KNX Technical Reference Manual

ABB i-bus® KNX

Push-button coupling unit,
2gang, 4gang

6108/06-AP-500

6108/07-AP-500

Power and productivity
for a better world™

ABB

Table of contents

1 Notes on the instruction manual

Please read through this manual carefully and observe the information it contains. This will assist you in preventing injuries and damage to property, and ensure both reliable operation and a long service life for the device.

Please keep this manual in a safe place.

If you pass the device on, also pass on this manual along with it.

ABB accepts no liability for any failure to observe the instructions in this manual.

If you require additional information or have questions about the device, please contact ABB or visit our Internet site at:

www.BUSCH-JAEGER.com

2   Safety

The device has been constructed according to the latest valid regulations governing technology and is operationally reliable. It has been tested and left the factory in a technically safe and reliable state.

However, residual hazards remain. Read and adhere to the safety instructions to prevent hazards of this kind.

ABB accepts no liability for any failure to observe the safety instructions.

2.1   Information and symbols used

The following Instructions point to particular hazards involved in the use of the device or provide practical instructions.

Danger

Risk of death / serious damage to health

–   The respective warning symbol in connection with the signal word "Danger" indicates an imminently threatening danger which leads to death or serious (irreversible) injuries.

Warning

Serious damage to health

–   The respective warning symbol in connection with the signal word "Warning" indicates a threatening danger which can lead to death or serious (irreversible) injuries.

Caution

Damage to health

–   The respective warning symbol in connection with the signal word "Caution" indicates a danger which can lead to minor (irreversible) injuries.

Attention

Damage to property

–   This symbol in connection with the signal word "Attention" indicates a situation which could cause damage to the product itself or to objects in its surroundings.

NOTE

This symbol in connection with the word "Note" indicates useful tips and recommendations for the efficient handling of the product.

The following safety symbols are used in the operating manual.

This symbol alerts to electric voltage.

2.2   Intended use

The conventional surface-mounted ocean® range can be converted to ABB i-bus® KNX with the push-button coupling unit. The enclosed support ring can be used to implement and connect additional ABB surface-mounted ranges.

The push-button coupling unit (with bus coupler) can be assigned to an available switch actuator. The devices serve for switching processes. The push-button coupling units can, for example, send switching, dimming or blind control commands to KNX actuators. They can also be used for storing and sending of light scenes.

The device is intended for the following:

- Operation according to the listed technical data
- Use with the connecting options available on the device

The intended use also includes adherence to all specifications in this manual.

Extensive functions are available for the push-button coupling unit. The range of applications is contained in Chapter 10 "Description of application and parameters" on page 24 (only in languages of the countries DE, EN, ES, FR, IT and NL).

The integrated bus coupler makes possible the connection of a KNX bus line.

2.3   Improper use

Each use not listed in Chapter 2.2 "Intended use" on page 9 is deemed improper use and can lead to personal injury and damage to property.

ABB is not liable for damages caused by use deemed contrary to the intended use of the device. The associated risk is borne exclusively by the user/operator.

The device is not intended for the following:

- Unauthorized structural changes
- Repairs
- Insert with an additional bus coupler

2.4   Target group / Qualifications of personnel

Installation, commissioning and maintenance of the device must only be carried out by trained and properly qualified electrical installers.

The electrical installer must have read and understood the manual and follow the instructions provided.

The electrical installer must adhere to the valid national regulations in his/her country governing the installation, functional test, repair and maintenance of electrical products.

The electrical installer must be familiar with and correctly apply the "five safety rules" (DIN VDE 0105, EN 50110):

1. Disconnect
2. Secure against being re-connected
3. Ensure there is no voltage
4. Connect to earth and short-circuit
5. Cover or barricade adjacent live parts

No special qualifications are needed to operate the device.

2.5   Safety instructions

Danger - Electric voltage!

Electric voltage! Risk of death and fire due to electric voltage of 230 V.

Dangerous currents flow through the body when coming into direct or indirect contact with live components. This can result in electric shock, burns or even death.

- Work on the 230 V supply system may only be performed by authorised and qualified electricians.
- Disconnect the mains power supply before installation / disassembly.
- Never use the device with damaged connecting cables.
- Do not open covers firmly bolted to the housing of the device.
- Use the device only in a technically faultless state.
- Do not make changes to or perform repairs on the device, on its components or its accessories.
- Keep the device away from water and wet surroundings.

Danger - Electric voltage!

Install the device only if you have the necessary electrical engineering knowledge and experience.

- Incorrect installation endangers your life and that of the user of the electrical system.
- Incorrect installation can cause serious damage to property, e.g. due to fire.

The minimum necessary expert knowledge and requirements for the installation are as follows:

- Apply the "five safety rules" (DIN VDE 0105, EN 50110):
  1. Disconnect
  2. Secure against being re-connected
  3. Ensure there is no voltage
  4. Connect to earth and short-circuit
  5. Cover or barricade adjacent live parts.
- Use suitable personal protective clothing.
- Use only suitable tools and measuring devices.
- Check the type of supply network (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).

Caution! - Risk of damaging the device due to external factors!

Moisture and contamination can damage the device.

- Protect the device against humidity, dirt and damage during transport, storage and operation.

2.6   Environment

Consider the protection of the environment!

Used electric and electronic devices must not be disposed of with domestic waste.

– The device contains valuable raw materials which can be recycled. Therefore, dispose of the device at the appropriate collecting depot.

All packaging materials and devices bear the markings and test seals for proper disposal. Always dispose of the packaging material and electric devices and their components via the authorized collecting depots and disposal companies.

The products meet the legal requirements, in particular the laws governing electronic and electrical devices and the REACH ordinance.

(EU Directive 2002/96/EC WEEE and 2002/95/EC RoHS)

(EU REACH ordinance and law for the implementation of the ordinance (EC) No.1907/2006).

3 Setup and function
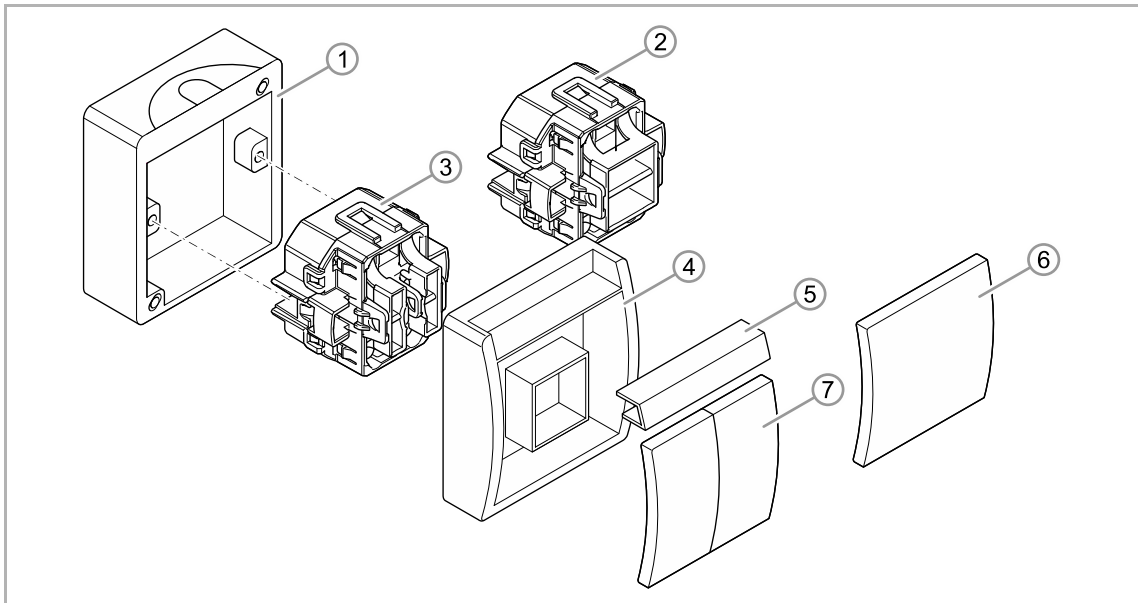
Fig. 1:   Product overview

[1] ocean® base

[2] Flush-mounted insert of 2gang push-button coupling unit

[3] Flush-mounted insert of 4gang push-button coupling unit

[4] ocean® frame

[5] ocean® label holder

[6] ocean® rocker, 1gang

[7] ocean® rocker, 2gang

The push-button coupling unit can be used to convert the conventional surface-mounted ocean® range to ABB i-bus® KNX. The enclosed support ring can be used to implement and connect additional ABB surface-mounted ranges. The push-button coupling unit (with bus coupler) can be assigned to an available switch actuator. The device serves for switching processes.

The integrated bus coupler makes possible the connection to the KNX bus line.

The push-button coupling unit can, for example, send switching, dimming or blind control commands to KNX actuators. The device can also be used for storing and sending of light scenes.

The device must be parameterized for the use of the functions.

The sensor is integrated in the flush-mounted insert [2] [3] and already pre-mounted.

The push-button coupling unit has been prepared for installation in water protected surface-mounted housings of the ocean® range.

Additional product features:

▪ LEDs as light for orientation / status indication.

3.1 Scope of supply

Included in the scope of delivery are:

- Flush-mounted insert [2] or [3], with pre-mounted sensor
- Support ring (is not required for mounting in the ocean® surface-mounted housing)

See Figure on Page 13.

ocean® surface-mounted housing with ocean® cover frame [4], ocean® label holder [5] and ocean® rocker [6] or [7] must be ordered separately.

NOTE

Additional information about possible switch ranges is available in the electronic catalogue (www.busch-jaeger-catalogue.com).

3.2 Overview of types

Article number	Product name	Sensor channels
6108/06-AP-500	Push-button coupling unit, 2gang	2
6108/07-AP-500	Push-button coupling unit, 4gang	4

Table 1:   Overview of types

3.3 Functions

The following table provides an overview of the possible functions and applications of the device:

Special features	Function
■ Function illumination ■ Orientation illumination ■ Freely programmable ■ LED colour concept ■ Day / night switchover of the LEDs ■ Replaceable icon button ■ General functions ■ Comprehensive application program	■ Switching ■ Dimming ■ Blind ■ Value transmitter ■ Light scene extension unit ■ Multiple operation ■Step switch ■ Short/long operation ■ Logic functions (separate logic and value objects) ■ among others

Table 2:   Overview of functions

3.4   Device overview
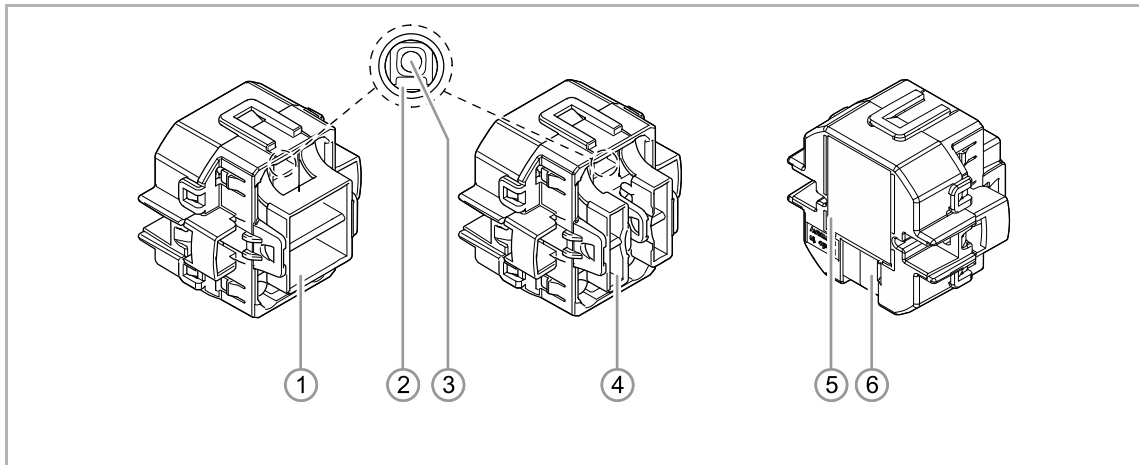
Fig. 2:   Overview of devices of push-button coupling units

[1]   Push-button coupler 2gang

[2]   Programming LED

[3]   Programming button

[4]   Push-button coupler 4gang

[5]   Type plate

[6]   Bus connection terminal

4 Technical data

Designation	Value
Power supply	24 V DC (via bus line)
Bus subscribers	1 (≤12 mA)
Connection	Bus connection terminal: 0.4 - 0.8 mm Line type: J-Y(St)Y, 2 x 2 x 0.8 mm Wire stripping: 6 - 7 mm
Protection type	IP20
Ambient temperature	-5°C - +45°C
Storage temperature	-20°C - +70°C

