particularly affect the status LED. If the status LED is configured to "button-press display", the LED always lights up for the configured light period when the button is pressed (1...5 s). When transmitting a storage telegram after pressing the button for a long time (> 5 s), the status-LED is additionally activated for 3 seconds in order to indicate that the storage instruction was transmitted to the bus.
	Status indicator (via LED object)	With this setting, the status LED can indicate the state of a separate 1-bit communication object. It is possible to switch the LED on or off statically via the 1-bit object value received (object value "0" = OFF, "1" = ON).
	inverted status indicator (via LED object)	In this configuration, the status LED can indicate the state of a separate 1-bit communication object in inverted form. It is possible to switch the LED on or off statically via the 1-bit object value received (object value "1" = OFF, "0" =

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ON).

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5 Appendix

5.1 Index

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