Table 3: Technical data

4.1 Dimensional drawings
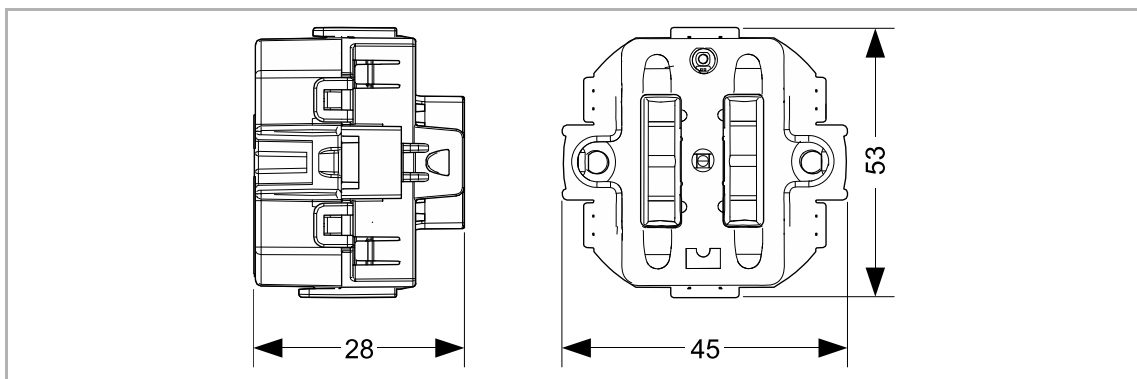
Fig. 3:   Dimensions (all dimensions are in mm)

4.2 Circuit diagrams
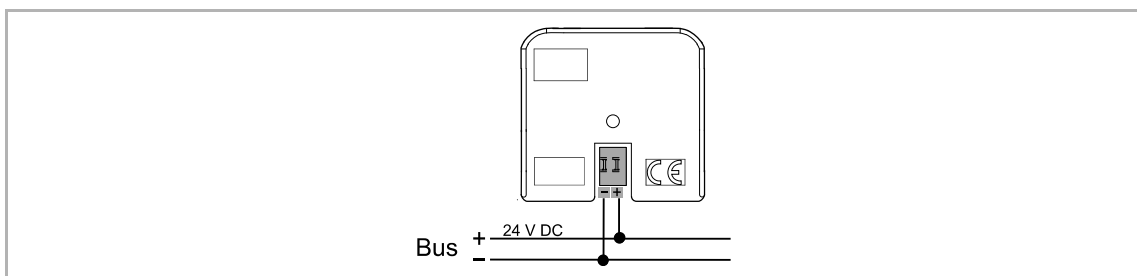
Fig. 4:   Electrical connection

5 Connection, installation / mounting

> **Danger - Electric voltage!**
>
> Install the device only if you have the necessary electrical engineering knowledge and experience.
> - Incorrect installation endangers your life and that of the users of the electrical system.
> - Incorrect installation can cause serious damage to property, e.g. due to fire.
>
> The minimum necessary expert knowledge and requirements for the installation are as follows:
> - Apply the "five safety rules" (DIN VDE 0105, EN 50110):
>   1. Disconnect
>   2. Secure against being re-connected
>   3. Ensure there is no voltage
>   4. Connect to earth and short-circuit
>   5. Cover or barricade adjacent live parts.
> - Use suitable personal protective clothing.
> - Use only suitable tools and measuring devices.
> - Check the type of supply network (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).
> - Observe the correct polarity.

5.1 Electrical connection
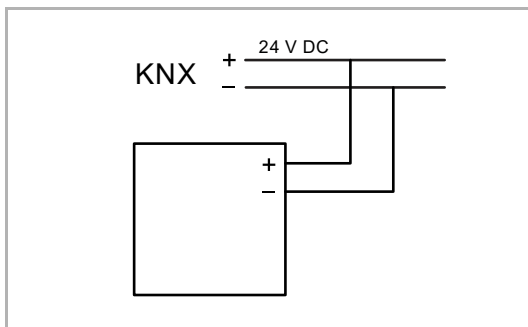
Fig. 5:   *Connection of bus coupler*

Carry out the electrical connection according to the circuit diagram.

5.2   Mounting

NOTE

The push-button coupling unit with the enclosed support ring has been prepared for installation in flush-mounted boxes.

The device has also been prepared for installation in water protected surface-mounted housings of the ocean® range.

The installation of the device in ocean® housings is described in the following. The enclosed support ring is not required here.

To install the device, perform the following steps:
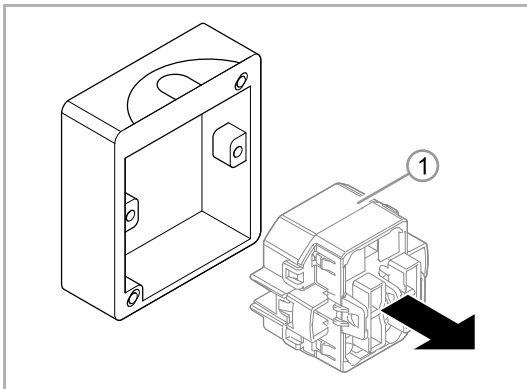
1. Disassemble the ocean® push-button and remove the original ocean® insert [1].
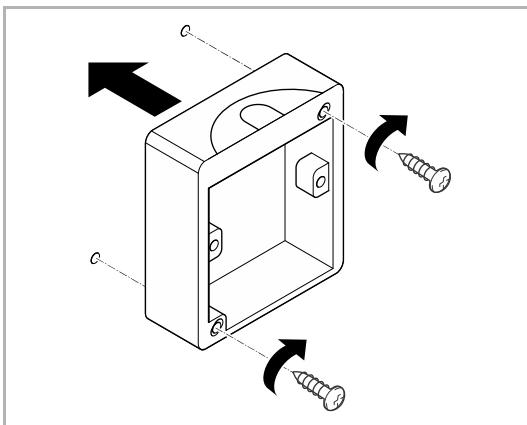
2. Fix the empty ocean® base to the wall.
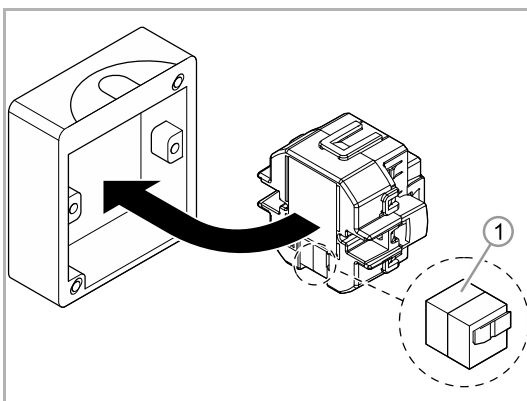
3. Turn the device into the correct installation position.

–   The bus connection terminal [1] must be at the rear at the bottom.
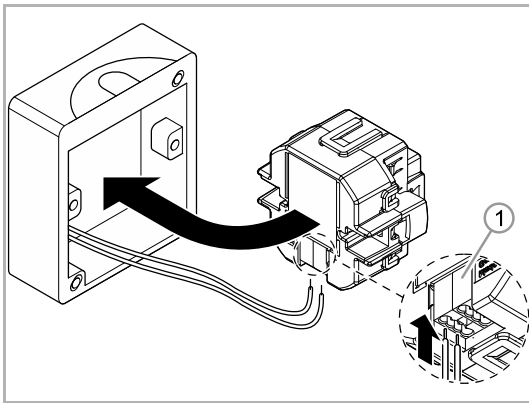
4. Connect the bus line with the bus connection terminal [1], see chapter 5.1 "Electrical connection" on page 17.

– Observe the correct polarity!
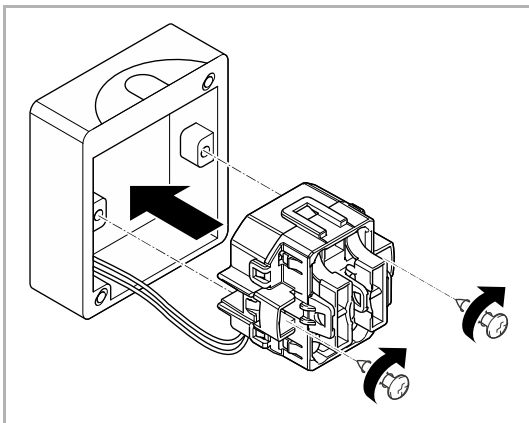
5. Place the device into the ocean® base and fasten it with the screws.
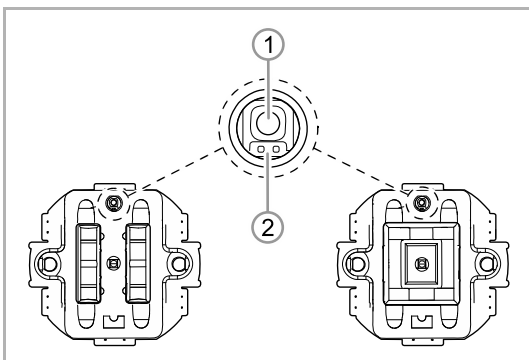
6. Commission the device. Programming is carried out via the programming button [1].
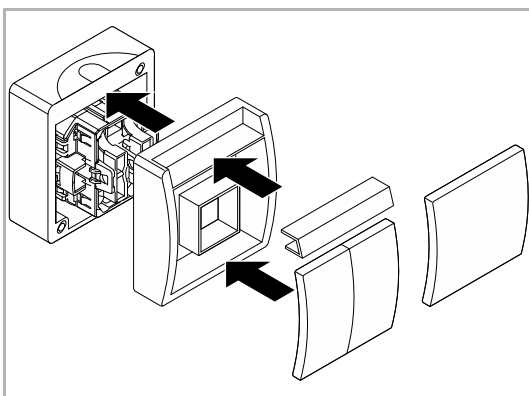
7. When programming has been completed, attach the ocean® cover frame to the base and screw the cover frame on.

8. Attach the ocean® label holder and the ocean® rocker.

6 Commissioning

6.1 Software

To start the device a physical address must be assigned first. The physical address is assigned and the parameters are set with the Engineering Tool Software (ETS).

NOTE

The devices are products of the KNX system and meet KNX guidelines. Detailed expert knowledge by means of KNX training sessions for a better understanding is assumed.

6.1.1 Preparation

1. Connect a PC to the KNX bus line via the KNX interface (e.g. via the commissioning interface / commissioning adapter 6149/21-500).

   – The Engineering Tool Software must be installed on the PC (native application from ETS 4.0).

2. Switch on the bus voltage.

6.1.2 Assigning a physical address
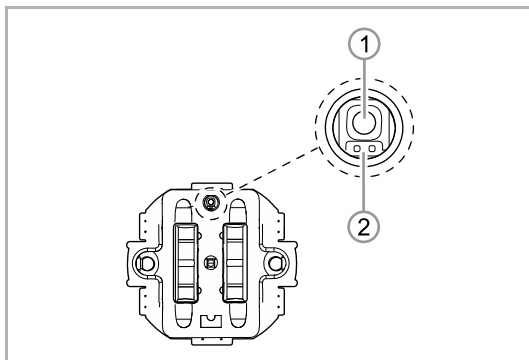
1. Press the programming button [1].

   – The red programming LED [2] lights up.

6.1.3 Assigning the group address(es)

The group addresses are assigned in connection with the ETS.

6.1.4 Selecting the application program

Please contact our Internet support unit (www.BUSCH-JAEGER.com). The application is loaded into the device via the ETS.

6.1.5 Differentiating the application program

Various functions can be implemented via the ETS.

Detailed description of parameters, see chapter 10 "Description of application and parameters" on page 24 (only in languages DE, EN, ES, FR, IT and NL).

7 Update

A firmware update is carried out via the KNX bus by means of the ETS app "KNX Bus Update".

NOTE

The description of the update process can be downloaded via the electronic catalogue (www.busch-jaeger-catalogue.com). It is stored on the device page under category "Software".

8 Operation

Operation is carried out by pressing the rocker or rockers.

The function is specified via the assigned application / function and their parameter settings. Extensive functions are available for the individual control elements.

The range of applications is contained in Chapter 10 "Description of application and parameters" on page 24 (only in languages DE, EN, ES, FR, IT and NL).

8.1 LED colour concept

The KNX functions are supported by an LED colour concept.

Colour	Meaning
Yellow	Lighting
Blue	Blind control
Orange	Room temperature control
Magenta	Light scenes
White	Neutral / no assignment of functions

Table 4: LED colour concept

9   Maintenance

The device is maintenance-free. In case of damage, e.g. during transport or storage), do not perform repairs. Once the device is opened, the warranty is void.

Access to the device must be guaranteed for operation, testing, inspection, maintenance and repairs (according to DIN VDE 0100-520).

9.1   Cleaning

Clean dirty devices with a soft dry cloth.

–   If this is insufficient, the cloth can be moistened slightly with a soap solution.

10 Description of application and parameters

10.1 Application program

The following application program is available:

- Control element, 2/4gang/3

10.2 Overview of applications

The application program for the devices contains the KNX applications listed in the following:

- 1-button switching
- 1-button dimming
- 1-button blind
- 1-button short-long operation
- 1-button value transmitter
- 1-button value transmitter, 2 objects
- 1-button step switch
- 1-button multiple operation
- 1-button light scene extension unit with memory function
- 1-button operating mode, "Adjust room temperature controller"
- 2-button switching
- 2-button dimming
- 2-button blind
- 2-button value transmitter
- 2-button value dimming sensor
- 2-button step switch
- LED function
- Enable application
- Temperature sensor

10.3 Application "1-button switching"
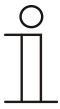
NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 2
- Button 3 / rocker 2
- Button 4

When actuated or released a switching telegram is sent out. In each case, the application makes a separate set of parameters and communication objects available for the 1st and the 2nd button. The other side of the button can be assigned a further "button-oriented" function.

10.3.1 General parameters - Reaction on rising edge

Options:	On
	Off
	Alternating on/off
	Deactivated

The application can differentiate between the operation and the releasing of the button. An operation is designated as "Rising edge" and the releasing is designated as "Falling edge".

The application "1-button switching" makes two separate "Switching" communication objects available for the left or right side of the button. The value 1 is always sent out on the first object (Value 1) and the value 2 is always sent out on the second object (Value 2).

The "Reaction to rising edge" parameter specifies whether the "Value 1 for rising edge" or the "Value 2 for rising edge" is sent out for rising edge.

Alternatively, Value1/Value2 can also be alternatingly set for a rising edge, i.e. after Value 1 was sent (or received), a renewed operation will send out Value 2. After it is operated again, Value 1 is again sent out.

The values 1 and 2 are specified via the parameters "Value 1 for rising edge" and "Value 2".

The "Deactivated" setting causes no telegram to be sent out for an operation of the button.

10.3.2 General parameters - Reaction on falling edge

Options:	On
	Off
	Alternating on/off
	Deactivated

The application can differentiate between the operation and the releasing of the button. An operation is designated as "Rising edge" and the releasing is designated as "Falling edge".

The application "1-button switching" makes two separate "Switching" communication objects available for the left or right side of the button. The value 1 is always sent out on the first object (Value 1) and the value 2 is always sent out on the second object (Value 2).

The "Reaction to falling edge" parameter specifies whether the "Value 1 for falling edge" or the "Value 2 for falling edge" is sent out for falling edge.

Alternatively, Value1/Value2 can also be alternatingly set for a rising edge, i.e. after Value 1 was sent (or received), a renewed operation will send out Value 2. After it is operated again, Value 1 is again sent out.

The values 1 and 2 are specified via the parameters "Value 1 for rising edge" and "Value 2".

The "Deactivated" setting causes no telegram to be sent out for an operation of the button.

10.4 Application "1-button dimming"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 2
- Button 3 / rocker 2
- Button 4

The push-buttons have communication objects for switching and dimming. A distinction is made between a short (switching) and long (dimming) press of the button. In each case, the application makes a separate set of parameters and communication objects available for the 1st and the 2nd button. The application allows a lamp to be dimmed with the one button and the other button to be assigned with other "button-oriented" functions.

10.4.1 General parameters - Time for long operation

Options:	00.300 ... 03.000

A differentiation can be made between a short or long operation of the button. With a short operation of the button, the next level forward is switched to in each case. With a long operation, the first level is activated. Thus with a long button press a jump back from every position to the first level is possible, without having to run through the remaining levels.

Via the "Duration of long operation", the time is specified from which a long button press is recognised and the object values are reset. The first level must be set again with a press of the button. Any time from 0.3 to 3 seconds can be set. A typical value after which a jump-back to level 1 is made is 0.4 s.

10.4.2 General parameters - Working mode of the buttons for switching

Options:	On
	Off
	Alternating on/off
	Deactivated

The "Working mode of the buttons for switching" is used to specify whether an operation of the left or right side of the button will send out an ON or an OFF telegram. Alternatively, for the selection "Alternating on/off", you can switch between switching on and switching off for every operation that triggers a switching telegram. This means that after a switch-on telegram has been sent out (or received), a switch-off telegram will be sent out for a renewed operation. After it is operated again, a switch-on telegram is sent out.

If a switching telegram is triggered by operation of the button, this will be sent out on the 1-bit communication object "Switching".

10.4.3   General parameters - Working mode of the buttons for dimming

Options:	Darker
	Brighter
	Alternating brighter/darker

For a long operation of the button, a "Relative dimming" dimming telegram is sent out on the 4-bit communication object.

The "Working mode of the buttons for dimming" is used to specify whether a long operation sends out a dim brighter or a dim darker telegram. Alternatively, when selecting "Alternating brighter/darker", you can switch between dimming brighter and darker with each long operation. This means that after a dim brighter telegram has been sent out (or received), a dim darker telegram will be sent out for a renewed operation. After it is operated again, a dim brighter telegram is sent out.

10.5 Application "1-button blind"

> **NOTE**
>
> The application is valid for the following parts of the device:
> - Button 1 / rocker 1
> - Button 2
> - Button 3 / rocker 2
> - Button 4

Via the application "1-button blind", blind movement and/or slats adjustment commands can be sent to connected blind actuators with a short or long actuation of the button. A short button press always triggers a slats adjustment or stop command and a long button press always triggers a travel command. The control always remembers the last action performed on the side of the button that is assigned with the "1-button blind" application. For example: If a blind was lowered and halted at half height via a short button contact, then a renewed long button contact will raise the blind.

10.5.1 General parameters - Time for long operation

Options:	00.300 ... 03.000

A differentiation can be made between a short or long operation of the button. With a short operation of the button, the next level forward is switched to in each case. With a long operation, the first level is activated. Thus with a long button press a jump back from every position to the first level is possible, without having to run through the remaining levels.

Via the "Duration of long operation", the time is specified from which a long button press is recognised and the object values are reset. The first level must be set again with a press of the button. Any time from 0.3 to 3 seconds can be set. A typical value after which a jump-back to level 1 is made is 0.4 s.

10.5.2 General parameters - Cycle time of the telegram repetition

> **NOTE**
>
> This parameter is only visible if the "Object type" parameter is set to 1 bit.

Options:	00.100 ... 05.000

Telegrams are sent out on the "Adjust" object cyclically as long as the button is operated. The intervals can be freely set from 0.1 s to 5.0 s. As standard, the telegrams are sent out cyclic at an interval of 1 second.

Via this function, it is possible to more accurately position larger slats that require a longer time for a complete slat rotation. This means that the user holds the button pressed until the slats are set to the desired position and then releases the button.

10.5.3 General parameters - Object type

Options:	1 bit
	1 byte 0 - 100%

Via the parameter object type, you can specify whether the blind control occurs via two 1-bit or two 1-byte communication objects "Move" and "Adjust".

If 1-byte was selected as object type, the communication objects can be connected with 1-byte position objects from blind actuators. For example: One side of the button could lower the blind to 50% with slats closed 50%, while the other button side can lower the blind to 80% with slats closed 100%.

10.5.4 Extended parameters — Switchover of function blind/roller shutter

Options:	Blind
	Roller shutter

The "Function switchover blinds/roller shutters" specifies whether a blind or roller shutter is to be driven by a button operation. With the "Roller shutter" setting, the value for the slats adjustment does not apply.

10.5.5 Extended parameters - Value for position Down (%)

NOTE
This parameter is only visible if the "Function switchover blinds/roller shutters" parameter is set on blind.

Options:	0 ... 100

The position that a connected blind is to be lowered to is set via this parameter. The associated 1-byte "Move" communication object must hereby be connected with a 1-byte position object of a blind actuator. Percentage values from 0% to 100% can be set in 1% steps. The value 0% means travel up completely; the value 100% means travel down completely.

10.5.6 Extended parameters - Value for position Up (%)

NOTE

This parameter is only visible if the "Function switchover blinds/roller shutters" parameter is set on blind.

Options:	0 ... 100

The position that a connected blind is to be raised to is set via this parameter. The associated 1-byte "Move" communication object must hereby be connected with a 1-byte position object of a blind actuator. Percentage values from 0% to 100% can be set in 1% steps. The value 0% means travel up completely; the value 100% means travel down completely.

10.5.7 Extended parameters - Value for slat position Down (%)

NOTE

This parameter is only visible if the "Function switchover blinds/roller shutters" parameter is set on blind.

Options:	0 ... 100

The position that a connected blind slat is to be opened to is set via this parameter. The associated 1-byte "Adjust" communication object must hereby be connected with a 1-byte slat position object of a blind actuator. Percentage values from 0% to 100% can be set in 1% steps. The value 0% means opened completely; the value 100% means closed completely.

10.5.8 Extended parameters - Value for slat position Up (%)

NOTE

This parameter is only visible if the "Function switchover blinds/roller shutters" parameter is set on blind.

Options:	0 ... 100

The position that a connected blind slat is to be closed to is set via this parameter. The associated 1-byte "Adjust" communication object must hereby be connected with a 1-byte slat position object of a blind actuator. Percentage values from 0% to 100% can be set in 1% steps. The value 0% means opened completely; the value 100% means closed completely.

10.6 Application "1-button short-long operation"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 2
- Button 3 / rocker 2
- Button 4

The application makes two separate functions available on one side of the button which can be called up via a short or long button press, while the other side of the button can be assigned a further "button-oriented" function. In each case, the application makes a separate set of parameters and communication objects available for the 1st and the 2nd button.

10.6.1 General parameters - Object type

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

The application "1-button short-long-operation" makes two communication objects available: "Reaction for short operation" and "Reaction for long operation". The bit size of both communication objects is specified together via the "Object type" parameter.

For the most diverse applications, the bit size of the communication objects can be adapted from "1-bit" up to "4-byte unsigned" via "Object type".

- *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)
- *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)
- *1 byte 0 - 255*: arbitrary values from 0 to 255
- *2-byte float*: floating point value (physical values such as temperature or brightness)
- *2-byte signed*: arbitrary values from -32768 to +32767
- *2-byte unsigned*: arbitrary values from 0 to 65,535
- *4-byte float*: floating point value (physical values)
- *4-byte signed:* arbitrary values from -2147483648 to 2147483647
- *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.6.2   General parameters - Reaction at brief operation

Options:	No reaction
	Value 1
	Value 2
	Alternating value1/value2

Here it is specified whether the "Value 1" or the "Value 2" is sent out for a short operation of the button.

Alternatively, Value1/Value2 can also be alternatingly set for a short operation, i.e. after Value 1 was sent (or received), a renewed operation will send out a Value 2. After it is operated again, Value 1 is again sent out.

The "No reaction" setting causes no telegram to be sent out for a short operation of the button.

10.6.3   General parameters - Reaction at long operation

Options:	No reaction
	Value 1
	Value 2
	Alternating value1/value2

Here it is specified whether the "Value 1" or "Value 2" is sent out for a long operation of the button.

Alternatively, Value1/Value2 can also be alternating set for a long operation, i.e. after Value 1 was sent (or received), a renewed operation will send out a Value 2. After it is operated again, Value 1 is again sent out.

The "No reaction" setting causes no telegram to be sent out for a long operation of the button.

10.6.4   Extended parameters - Time for long operation

Options:	00.300 ... 03.000

A differentiation can be made between a short or long operation of the button. With a short operation of the button, the next level forward is switched to in each case. With a long operation, the first level is activated. Thus with a long button press a jump back from every position to the first level is possible, without having to run through the remaining levels.

Via the "Duration of long operation", the time is specified from which a long button press is recognised and the object values are reset. The first level must be set again with a press of the button. Any time from 0.3 to 3 seconds can be set. A typical value after which a jump-back to level 1 is made is 0.4 s.

10.6.5 Extended parameters - Value 1 for short operation

NOTE

This parameter is only visible if the "Reaction at brief operation" parameter is set on either "Value 1" or "Alternating Value1/Value2".

Options:	Off
	On

Value 1 is specified here which is sent out at a short operation of the button. This is dependent on the setting of the "Object type" parameter.

10.6.6 Extended parameters - Value 2 for short operation

NOTE

This parameter is only visible if the "Reaction at brief operation" parameter is set on either "Value 2" or "Alternating Value1/Value2".

Options:	Off
	On

Value 2 is specified here which is sent out at a short operation of the button. This is dependent on the setting of the "Object type" parameter.

10.6.7 Extended parameters - Value 1 for long operation

NOTE

This parameter is only visible if the "Reaction at long operation" parameter is set on either "Value 1" or "Alternating Value1/Value2".

Options:	Off
	On

Value 1 is specified here which is sent out at a long operation of the button. This is dependent on the setting of the "Object type" parameter.

10.6.8 Extended parameters - Value 2 for long operation

NOTE

This parameter is only visible if the "Reaction at long operation" parameter is set on either "Value 2" or "Alternating Value1/Value2".

Options:	Off
	On

Value 2 is specified here which is sent out at a long operation of the button. This is dependent on the setting of the "Object type" parameter.

10.7 Application "1-button value transmitter"

NOTE
The application is valid for the following parts of the device:
- Button 1 / rocker 1
- Button 2
- Button 3 / rocker 2
- Button 4

The application "1-button value transmitter" makes its own communication object available for the left or right side of the button. The bit size of the communication object is specified via the "Object type" parameter.

For the most diverse applications, the bit size of the communication objects can be adapted from "1-bit" up to "4-byte unsigned" via "Object type".

10.7.1 General parameters - Object type

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

The "1-button value transmitter" application makes its own "Value switching" communication object available for the button. The bit size of the communication object is specified via the "Object type" parameter.

For the most diverse applications, the bit size of the communication objects can be adapted from "1-bit" up to "4-byte unsigned" via "Object type". For every multiple operation function, a different object size and thus a different function can be selected.

- *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)
- *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)
- *1 byte 0 - 255*: arbitrary values from 0 to 255
- *2-byte float*: floating point value (physical values such as temperature or brightness)
- *2-byte signed*: arbitrary values from -32768 to +32767
- *2-byte unsigned*: arbitrary values from 0 to 65,535
- *4-byte float*: floating point value (physical values)
- *4-byte signed:* arbitrary values from -2147483648 to 2147483647
- *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.7.2 Extended parameters - Reaction on rising edge

Options:	No reaction
	Value 1
	Value 2
	Alternating value1/value2

The application can differentiate between the operation and the releasing of the button. An operation is designated as "Rising edge" and the releasing is designated as "Falling edge".

The application "1-button value transmitter" makes two separate "Switching" communication objects available for the left or right side of the button. The value 1 is always sent out on the first object (Value 1) and the value 2 is always sent out on the second object (Value 2).

The "Reaction to falling edge" parameter specifies whether the "Value 1 for falling edge" or the "Value 2 for falling edge" is sent out for falling edge.

Alternatively, Value1/Value2 can also be alternatingly set for a rising edge, i.e. after Value 1 was sent (or received), a renewed operation will send out Value 2. After it is operated again, Value 1 is again sent out.

The values 1 and 2 are specified via the parameters "Value 1" and "Value 2".

The "No reaction" setting causes no telegram to be sent out for a operation of the button.

10.7.3 Extended parameters - Reaction on rising edge

Options:	No reaction
	Value 1
	Value 2
	Alternating value1/value2

The application can differentiate between the operation and the releasing of the button. An operation is designated as "Rising edge" and the releasing is designated as "Falling edge".

The application "1-button value transmitter" makes two separate "Switching" communication objects available for the left or right side of the button. The value 1 is always sent out on the first object (Value 1) and the value 2 is always sent out on the second object (Value 2).

The "Reaction to rising edge" parameter specifies whether the "Value 1 for rising edge" or the "Value 2 for rising edge" is sent out for rising edge.

Alternatively, Value1/Value2 can also be alternatingly set for a rising edge, i.e. after Value 1 was sent (or received), a renewed operation will send out Value 2. After it is operated again, Value 1 is again sent out.

The values 1 and 2 are specified via the parameters "Value 1" and "Value 2".

The "No reaction" setting causes no telegram to be sent out for a operation of the button.

10.7.4 Extended parameters - Reaction on falling edge

Options:	No reaction
	Value 1
	Value 2
	Alternating value1/value2

The application can differentiate between the operation and the releasing of the button. An operation is designated as "Rising edge" and the releasing is designated as "Falling edge".

The application "1-button value transmitter" makes two separate "Switching" communication objects available for the left or right side of the button. The value 1 is always sent out on the first object (Value 1) and the value 2 is always sent out on the second object (Value 2).

The "Reaction to falling edge" parameter specifies whether the "Value 1 for falling edge" or the "Value 2 for falling edge" is sent out for falling edge.

Alternatively, Value1/Value2 can also be alternating set for a falling edge, i.e. after Value 1 was sent (or received), a renewed operation will send out Value 2. After it is operated again, Value 1 is again sent out.

The values 1 and 2 are specified via the parameters "Value 1" and "Value 2".

The "No reaction" setting causes no telegram to be sent out for a operation of the button.

10.7.5 Extended parameters - Value 1

NOTE
The options are dependent on the setting of the "Object type" parameter.

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

Value 1 is specified here which is sent out at a long operation of the button.

–   *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)

–   *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)

–   *1 byte 0 - 255*: arbitrary values from 0 to 255

–   *2-byte float*: floating point value (physical values such as temperature or brightness)

–   *2-byte signed*: arbitrary values from -32768 to +32767

–   *2-byte unsigned*: arbitrary values from 0 to 65,535

–   *4-byte float*: floating point value (physical values)

–   *4-byte signed:* arbitrary values from -2147483648 to 2147483647

–   *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.7.6   Extended parameters - Value 2

NOTE

The options are dependent on the setting of the "Object type" parameter.

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

Value 2 is specified here which is sent out at a long operation of the button.

–   *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)

–   *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)

–   *1 byte 0 - 255*: arbitrary values from 0 to 255

–   *2-byte float*: floating point value (physical values such as temperature or brightness)

–   *2-byte signed*: arbitrary values from -32768 to +32767

–   *2-byte unsigned*: arbitrary values from 0 to 65,535

–   *4-byte float*: floating point value (physical values)

–   *4-byte signed:* arbitrary values from -2147483648 to 2147483647

–   *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.8 Application "1-button value transmitter, 2 objects"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 2
- Button 3 / rocker 2
- Button 4

With the "1-button value transmitter, 2 objects" application, two telegrams with predefined values from two different communication objects can be sent out for an operation and/or upon release of the button.

In each case, the application "1-button value transmitter, 2 objects" makes a separate set of parameters and communication objects available in each case for the right and left side of the button.

The application makes it possible, for example, to send out a switching function and a floating point value when actuating one side of the button and to assign an additional "button-oriented" function to the other side of the button.

10.8.1 General parameters - Object type for rising edge

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

The application "1-button value transmitter" makes two separate "Switching" communication objects available for the left or right side of the 1st and 2nd button. The bit size of the first communication object is specified via the "Object type for rising edge" parameter.

For the most diverse applications, the bit size of the communication objects can be adapted from "1-bit" up to "4-byte unsigned" via "Object type for rising edge".

– *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)
– *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)
– *1 byte 0 - 255*: arbitrary values from 0 to 255
– *2-byte float*: floating point value (physical values such as temperature or brightness)
– *2-byte signed*: arbitrary values from -32768 to +32767
– *2-byte unsigned*: arbitrary values from 0 to 65,535
– *4-byte float*: floating point value (physical values)
– *4-byte signed:* arbitrary values from -2147483648 to 2147483647
– *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.8.2 General parameters - Object type for falling edge

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

The application "1-button value transmitter" makes two separate "Switching" communication objects available for the left or right side of the 1st and 2nd button. The bit size of the first communication object is specified via the "Object type for falling edge" parameter.

For the most diverse applications, the bit size of the communication objects can be adapted from "1-bit" up to "4-byte unsigned" via "Object type for falling edge".

– *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)

– *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)

– *1 byte 0 - 255*: arbitrary values from 0 to 255

– *2-byte float*: floating point value (physical values such as temperature or brightness)

– *2-byte signed*: arbitrary values from -32768 to +32767

– *2-byte unsigned*: arbitrary values from 0 to 65,535

– *4-byte float*: floating point value (physical values)

– *4-byte signed:* arbitrary values from -2147483648 to 2147483647

– *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.8.3 Extended parameters - Reaction on rising edge

Options:	No reaction
	Value 1
	Value 2
	Alternating value1/value2

The application can differentiate between the operation and the releasing of the button. An operation is designated as "Rising edge" and the releasing is designated as "Falling edge".

The application "1-button value transmitter, 2 objects" makes two separate "Switching" communication objects available for the left or right side of the button. The value 1 is always sent out on the first object (Value 1) and the value 2 is always sent out on the second object (Value 2).

The "Reaction to rising edge" parameter specifies whether the "Value 1 for rising edge" or the "Value 2 for rising edge" is sent out for rising edge.

Alternatively, Value1/Value2 can also be alternatingly set for a rising edge, i.e. after Value 1 was sent (or received), a renewed operation will send out Value 2. After it is operated again, Value 1 is again sent out.

The values 1 and 2 are specified via the parameters "Value 1" and "Value 2".

The "No reaction" setting causes no telegram to be sent out for a operation of the button.

10.8.4 Extended parameters - Reaction on falling edge

Options:	No reaction
	Value 1
	Value 2
	Alternating value1/value2

The application can differentiate between the operation and the releasing of the button. An operation is designated as "Rising edge" and the releasing is designated as "Falling edge".

The application "1-button value transmitter, 2 objects" makes two separate "Switching" communication objects available for the left or right side of the button. The value 1 is always sent out on the first object (Value 1) and the value 2 is always sent out on the second object (Value 2).

The "Reaction to falling edge" parameter specifies whether the "Value 1 for falling edge" or the "Value 2 for falling edge" is sent out for falling edge.

Alternatively, Value1/Value2 can also be alternatingly set for a rising edge, i.e. after Value 1 was sent (or received), a renewed operation will send out Value 2. After it is operated again, Value 1 is again sent out.

The values 1 and 2 are specified via the parameters "Value 1" and "Value 2".

The "No reaction" setting causes no telegram to be sent out for a operation of the button.

10.8.5 Extended parameters - Value 1 for rising edge

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NOTE

This parameter is only visible if the "Reaction at rising edge" parameter is set on either "Value 1" or "Alternating Value1/Value2".

The options are dependent on the setting of the "Object type for rising edge" parameter.

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

Value 1 is specified here which is sent out at a long operation of the button.

- *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)
- *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)
- *1 byte 0 - 255*: arbitrary values from 0 to 255
- *2-byte float*: floating point value (physical values such as temperature or brightness)
- *2-byte signed*: arbitrary values from -32768 to +32767
- *2-byte unsigned*: arbitrary values from 0 to 65,535
- *4-byte float*: floating point value (physical values)
- *4-byte signed:* arbitrary values from -2147483648 to 2147483647
- *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.8.6 Extended parameters - Value 2 for rising edge

NOTE

This parameter is only visible if the "Reaction at rising edge" parameter is set on either "Value 2" or "Alternating Value1/Value2".

The options are dependent on the setting of the "Object type for rising edge" parameter.

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

Value 2 is specified here which is sent out at a long operation of the button.

–   *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)

–   *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)

–   *1 byte 0 - 255*: arbitrary values from 0 to 255

–   *2-byte float*: floating point value (physical values such as temperature or brightness)

–   *2-byte signed*: arbitrary values from -32768 to +32767

–   *2-byte unsigned*: arbitrary values from 0 to 65,535

–   *4-byte float*: floating point value (physical values)

–   *4-byte signed:* arbitrary values from -2147483648 to 2147483647

–   *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.8.7 Extended parameters - Value 1 for falling edge

NOTE

This parameter is only visible if the "Reaction at falling edge" parameter is set on either "Value 1" or "Alternating Value1/Value2".

The options are dependent on the setting of the "Object type for falling edge" parameter.

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

Value 1 is specified here which is sent out at a long operation of the button.

– *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)

– *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)

– *1 byte 0 - 255*: arbitrary values from 0 to 255

– *2-byte float*: floating point value (physical values such as temperature or brightness)

– *2-byte signed*: arbitrary values from -32768 to +32767

– *2-byte unsigned*: arbitrary values from 0 to 65,535

– *4-byte float*: floating point value (physical values)

– *4-byte signed:* arbitrary values from -2147483648 to 2147483647

– *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.8.8 Extended parameters - Value 2 for falling edge

NOTE

This parameter is only visible if the "Reaction at falling edge" parameter is set on either "Value 2" or "Alternating Value1/Value2".

The options are dependent on the setting of the "Object type for falling edge" parameter.

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

Value 2 is specified here which is sent out at a long operation of the button.

– *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)

– *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)

– *1 byte 0 - 255*: arbitrary values from 0 to 255

– *2-byte float*: floating point value (physical values such as temperature or brightness)

– *2-byte signed*: arbitrary values from -32768 to +32767

– *2-byte unsigned*: arbitrary values from 0 to 65,535

– *4-byte float*: floating point value (physical values)

– *4-byte signed:* arbitrary values from -2147483648 to 2147483647

– *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.9 Application "1-button step switch"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 2
- Button 3 / rocker 2
- Button 4

Different switching processes are triggered with each new actuation of the 1st or 2nd button.

For example:

- First actuation (2nd button) switches on lamp 1.
- Second actuation (2nd button) switches lamp 1 off and lamp 2 on.
- Third actuation (2nd button) switches lamp 2 off and lamp 3 on.
- Fourth actuation (1st button) switches lamp 3 off and lamp 2 on.
- Fifth actuation (1st button) switches lamp 2 off and lamp 1 on.
- etc.

Up to five switching levels can be activated.

The application differentiates between whether the 1st or 2nd button was actuated. Depending on the setting, one lower or one higher level can be switched to.

10.9.1 General parameters - Number of objects

Options:	1 … 5

The application can switch up to five levels. For every level, its own 1-bit communication object is available. The number of the levels is specified via the "Number of objects" parameter.

10.9.2 General parameters for - Evaluation period

Options:	02.000 ... 05.000

The application can differentiate between a single, double, triple, quadruple or quintuple operation of the button.

If the button is to recognise a multiple operation, then the button must be operated multiple times in a relatively short period of time. The period during which the button evaluates a multiple operation is started anew after each operation.

10.9.3   Extended parameters - Time for long operation

Options:	00.300 ... 02.500

A differentiation can be made between a short or long operation of the button. With a short operation of the button, the next level forward is switched to in each case. With a long operation, the first level is activated. Thus with a long button press a jump back from every position to the first level is possible, without having to run through the remaining levels.

Via the "Duration of long operation", the time is specified from which a long button press is recognised and the object values are reset. The first level must be set again with a press of the button. Any time from 0.3 to 2.5 seconds can be set. A typical value after which a jump-back to level 1 is made is 0.4 s.

10.9.4   Extended parameters — Sending of objects

Options:	For change of value
	For operation

The parameter "Sending of objects" specifies whether the object values for every button operation are sent out or only if the object values have changed since the last sending out.

10.9.5   Extended parameters - Object values

Options:	Normal
	Inverse

The object values can be sent "normal" or "inverse" via their associated 1-bit communication objects. If the parameter "Object values" is set to "inverse" then all 1-bit communication objects of the individual levels send out their values inverted.

10.9.6   Extended parameters - Bit pattern of object values

Options:	x of n
	1 of n

The levels can be switched in two different bit patterns:

x of n (for 5 objects, object 0 to 4)	1 of n (for 5 objects, object 0 to 4)
00000	00000
10000	10000
11000	01000
11100	00100
11110	00010
11111	00001

10.10 Application "1-button multiple operation"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 2
- Button 3 / rocker 2
- Button 4

With the "1-button multiple actuation" application, a differentiation can be made between a single, double, triple, quadruple or quintuple actuation of the button. For each actuation, single, double, triple, quadruple, or quintuple, different values can be sent out. In each case, the application "1-button multiple operation" makes a separate set of parameters and communication objects available in each case for the right or left side of the button. This makes multiple operation possible via one button and assigning a further "button-oriented" function to the other button.

10.10.1 General parameters - Number of objects or actuations

Options:	1 … 5

The application can differentiate between a single, double, triple, quadruple or quintuple operation of the button.

The "Number of objects or actuations" parameter specifies how many multiple operations are to be differentiated between.

- 1 object: single operation
- 2 objects: single and double operation
- 3 objects: single, double and triple operation
- 4 objects: single, double and triple and quadruple operation
- 5 objects: single, double and triple, quadruple quintuple operation

10.10.2 General parameters for - Evaluation period

Options:	01.000 ... 05.000

The application can differentiate between a single, double, triple, quadruple or quintuple operation of the button.

If the button is to recognise a multiple operation, then the button must be operated multiple times in a relatively short period of time. The period during which the button evaluates a multiple operation is started anew after each operation.

10.10.3 Extended parameters - Object type for object 0-4

NOTE

The number of the indicated parameter entries (1-5) depends on the value that was specified in parameter "Number of objects or actuations".

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

The "1-button multiple operation" application makes a separate communication object "Switching … Multiple operation" for single, double, triple, quadruple and quintuple operation available in each case. The bit size of the communication objects is specified together via the "Object type for object ..." parameter. For the most diverse applications, the bit size of the communication objects can be adapted from "1-bit" up to "4-byte unsigned" via "Object type for object …". For every multiple operation function, a different object size and thus a different function can be selected.

– *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)

– *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)

– *1 byte 0 - 255*: arbitrary values from 0 to 255

– *2-byte float*: floating point value (physical values such as temperature or brightness)

– *2-byte signed*: arbitrary values from -32768 to +32767

– *2-byte unsigned*: arbitrary values from 0 to 65,535

– *4-byte float*: floating point value (physical values)

– *4-byte signed:* arbitrary values from -2147483648 to 2147483647

– *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.10.4 Extended parameters - Function for object type 1-bit for object 0-4

NOTE

This parameter is only visible if the "Object type for object 0-4" parameter is set to 1 bit.

Options:	Send value
	Alternating on/off

If the "Object type for object 0-4" parameter was specified with "1 bit", an ON or an OFF telegram can be sent out using the setting "Send value". Whether an ON or an OFF telegram is sent is specified by the "Function for object type 1-bit for object 0-4" parameter.

The "Alternating on/off" setting means that switching always takes place between ON and OFF. This means that after a switch-on telegram has been sent out (or received), a switch-off telegram will be sent out for a renewed operation. After it is operated again, a switch-on telegram is sent out.

10.10.5 Extended parameters - Value for object 0-4

> **NOTE**
>
> The options are dependent on the setting of the "Object type for object 0-4" parameter.

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

Value 0-4 is specified here which is sent out at a multiple operation (1-5) of the button.

– *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)
– *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)
– *1 byte 0 - 255*: arbitrary values from 0 to 255
– *2-byte float*: floating point value (physical values such as temperature or brightness)
– *2-byte signed*: arbitrary values from -32768 to +32767
– *2-byte unsigned*: arbitrary values from 0 to 65,535
– *4-byte float*: floating point value (physical values)
– *4-byte signed:* arbitrary values from -2147483648 to 2147483647
– *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.11 Application "1-button light scene extension unit with memory function"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 2
- Button 3 / rocker 2
- Button 4

When a button is actuated a predefined light scene number is called up. In each case, the application makes a separate set of parameters and communication objects available for the 1st and the 2nd button. The application makes it possible to call up a light scene via one button side while the other button side can be assigned with a further "button-oriented" function. The user has the option to trigger a light scene memory command via a long actuation of the button.

10.11.1 General parameters - Time for long operation

Options:	00.300 ... 10.000

A short and long operation can be differentiated between for the operation of the button. For a short operation of the button, a preset light scene is called up on the 1-byte communication object "Light scene number". For a long operation, a command for storage of the preset light scene is sent out on the same communication object.

Via the "Duration of long operation", the time is specified after which a long button press is recognised and a command for the light scene storage is sent out instead of the light scene number. Any time from 0.3 to 10.0 seconds can be set. A typical value, after which a button triggers a storage for a long press is 3 s.

10.11.2 General parameters - Light scene memory function

Options:	Deactivated
	Activated

Within the 1-byte value, a memory bit is set in addition to the light scene number. If a light scene module (e.g. Busch-ComfortTouch®) receives this 1-byte value, the module can identify the affected light scene and trigger a storage procedure. Read requests are sent to all connected actuators that in turn answer with their current communication object values. The answers are saved by the light scene module and are sent out again for every future receipt of the light scene number.

10.11.3 General parameters - Light scene number

Options:	1 … 64

In the parameter "Light scene number", an arbitrary light scene number from 1 to 64 can be specified which can be sent out via the 1-byte communication object "Light scene number" for operation of the button.

The button only serves as light scene extension unit, i.e. the button only calls up the light scene number. The individual values for the dimming actuators or blind actuators to be adjusted are either stored in the actuator itself or in connected light scene modules (e.g. Busch-ComfortTouch®).

A light scene module will receive the light scene number and subsequently send the stored light scene values consecutively to the connected actuators.

10.12 Application "1-button operating mode "Setting "Adjust room temperature controller""

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 2
- Button 3 / rocker 2
- Button 4

With the "1-button operating mode" "Adjust room temperature controller"" application, an operating mode switchover for connected room temperature controllers can be carried out with an operation of one button side.

Depending on the setting of the "Object type for output" parameter, the application offers either 1-bit communication objects "Comfort operating mode", "Standby operating mode", "ECO operating mode" and Frost protection, heat protection operating mode" or 1-byte communication objects "Auto operating mode", "Comfort operating mode", "Standby operating mode", "ECO operating mode" and "Frost protection, heat protection operating mode".

The selection "1-bit" is used for activating room temperature controllers that have 1-bit communication objects for operating mode switchover. The "1-byte" selection is used for activating room temperature controllers that have a 1-byte communication object for operating mode switchover to KNX. In this case, the values mean:

- 0 = Auto
- 1 = Comfort
- 2 = Standby
- 3 = Eco
- 4 = Frost- / heat protection

The function can be temporarily blocked via a 1-bit "Enable" communication object.

10.12.1 General parameters - Object type for output

Options:	1 bit
	1 byte

The "Object type for output" parameter is used to specify the size of the output communication object. You can select between "1-bit" and "1-byte".

The selection "1-bit" is used for activating room temperature controllers that have 1-bit communication objects for operating mode switchover. The "1-byte" selection is used for activating room temperature controllers that have a 1-byte communication object for operating mode switchover to KNX. In this case, the values mean:

- 0 = Auto
- 1 = Comfort
- 2 = Standby
- 3 = Night
- 4 = Frost- / heat protection

10.12.2 General parameters - Operating mode

NOTE

The options are dependent on the setting of the "Object type for output" parameter.

Options:	Auto (1 byte only)
	Comfort
	Standby
	Eco
	Frost protection, heat protection

The "Operating mode" parameter specifies the operating mode that is sent out on the 1-byte communication object for the KNX operating mode switchover when a button is operated. The possible selections are:

– Auto (1 byte only)

– Comfort

– Standby

– Eco

– Frost protection, heat protection

With selection "Auto" the value "0" is sent out on the1-byte object. For a connected room temperature controller, this means that for every new operation, the individual operating modes "Comfort", "Standby" and "Night" will be switched between. When forced guidance is activated, selection "Auto" is used to switch over to the standard operating mode object.

With the selection of "Comfort", a "1" is sent out on the 1-byte object and a connected room temperature controller switches to the comfort operating mode.

With the selection of "Standby", a "2" is sent out on the 1-byte object and a connected room temperature controller switches to the standby operating mode.

With the selection of "ECO", a "3" is sent out on the 1-byte object and a connected room temperature controller switches to the night time temperature reduction operating mode.

With the selection of "Frost protection, heat protection", a "4" is sent out on the 1-byte object and a connected room temperature controller switches to the frost/heat protection operating mode.

10.12.3 Extended parameters - Enable object

Options:	Deactivated
	Activated

If the "Enable object" parameter is set to "activated", the function can temporarily be blocked via the the 1-bit communication object "Enable".

The function is active if an ON telegram is received on the 1-bit communication object "Enable". The function is blocked if an OFF telegram is received on the 1-bit communication object "Enable". This means that no telegram is sent out on the "Output" communication object.

10.12.4 Extended parameters - Object value enable object

Options:	Normal
	Inverse

The enable function normally functions as follows:

The function is active if an ON telegram is received on the 1-bit communication object "Enable". The function is blocked if an OFF telegram is received on the 1-bit communication object "Enable".

10.12.5 Extended parameters - Enable object after return of voltage

Options:	Blocked
	Enabled

The "Enable object after return of voltage" parameter is used to specify whether the device is to be "enabled" or "blocked" after a bus voltage failure and subsequent return of bus voltage.

10.13 Application "2-button switching"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 3 / rocker 2

With the application "2-button switching" a switching telegram is sent when the button is actuated and/or released. Here it does not differentiate between whether the button is operated on the left or right side. In each case, the application makes a separate set of parameters and communication objects available for the right and left side of the button. It also makes a switching function possible via one side of the button and assigning a further "button-oriented" function to the other side of the button.

10.13.1 General parameters - Working mode of the buttons for switching

Options:	Button on / 2nd button off
	Button off / 2nd button on
	Alternating on/off

The "Working mode of the button for switching" is used to specify whether an operation of the left or right side of the button will send out an ON or an OFF telegram. Alternatively, for the selection "Alternating on/off", you can switch between switching on and switching off for every operation that triggers a switching telegram. This means that after a switch-on telegram is sent out (or received), a switch-off telegram is sent out for a renewed operation. After it is operated again, a switch-on telegram is sent out.

If a switching telegram is triggered by operation of the button, this will be sent out on the 1-bit communication object "Switching".

10.14 Application "2-button dimming"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 3 / rocker 2

With the "2-button dimming" application, a button has communication objects for switching and for dimming. A distinction is made between a short (switching) and long (dimming) press of the button. Here the application does not differentiate between whether the button is operated on the left or right side. In each case, the application makes a separate set of parameters and communication objects available for the right and left side of the button. It also makes dimming a lamp possible via one side of the button and assigning a further "button-oriented" function to the other side of the button.

10.14.1 General parameters - Time for long operation

Options:	00.300 ... 03.000

A differentiation can be made between a short or long operation of the button. With a short operation of the button, the next level forward is switched to in each case. With a long operation, the first level is activated. Thus with a long button press a jump back from every position to the first level is possible, without having to run through the remaining levels.

Via the "Duration of long operation", the time is specified from which a long button press is recognised and the object values are reset. The first level must be set again with a press of the button. Any time from 0.3 to 3 seconds can be set. A typical value after which a jump-back to level 1 is made is 0.4 s.

10.14.2 General parameter - Manner of dimming

Options:	Start-stop dimming
	Step-wise dimming

You can switch between the two dimming versions "Start-Stop dimming" and "Step-wise dimming" via this parameter.

"Start-Stop dimming" means that exactly two 4-bit telegrams for dimming are always sent out. For triggering of a dimming command, a telegram with the information "Dim by 100% brighter" or "Dim by 100% darker". When the button is released, the second telegram is sent out with the "Dimming stop" information. Hence, a connected dimming actuator can be halted at any time during the dimming phase.

The second dimming procedure is the step-wise dimming ("Dim stop is not sent" setting). For step-wise dimming, a defined value, e.g. "Dim brighter by 6.25%" is always sent out for triggering of a dimming command. This dimming procedure can be utilised if dimming sensor and actuator are installed in different lines. In this case, telegram delays can occur through a coupler and thus varying brightness values if multiple dimming actuators are to be activated in different lines.

10.14.3 Extended parameters - Working mode of the buttons for switching

Options:	1st button off / 2nd button on
	1st button on / 2nd button off
	Alternating on/off

The "Working mode of the button for switching" application determines whether switching on or switching off occurs via the right or the left side of the button. Using the behaviour "Alternating on/off" always switches between ON and OFF. That means, for example, if an ON telegram was last sent out, then a renewed operation of the rocker switch will trigger an OFF telegram. If the button is operated again, an ON telegram will be sent again, etc. The button thus always remembers the last state and then switches over to the other value.

This also applies for values that are received via the associated 1-bit communication object. This means that if an ON telegram was sent out for the last button operation, thereafter an OFF telegram was received via the communication object, the next operation of the button will send out an ON telegram. It must be observed here that the S-flag (writing) of the communication object is activated.

10.14.4 Extended parameters - Working mode of the buttons for dimming

Options:	1st button brighter / 2nd button darker
	1st button darker / 2nd button brighter

The "Working mode of the button for dimming" determines whether operation of the left or right side of the button will send out a dim brighter or a dim darker telegram.

If a dimming telegram is triggered by operation of the button, a dimming telegram will be sent out on the 4-bit communication object "Relative dimming".

10.15   Application "2-button blind"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 3 / rocker 2

Via the application "2-button blind", blind movement and/or slats adjustment commands can be sent to connected blind actuators with a short or long actuation of the button. A short button press always triggers a travel command and a long button press always triggers a slats adjustment or stop command. In each case, the "2-button blind" application makes a separate set of parameters and communication objects available for the right or left side of the button. This thus facilitates controlling a blind using one side of the button and assigning a "button orientated" function to the other side of the button. The control always remembers the last action performed on the side of the button that is assigned with the "2-button blind" application. For example: If a blind was lowered and halted at half height via a long press of the button, then a renewed short press of the button will raise the blind.

10.15.1   General parameters - Time for long operation

Options:	00.300 ... 03,000

A differentiation can be made between a short or long operation of the button. With a short operation of the button, the next level forward is switched to in each case. With a long operation, the first level is activated. Thus with a long button press a jump back from every position to the first level is possible, without having to run through the remaining levels.

Via the "Duration of long operation", the time is specified from which a long button press is recognised and the object values are reset. The first level must be set again with a press of the button. Any time from 0.3 to 3 seconds can be set. A typical value after which a jump-back to level 1 is made is 0.4 s.

10.15.2   General parameters - Object type

Options:	1 bit
	1 byte 0 - 100%

Via the parameter object type, you can specify whether the blind control occurs via two 1-bit or two 1-byte communication objects "Move" and "Adjust".

If 1-byte was selected as object type, the communication objects can be connected with 1-byte position objects from blind actuators. For example: One side of the button could lower the blind to 50% with slats closed 50%, while the other button side can lower the blind to 80% with slats closed 100%.

10.15.3 Extended parameters - Working mode of the buttons

Options:	1st button up / 2nd button down
	1st button down / 2nd button up

The "Working mode of the buttons" is used to specify whether an operation of the left or right side of the button will send out a travel up or travel down telegram.

10.16 Application "2-button value transmitter"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 3 / rocker 2

With an actuation of the 1st or 2nd button a telegram with a predefined value is sent out. The application differentiates here between whether the 1st or 2nd button is actuated.

10.16.1 General parameters - Object type

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

The "2-button value transmitter" application makes its own "Value switching" communication object available for the buttons. The bit size of the communication object is specified via the "Object type" parameter.

For the most diverse applications, the bit size of the communication objects can be adapted from "1-bit" up to "4-byte unsigned" via "Object type". For every multiple operation function, a different object size and thus a different function can be selected.

- *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)
- *1 byte 0 - 100%:* percentage values (0 = 0%, 255 = 100%)
- *1 byte 0 - 255*: arbitrary values from 0 to 255
- *2-byte float*: floating point value (physical values such as temperature or brightness)
- *2-byte signed*: arbitrary values from -32768 to +32767
- *2-byte unsigned*: arbitrary values from 0 to 65,535
- *4-byte float*: floating point value (physical values)
- *4-byte signed:* arbitrary values from -2147483648 to 2147483647
- *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.16.2 General parameters - Working mode of the buttons

Options:	Button value 1, 2nd button value 2
	Button value 2, 2nd button value 1
	Alternating value1/value2

The parameter "Working mode of the buttons" is used to specify whether the 1st button or 2nd button sends out "Value 1" or "Value 2". With the behaviour "Alternating Value1/Value2", switching is always between Value 1 and Value 2. That means, for example, if value 1 was last sent out, then a renewed operation of the button will send out value 2. When the button is operated again, value 1 is again sent out, etc. The button thus always remembers the last state and then switches over to the other value.

This also applies for values that are received via the associated communication object, i.e. if value 1 was sent out for the last button operation, thereafter value 2 was received via the communication object, the next operation of the button will send out value 1 again. It must be observed here that the S-flag (writing) of the communication object is activated.

10.16.3 General parameters - Value 1

NOTE

The options are dependent on the setting of the "Object type" parameter.

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

Value 1 is specified here which is sent out at a long operation of the button.

–   *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)
–   *1 byte 0 - 100 %:* percentage values (0 = 0%, 255 = 100%)
–   *1 byte 0 - 255*: arbitrary values from 0 to 255
–   *2-byte float*: floating point value (physical values such as temperature or brightness)
–   *2-byte signed*: arbitrary values from -32768 to +32767
–   *2-byte unsigned*: arbitrary values from 0 to 65,535
–   *4-byte float*: floating point value (physical values)
–   *4-byte signed:* arbitrary values from -2147483648 to 2147483647
–   *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.16.4 General parameters - Value 2

NOTE

The options are dependent on the setting of the "Object type" parameter.

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

Value 2 is specified here which is sent out at a long operation of the button.

–   *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)

–   *1 byte 0 - 100 %:* percentage values (0 = 0%, 255 = 100%)

–   *1 byte 0 - 255*: arbitrary values from 0 to 255

–   *2-byte float*: floating point value (physical values such as temperature or brightness)

–   *2-byte signed*: arbitrary values from -32768 to +32767

–   *2-byte unsigned*: arbitrary values from 0 to 65,535

–   *4-byte float*: floating point value (physical values)

–   *4-byte signed:* arbitrary values from -2147483648 to 2147483647

–   *4-byte unsigned*: arbitrary values from 0 to 4294967295

10.17 application - "2-button value dimming sensor"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 3 / rocker 2

With the "2-button value dimming sensor" application it is possible to send 1-byte value telegrams via an operation of the rocker.

Each operation of the left or right side of the rocker will increase or reduce a 1-byte value (percent or value from 0 to 255). The 1-byte value can be connected with 1-byte brightness value objects of dimming actuators. This allows a dimming actuator to be dimmed brighter or darker with the rocker via value telegrams.

10.17.1 General parameters - Object type

Options:	1 byte 0 - 100%
	1 byte (0 - 255)

The 1-byte communication object "Value" is set via the "Object type" parameter. With the setting "1 byte 0..100%", the momentary value is increased or reduced by a percentage amount for every operation. With the setting "1 byte 0..255", the momentary value is increased or reduced by an absolute value for every operation.

How large the percentage value or the absolute value will be is specified via the "Step size" parameter.

10.17.2 General parameters - Step size

NOTE

The options are dependent on the setting of the "Object type" parameter.

Options:	1 … 50 %
	1 … 128

1 byte 0 - 100%: The size by which the momentary value is to be increased or reduced for an operation is set via the "Step size" parameter. A percentage value can be specified.

Example: The current value on the 1-byte communication object "Value" amounts to 40%. For a step size of "10%", the current value is increased from 40% to 50% for an operation (for an increase).

1 byte 0 - 255: The size by which the momentary value is to be increased or reduced for an operation is set via the "Step size" parameter. An absolute value from 1 to 128 can be specified.

Example: The current value on the 1-byte communication object "Value" amounts to 100. For a step size of "20", the current value is increased from 100 to 120 for an operation (for an increase).

10.17.3 General parameters - Working mode of the rocker as value dimming sensor

Options:	Button brighter, 2nd button darker
	Button darker, 2nd button brighter

If the rocker left 1st button or right 2.d button is operated, the value that is sent out from the 1-byte communication object "Value" is increased (brighter) or lowered (darker). Whether the operation of the button increases or lowers the value depends on the setting of the "Working mode of the rocker as value dimming sensor" parameter.

10.18 Application "2-button step switch"

NOTE

The application is valid for the following parts of the device:

- Button 1 / rocker 1
- Button 3 / rocker 2

The application "2-button step-type switch" facilitates step-type switching. This means that the user can trigger different switching processes with each new actuation of the button.

For example:

- First operation switches lamp 1 on.
- Second operation switches lamp 1 off and lamp 2 on.
- The third actuation switches lamp 2 off and lamp 3 on.
- The fourth actuation switches lamp 3 off and lamp 1 on.
- etc.

Up to five switching levels can be activated.

In each case, the "2-button step switch" application makes a separate set of parameters and communication objects available for the right or left side of the button. The application enables realising switching functions via one button side while the other button side can be assigned with an additional "button-orientated" function.

10.18.1 General parameters - Number of objects

Options:	1 … 5

The application can switch up to five levels. For every level, its own 1-bit communication object is available. The number of the levels is specified via the "Number of objects" parameter.

10.18.2 General parameters - Evaluation period

Options:	01.000 ... 05.000

The application can differentiate between a single, double, triple, quadruple or quintuple operation of the button.

If the button is to recognise a multiple operation, then the button must be operated multiple times in a relatively short period of time. The period during which the button evaluates a multiple operation is started anew after each operation.

10.18.3 Extended parameters - Working mode of the buttons

Options:	1st button down / 2nd button up
	1st button up / 2nd button down

The "Working mode of the buttons" is used to specify whether an operation of the left or right side of the button will send out a travel up or travel down telegram.

10.18.4 Extended parameters — Sending of objects

Options:	For change of value
	For operation

The parameter "Sending of objects" specifies whether the object values for every button operation are sent out or only if the object values have changed since the last sending out.

10.18.5 Extended parameters - Object values

Options:	Normal
	Inverse

The object values can be sent "normal" or "inverse" via their associated 1-bit communication objects. If the parameter "Object values" is set to "inverse" then all 1-bit communication objects of the individual levels send out their values inverted.

10.18.6 Extended parameters - Bit pattern of object values

Options:	x of n
	1 of n

The levels can be switched in two different bit patterns:

x of n (for 5 objects, object 0 to 4)	1 of n (for 5 objects, object 0 to 4)
00000	00000
10000	10000
11000	01000
11100	00100
11110	00010
11111	00001

10.19 Application "LED function"

NOTE

The application is valid for the following parts of the device:

- LED button 1
- LED button 2
- LED button 3
- LED button 4

With the application "LED function", the LED of the button can be used for orientation illumination, for status display or for function display. The LED can light up in different colours. The LED can also flash for alarm display and/or scene storage display.

10.19.1 General parameters - "Operating mode"

Options:	Status illumination
	Orientation illumination

The LED can serve either as a status display ("Status illumination") or orientation ("Orientation illumination"). If the operating mode "Status illumination" is selected, the LED has its own communication object "Status". This can either be a 1-bit or a 1-byte object (setting parameter "Object type for status object"). When a telegram is received on the status object, the LED changes colour. Which colour the LED takes on depends on the parameter settings "Colour for Off/On".

If the operating mode "Orientation illumination" is selected, the colour of the LED does not support the button function. The colour is specified via the "Colour of the orientation illumination" parameter.

10.19.2 General parameters - Brightness of the colours

Options:	Dark
	Bright

The LED can light up with two different brightness levels. The brightness can be set to "dark" or "bright" via the "Brightness of the colours" parameter.

10.19.3 General parameters - Colour of orientation illumination

NOTE

This parameter is only visible if the "Operating mode" parameter is set on orientation illumination.

Options:	Off
	Yellow (light)
	Red/orange (heating)
	Red
	Violet (scene)
	Blue (blind)
	Green
	White (neutral)

When the LED is used for orientation, i.e. the button or rockers are easier to see, it can light up in different colours. Alternatively, the LED can also be deactivated, such as when the device is in a sleeping area.

10.19.4 General parameters - Object type for status object

NOTE

This parameter is only visible if the "Operating mode" parameter is set on status illumination.

Options:	1 bit
	1 Byte 0 - 100%

The object status can either be set to the size "1 bit" or "1 byte 0 - 100%".

1 bit: With the setting "1-bit", the communication object "Status" has the size "1-bit". If an ON telegram is received on the object, the LED takes on the colour that is stored in the "Colour for On" parameter. If an OFF telegram is received, the LED takes on the colour that is stored in the "Colour for Off" parameter.

1 byte: With the setting "1-byte 0 - 100%", the communication object "Status" has the size "1-byte". When a value telegram is received on the object, the LED can change colour. Whether the colour and to which colour will be switched to depends on the parameter settings "Colour for Zone …".

The five adjustable zones have the following behaviour:

- Zone 1: 0
- Zone 2: 1 ≤ value < S1
- Zone 3: S1 ≤ value < S2
- Zone 4: S2 ≤ value ≤ S99
- Zone 5: 100

The two threshold values S1 and S2 are specified via the parameters "Threshold beween zone 2 and 3 (%)" (S1) and "Threshold between zone 3 and 4 (%)" (S2).

10.19.5 General parameters - Colour for Off

NOTE

This parameter is only visible if the "Object type for status object" parameter is set to 1 bit.

Options:	Off
	Yellow
	Red-orange
	Red
	Violet
	Blue
	Green
	White

Here the colour of the LED is set in case an OFF telegram is received on the 1-bit communication object "Status". Possible settings are different colours. Alternatively, the LED can also be disabled. The default setting is "green".

10.19.6 General parameters - Colour for On

NOTE

This parameter is only visible if the "Object type for status object" parameter is set to 1 bit.

Options:	Off
	Yellow
	Red-orange
	Red
	Violet
	Blue
	Green
	White

Here the colour of the LED is set in case an ON telegram is received on the 1-bit communication object "Status". Possible settings are different colours. Alternatively, the LED can also be disabled. The default setting is "red".

10.19.7 General parameters - Colour for zone 1 (corresponds to 0%)

NOTE

This parameter is only visible if the "Object type for status object" parameter is set to 1 byte 0 - 100%.

Options:	Off
	Yellow
	Red-orange
	Red
	Violet
	Blue
	Green
	White

If a value telegram is received on the 1-byte communication object "Status", the LED can switch the colour. Whether the colour and to which colour will be switched to depends on the parameter settings "Colour for Zone …".

Zone 1 has the following behaviour: zone 1:0.

10.19.8 General parameters - Colour for zone 2 (from 1%)

NOTE

This parameter is only visible if the "Object type for status object" parameter is set to 1 byte 0 - 100%.

Options:	Off
	Yellow
	Red-orange
	Red
	Violet
	Blue
	Green
	White

If a value telegram is received on the 1-byte communication object "Status", the LED can switch the colour. Whether the colour and to which colour will be switched to depends on the parameter settings "Colour for Zone …".

Zone 2 has the following behaviour: zone 2:1 ≤ value < S1.

10.19.9 General parameters - Threshold between Zone 2 and 3 (%)

NOTE

This parameter is only visible if the "Object type for status object" parameter is set to 1 byte 0 - 100%.

Options:	1..98

The value for S1 is specified via the parameter "Threshold between Zone 2 and 3".

10.19.10 General parameters - Colour for Zone 3

NOTE

This parameter is only visible if the "Object type for status object" parameter is set to 1 byte 0 - 100%.

Options:	Off
	Yellow
	Red-orange
	Red
	Violet
	Blue
	Green
	White

If a value telegram is received on the 1-byte communication object "Status", the LED can switch the colour. Whether the colour and to which colour will be switched to depends on the parameter settings "Colour for Zone …".
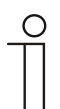
Zone 3 has the following behaviour: zone 3:S1 ≤ value < S2.

10.19.11 General parameters - Threshold between Zone 3 and 4 (%)

NOTE

This parameter is only visible if the "Object type for status object" parameter is set to 1 byte 0 - 100%.

Options:	1 … 98

The value for S2 is specified via the parameter "Threshold between Zone 3 and 4".

10.19.12 General parameters - Colour for zone 4 (up to 99%)

NOTE

This parameter is only visible if the "Object type for status object" parameter is set to 1 byte 0 - 100%.

Options:	Off
	Yellow
	Red-orange
	Red
	Violet
	Blue
	Green
	White

If a value telegram is received on the 1-byte communication object "Status", the LED can switch the colour. Whether the colour and to which colour will be switched to depends on the parameter settings "Colour for Zone …".

Zone 4 has the following behaviour: zone 4:S2 ≤ value ≤ 99.

10.19.13 General parameters - Colour for zone 5 (corresponds to 100%)

NOTE

This parameter is only visible if the "Object type for status object" parameter is set to 1 byte 0 - 100%.

Options:	Off
	Yellow
	Red-orange
	Red
	Violet
	Blue
	Green
	White

If a value telegram is received on the 1-byte communication object "Status", the LED can switch the colour. Whether the colour and to which colour will be switched to depends on the parameter settings "Colour for Zone …".

Zone 5 has the following behaviour: zone 5:100.

10.19.14 Extended parameters - Day/Night mode

Options:	Deactivated
	Activated

The LED can light up with two different brightness levels.

When an ON telegram is received, the LED lights up "bright"; when an OFF telegram is received, the LED lights up "dark".

NOTE
If the operating mode of the LED is set to status illumination, the Day/Night mode object can also be used for the status display.

Example: The button was assigned with the application "1-button switching" and connected with a switching actuator that switches a lamp group. The LED of the button is parameterised to "Status illumination" and the colour set to "yellow" so that the user is signalled that the button triggers a light function. If the Day/Night mode object is now connected with the status response object of the switching actuator via a group address/action, the LED lights up bright when the light is switched on. The LED lights up dark if the light is switched off.

10.19.15 Extended parameters - Light scene memory function

Options:	Deactivated
	Activated

If a scene storage telegram is received on the 1-byte communication object "Scene storage", the LED will blink for 3 s and then stop blinking automatically. The LED always flashes in the same colour and brightness that is specified via the status function or function display.

NOTE
If the LED is currently serving as an orientation light, it will not blink. This also applies if orientation illumination is switched to during the flashing.

10.19.16 Extended parameters - Alarm function

Options:	Deactivated
	Activated

The LED will flash if an ON telegram is received on the 1-bit communication object "Alarm". If the object receives an OFF telegram, the LED will no longer flash.

The LED always flashes in the same colour and brightness that was specified via the status function or function display.

The alarm function could be used to display a wind alarm to the user, for example, so that the user knows that no blind operation is possible at that time. An additional application would be the signalling of an open door when user would like to lower a roller blind.

NOTE

If the LED is currently serving as an orientation light, it will not blink. This also applies if during the flashing it is switched to orientation lighting, i.e. the LED stops flashing immediately.

10.20 Application "Enable application"

NOTE

This application can be activated via "Enable device".

If the "Enable application" parameter is set to "activated", the function can temporarily be blocked via the the 1-bit communication object "Enable".

The function is active if an ON telegram is received on the 1-bit communication object "Enable". The function is blocked if an OFF telegram is received on the 1-bit communication object "Enable". This means that no telegram is sent out on the operating mode communication objects.

10.20.1 General parameters - Enable with

Options:	On telegram
	Off telegram

The function is active if an ON telegram is received on the 1-bit communication object "Enable". The function is blocked if an OFF telegram is received on the 1-bit communication object "Enable". This means that no telegram is sent out on the operating mode communication objects.

10.20.2 General parameters - After bus voltage recovery the device is

Options:	Blocked
	Enabled

The parameter "After bus voltage recover the device is" exists to permit a defined behaviour at the "Enable" communication object after a return of bus voltage. Here it is specified whether a "1" ("enabled") or a "0" ("blocked") is present on the enable object after the return of bus voltage.

10.20.3 General parameters — Use of automatic enable/blockage

Options:	No
	Automatic enable
	Automatic blockage

Automatic enable or automatic blockage can be activated via parameter "Use of automatic enable/blockage". It can also be used to deactivate an automatic function.

10.20.4 General parameters - Automatic switchover time

NOTE

This parameter is visible only when the "Use of automatic enable/blockage" parameter is set on either "Automatic enable" or "Automatic blockage".

Options:	00:00:10 … 18:00:00

10.20.5 General parameters - Use of object for switchover time

NOTE

This parameter is visible only when the "Use of automatic enable/blockage" parameter is set on either "Automatic enable" or "Automatic blockage".

Options:	No
	Yes

10.20.6 General parameters - Overwrite switchover time at download

NOTE

This parameter is visible only when the "Use of automatic enable/blockage" parameter is set either on "Automatic enable" or "Automatic blockage".

Options:	No
	Yes

10.20.7 General parameters - Brightness of the LED during blockage

Options:	Off
	Dark
	Bright

NOTE

Independent of the brightness set here, only those LEDS light up for which the application "LED function" has been selected under "LED buttons".

10.21 Application "1-button switching" as primary function

NOTE

This application can also be activated as primary function via "Primary function".

The device has a primary function. This is the first function of the device which is carried out when the user actuates button 1 or 2. The primary function should be a function that the user would use when entering the room for example (e.g. "switching the ceiling light".

Only the following application can be defined for the primary function:

▪ 1-button switching

When actuated and/or released a switching telegram is sent out. In each case, the application makes a separate set of parameters and communication objects available for the 1st and the 2nd button. The other side of the button can be assigned a further "button-oriented" function.

10.21.1 General parameters - Object type

Options:	1 bit
	1 byte 0 - 100%
	1 byte (0 - 255)
	Light scene number 1-64
	RTC operating mode switchover (1 byte)

The "1-button value switching" application makes 1 communication object available as primary function. The bit size of the communication object is specified together via the "Object type" parameter.

For the most diverse applications, the bit size of the communication object can be adapted via "Object type".

– *1 bit*: switching functions (e.g. On/Off, enabled/blocked, true/untrue)

– *1 byte 0 - 100 %*: percentage values (0 = 0%, 255 = 100%)

– *1 byte 0 - 255*: arbitrary values from 0 to 255

– *Light scene number 1 - 64*: specifying light scene numbers from 1 to 64

– *RTC operating mode switchover (1 byte)*: operating mode switchover is carried out for connected room temperature controllers

10.21.2 General parameters - Reaction on rising edge

Options:	Value 1
	Value 2
	Alternating value1/value2
	Deactivated

The application can differentiate between the operation and the releasing of the button. An operation is designated as "Rising edge" and the releasing is designated as "Falling edge".

The application "1-button switching" makes two separate "Switching" communication objects available for the left or right side of the button. The value 1 is always sent out on the first object (Value 1) and the value 2 is always sent out on the second object (Value 2).

The "Reaction to rising edge" parameter specifies whether the "Value 1 for rising edge" or the "Value 2 for rising edge" is sent out for rising edge.

Alternatively, Value1/Value2 can also be alternatingly set for a rising edge, i.e. after Value 1 was sent (or received), a renewed operation will send out Value 2. After it is operated again, Value 1 is again sent out.

The values 1 and 2 are specified via the parameters "Value 1 for rising edge" and "Value 2".

The "Deactivated" setting causes no telegram to be sent out for an operation of the button.

10.21.3 General parameters - Reaction on falling edge

Options:	Value 1
	Value 2
	Alternating value1/value2
	Deactivated

The application can differentiate between the operation and the releasing of the button. An operation is designated as "Rising edge" and the releasing is designated as "Falling edge".

The application "1-button switching" makes two separate "Switching" communication objects available for the left or right side of the button. The value 1 is always sent out on the first object (Value 1) and the value 2 is always sent out on the second object (Value 2).

The "Reaction to falling edge" parameter specifies whether the "Value 1 for falling edge" or the "Value 2 for falling edge" is sent out for falling edge.

Alternatively, Value1/Value2 can also be alternatingly set for a rising edge, i.e. after Value 1 was sent (or received), a renewed operation will send out Value 2. After it is operated again, Value 1 is again sent out.

The values 1 and 2 are specified via the parameters "Value 1 for rising edge" and "Value 2".

The "Deactivated" setting causes no telegram to be sent out for an operation of the button.

10.21.4 General parameters - Value 1

NOTE

This parameter is only visible if the "Reaction at rising/falling edge" parameter is set on either "Value 1" or "Alternating Value1/Value2".

Options:	Dependent on the setting of the "Object type" parameter (see the following).

Value 1 is specified here which is sent out at a long operation of the button. This is dependent on the setting of the "Object type" parameter.

Settings:

– *1 bit*: On/Off

– *1 byte 0 - 100%*: arbitrary values from 0 to 100%

– *1 byte 0 - 255*: arbitrary values from 0 to 255

– *Light scene number 1 - 64*: specifying light scene numbers from 1 to 64

– *RTC operating mode switchover (1 byte)*: auto / comfort / standby / ECO / frost-/heat protection

10.21.5 General parameters - Value 2

NOTE

This parameter is only visible if the "Reaction at rising/falling edge" parameter is set on either "Value 2" or "Alternating Value1/Value2".

Options:	Dependent on the setting of the "Object type" parameter (see the following).

Value 2 is specified here which is sent out at a long operation of the button. This is dependent on the setting of the "Object type" parameter.

Settings:

– *1 bit*: On/Off

– *1 byte 0 - 100%*: arbitrary values from 0 to 100%

– *1 byte 0 - 255*: arbitrary values from 0 to 255

– *Light scene number 1 - 64*: specifying light scene numbers from 1 to 64

– *RTC operating mode switchover (1 byte)*: auto / comfort / standby / ECO / frost-/heat protection

10.22 Application "Temperature sensor"

> **NOTE**
> This application can be activated via "Temperature".

The device can be activated as temperature sensor. As such it serves as slave device/temperature sensor for a room temperature controller which functions as master device. Slave devices are to be linked to the master device with the appropriately labelled communication objects. The slave device handles the room temperature control functions of the master device.

10.22.1 General parameters - Sending measured values

Options:	Only cyclical
	Cyclic and during change

The "Send measured values" parameter specifies whether the actual temperature is to be sent out only cyclically if the actual temperature has also changed. However, it can also be specified whether the actual temperature is always sent out in the interval in which the "Cycle time for the sending of the actual temperature" parameter is set.

10.22.2 General parameters - Cycle time for sending of the actual temperature

Options:	00:00:25...01:30:00

The actual temperature is sent on the bus cyclically. The "Cycle time for sending the actual temperature" parameter determines the interval after which a new sending out of the actual temperature occurs.

10.22.3 General parameters - Temperature difference for sending within the cycle time *0.1 K

> **NOTE**
> This parameter is only visible if the "Send measured values" parameter is set on "Cyclic and during change of value".

Options:	1..255

10.22.4 General parameters — Offset of the temperature sensor (K)

Options:	-12.8..12.7

If the measured temperature is distorted by external influences or the device is mounted at a location where it is always constantly being measured too much or too little, a compensation value for the temperature measurement can be set. The compensation value is specified via the "Offset of the temperature sensor" parameter. The mounting location of the controller and the suitable selection of the parameter settings are decisive for a good temperature reading.

10.23 Communication objects - Control element 2/4gang

10.23.1 Switching

Number	Name	Object size	Data type
0	Switching	1 bit	DPT switch

10.23.2 Relative dimming

Number	Name	Object size	Data type
1	Relative dimming	4 bit	DPT_control_dimming

10.23.3 Moving

Number	Name	Object size	Data type
0a	Moving	1 bit	DPT_UpDown

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.4 Position

Number	Name	Object size	Data type
0b	Position	1 byte	DPT_scaling

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.5 Adjust

Number	Name	Object size	Data type
1a	Adjust	1 bit	DPT_step

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.6 Slat position

Number	Name	Object size	Data type
1b	Slat position	1 byte	DPT_scaling

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.7 Status 1 bit

Number	Name	Object size	Data type
0a	Status 1 bit	1 bit	DPT switch

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.8 Status 1 byte

Number	Name	Object size	Data type
0b	Adjust	1 byte	DPT_scaling

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.9 Day/night operation

Number	Name	Object size	Data type
1	Day/night operation	1 bit	DPT switch

10.23.10 Proximity

Number	Name	Object size	Data type
2	Proximity	1 bit	DPT switch

10.23.11 Alarm

Number	Name	Object size	Data type
3	Alarm	1 bit	DPT_alarm

10.23.12 Scene storage

Number	Name	Object size	Data type
4	Scene storage	1 bit	DPT_scene_control

10.23.13 Switching 1st operation

Number	Name	Object size	Data type
0a	Switching 1st operation	1 bit	DPT switch

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.14 Value 1 byte 0 - 100% 1st op.

Number	Name	Object size	Data type
0b	Value 1 byte 0 - 100% 1st op.	1 byte	DPT_scaling

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.15 Value 1 byte 0 - 255 1st op.

Number	Name	Object size	Data type
0c	Value 1 byte 0 - 255 1st op.	1 byte	DPT_Value_1_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.16 Value 2-byte float 1st op.

Number	Name	Object size	Data type
0d	Value 2-byte float 1st op.	2 byte	DPT_KNX_Float

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.17 Value 2-byte signed 1st op.

Number	Name	Object size	Data type
0e	Value 2-byte signed 1st op.	2 byte	DPT_Value_2_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.18 Value 2-byte unsigned 1st. op.

Number	Name	Object size	Data type
0f	Value 2-byte unsigned 1st. op.	2 byte	DPT_Value_2_Ucount

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.19 Value 4-byte float 1st op.

Number	Name	Object size	Data type
0g	Value 4-byte float 1st op.	4 byte	DPT_Float

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.20 Value 4-byte signed 1st op.

Number	Name	Object size	Data type
0h	Value 4-byte signed 1st op.	4 byte	DPT_Value_4_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.21 Value 4-byte unsigned 1st. op.

Number	Name	Object size	Data type
0i	Value 4-byte signed 1st op.	4 byte	DPT_Value_4_Ucount

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.22 Enable

Number	Name	Object size	Data type
0i	Enable	1 bit	DPT_Switch

10.23.23 Comfort operating mode

Number	Name	Object size	Data type
1a	Value 4-byte signed 1st op.	1 bit	DPT_Switch

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.24 Operating mode

Number	Name	Object size	Data type
1b	Operating mode	1 byte	DPT_ HVAC_MODE

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.25 Night operating mode

Number	Name	Object size	Data type
2	Night operating mode	1 bit	DPT switch

10.23.26 Frost operating mode

Number	Name	Object size	Data type
3	Night operating mode	1 bit	DPT_Switch

10.23.27 Switching

Number	Name	Object size	Data type
0a	Switching	1 bit	DPT_Switch

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.28 1 byte 0 - 100%

Number	Name	Object size	Data type
0b	1 byte 0 - 100%	1 byte	DPT_scaling

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.29 1 byte (0 - 255)

Number	Name	Object size	Data type
0c	1 byte (0 - 255)	1 byte	DPT_Value_1_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.30 2-byte float

Number	Name	Object size	Data type
0d	2-byte float	2 byte	DPT_KNX_Float

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.31 2-byte signed

Number	Name	Object size	Data type
0e	2-byte signed	2 byte	DPT_Value_2_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.32 2-byte unsigned

Number	Name	Object size	Data type
0f	2-byte unsigned	2 byte	DPT_Value_2_Ucount

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.33 4-byte float

Number	Name	Object size	Data type
0g	4-byte float	4 byte	DPT_Float

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.34 4-byte signed

Number	Name	Object size	Data type
0h	4-byte signed	4 byte	DPT_Value_4_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.35 4-byte unsigned

Number	Name	Object size	Data type
0i	4-byte signed	4 byte	DPT_Value_4_Ucount

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.36 Switching

Number	Name	Object size	Data type
1a	Switching	1 bit	DPT_Switch

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.37 1 byte 0 - 100%

Number	Name	Object size	Data type
1b	1 byte 0 - 100%	1 byte	DPT_scaling

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.38 1 byte (0 - 255)

Number	Name	Object size	Data type
1c	1 byte (0 - 255)	1 byte	DPT_Value_1_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.39 2-byte float

Number	Name	Object size	Data type
1d	2-byte float	2 byte	DPT_KNX_Float

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.40 2-byte signed

Number	Name	Object size	Data type
1e	2-byte signed	2 byte	DPT_Value_2_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.41 2-byte unsigned

Number	Name	Object size	Data type
1f	2-byte unsigned	2 byte	DPT_Value_2_Ucount

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.42 4-byte float

Number	Name	Object size	Data type
1g	4-byte float	4 byte	DPT_Float

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.43 4-byte signed

Number	Name	Object size	Data type
1h	4-byte signed	4 byte	DPT_Value_4_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.44 4-byte unsigned

Number	Name	Object size	Data type
1i	4-byte signed	4 byte	DPT_Value_4_Ucount

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.45 Switching rising edge

Number	Name	Object size	Data type
0a	Switching rising edge	1 bit	DPT switch

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.46 1 byte 0 - 100% rising edge

Number	Name	Object size	Data type
0b	1 byte 0 - 100% rising edge	1 byte	DPT_scaling

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.47 1 byte 0 - 255 rising edge

Number	Name	Object size	Data type
0c	1 byte 0 - 255 rising edge	1 byte	DPT_Value_1_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.48 2-byte float rising edge

Number	Name	Object size	Data type
0d	2-byte float rising edge	2 byte	DPT_KNX_Float

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.49 2-byte signed rising edge

Number	Name	Object size	Data type
0e	2-byte signed rising edge	2 byte	DPT_Value_2_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.50 2-byte unsigned rising edge

Number	Name	Object size	Data type
0f	2-byte unsigned rising edge	2 byte	DPT_Value_2_Ucount

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.51 4-byte float rising edge

Number	Name	Object size	Data type
0g	4-byte float rising edge	4 byte	DPT_Float

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.52 4-byte signed rising edge

Number	Name	Object size	Data type
0h	4-byte signed rising edge	4 byte	DPT_Value_4_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.53 4-byte unsigned rising edge

Number	Name	Object size	Data type
0i	4-byte signed rising edge	4 byte	DPT_Value_4_Ucount

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.54 Switching falling edge

Number	Name	Object size	Data type
1a	Switching falling edge	1 bit	DPT switch

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.55 1 byte 0 - 100% falling edge

Number	Name	Object size	Data type
1b	1 byte 0 - 100% falling edge	1 byte	DPT_scaling

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.56 1 byte 0 - 255 falling edge

Number	Name	Object size	Data type
1c	1 byte 0 - 255 falling edge	1 byte	DPT_Value_1_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.57 2-byte float falling edge

Number	Name	Object size	Data type
1d	2-byte float falling edge	2 byte	DPT_KNX_Float

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.58 2-byte signed falling edge

Number	Name	Object size	Data type
1e	2-byte signed falling edge	2 byte	DPT_Value_2_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.59 2-byte unsigned falling edge

Number	Name	Object size	Data type
1f	2-byte unsigned falling edge	2 byte	DPT_Value_2_Ucount

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.60 4-byte float falling edge

Number	Name	Object size	Data type
1g	4-byte float falling edge	4 byte	DPT_Float

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.61 4-byte signed falling edge

Number	Name	Object size	Data type
1h	4-byte signed falling edge	4 byte	DPT_Value_4_Count

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.62 4-byte unsigned falling edge

Number	Name	Object size	Data type
1i	4-byte signed falling edge	4 byte	DPT_Value_4_Ucount

The object numbers with letter index (a, b, etc) represent alternative object formats of which only one is active in each case.

10.23.63 Switching step 1

Number	Name	Object size	Data type
0	Switching step 1	1 bit	DPT switch

10.23.64 Switching step 2

Number	Name	Object size	Data type
1	Switching step 2	1 bit	DPT switch

10.23.65 Switching step 3

Number	Name	Object size	Data type
2	Switching step 3	1 bit	DPT_Switch

10.23.66 Switching step 4

Number	Name	Object size	Data type
3	Switching step 4	1 bit	DPT_Switch

10.23.67 Switching step 5

Number	Name	Object size	Data type
4	Switching step 5	1 bit	DPT_Switch

11 Notes

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