

Product manual

ABB-tacteo ABB i-bus[®] KNX

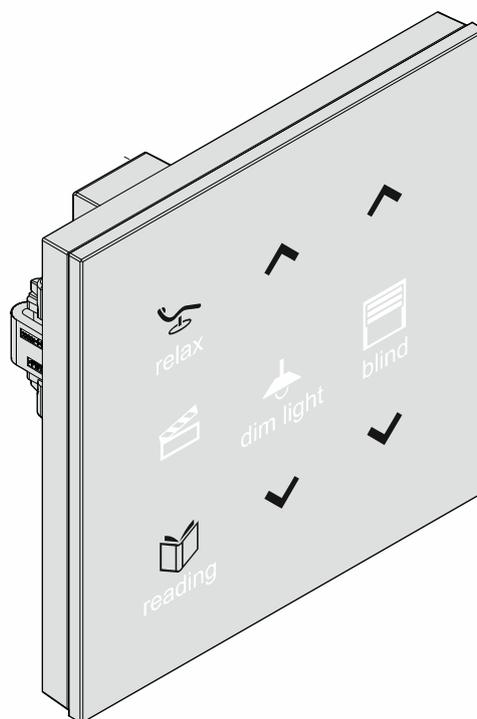
TB/U1.x.x-xx Control element 1gang incl. BAU

TB/U2.x.x-xx Control element 2gang incl. BAU

TB/U4.x.x-xx Control element 4gang incl. BAU

TB/U6.x.x-xx Control element 6gang incl. BAU

TB/U12.x.x-xx Control element 12gang incl. BAU



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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 (reversible) 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.



This symbol alerts to electric voltage.



This icon warns against glass breakage.

2.2 Intended use

This device is combination control/display unit for decentralized flush-mounted installation.

The device (with bus coupler) can be assigned to an available switch actuator. The device can, for example, send switching, dimming or blind control commands to KNX actuators. It 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
- Installation in dry interior rooms and suitable flush-mounted boxes
- 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 device. The range of applications is contained in Chapter 11 “Description of application and parameters” on page 30 (in languages of the countries DE, EN, ES, FR, IT, NL, PL and RU).

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

The devices are available in a standard configuration or they can be individually designed via a web configurator. Only components that are specific to a selected country are displayed via the web configurator. Depending on the device type and configuration, different functions result.

- The standard devices are available in the e-catalogue under ABB-tacteo.
- The devices are configured via the web configuration tool under tacteo-configurator.my.busch-jaeger.de.
- Ordering is possible only from the web configurator in connection with the specified Design-ID or the generated Design-ID.

2.3 Improper use

Each use not listed in Chapter 2.2 “Intended use” on page 10 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
- Outdoor use
- The use in bathroom areas
- 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 100 ... 240 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 100 ... 240 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 - Glass breakage!

The breakage of a glass plate could lead to the risk of injury.

The glass plate consists of high-quality safety glass. Yet breakage cannot be excluded.

- Avoid force being applied to the glass plate.
- Never reach into a broken glass with your bare hands.



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.

3 Information on protection of the environment

3.1 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 2012/19/EU WEEE and 2011/65/EU RoHS)

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

4 Setup and function

- The device is designed for decentralised flush-mounted installation.
- The device can be linked with an available actuator via KNX group addresses.
- The device (with bus coupler) can be assigned to an available switch actuator.
- The integrated bus coupler makes possible the connection to the KNX bus line.
- The device 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 has an internal temperature sensor for measuring the actual temperature in the room. The measured value is made available to the KNX bus via communication object.
- The device must be parameterized for the use of the functions.
- The sensor is integrated in the flush-mounted insert and already pre-mounted.

Additional product features:

- LEDs as light for orientation / status indication

4.1 Configurable devices

The devices can be configured prior to delivery. The following sectors, for example, can be configured according to requirement.

- Button icons
- Colour of the buttons
- Additional text for the buttons
- Number of buttons (up to the maximum possible for the respective size of glass plate)
- Alignment of buttons (if the glass plates are not square)
- Alignment of the glass plates (if the glass plates are not square)

The function of the respective buttons is parameterised via the ETS4.

Alternative to the configurable models, the preconfigured versions are available.

The configuration is carried out with the tacteo configurator at tacteo-configurator.my.busch-jaeger.de



Note

Due to the options for configuration, your device no doubt differentiates itself from the examples shown here.

The type of operation, however, is carried out in the same way.



Note

Configured devices are excluded from replacement or a reimbursement.

4.2 Device overview

4.2.1 Overview

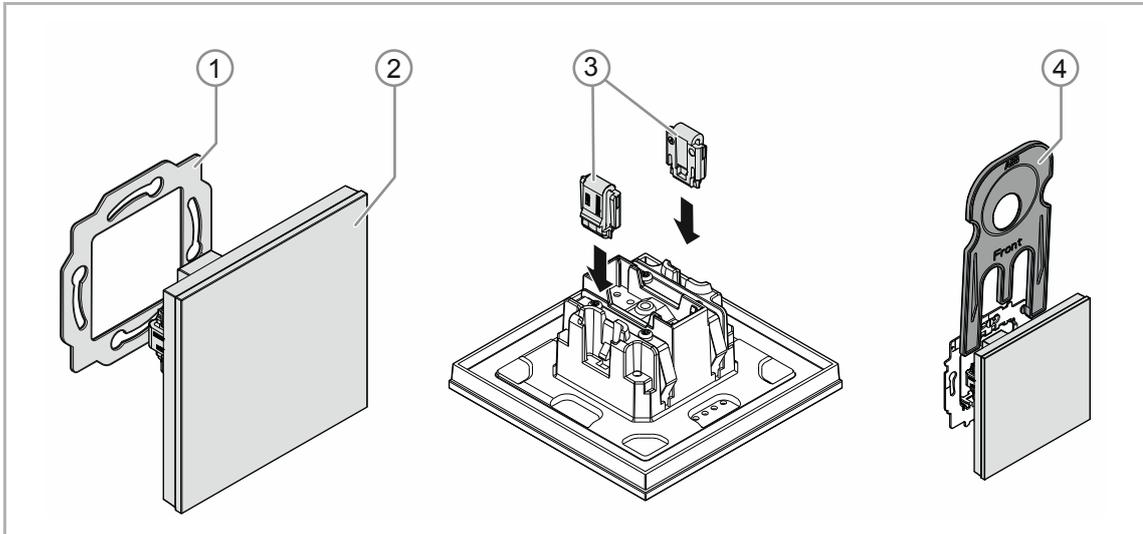


Fig. 1: Product overview

- [1] Support ring [1]
- [2] Flush-mounted insert with control element [2] (firmly installed unit)
- [3] Clamps of removal protection [3] (optional)
- [4] Removal tool [4] (optional)

4.2.2 Versions

The control element is available in models 1-, 2-, 3-, 4-, 6-, 12gang.

- Available are the preconfigured standard versions.
- Alternative to the standard versions, the control elements can be designed for the required functions via the ABB-tacteo configurator. The buttons can be additionally fitted with text if required.

The functionality, method of operation and installation/dismantling is identical for all models.

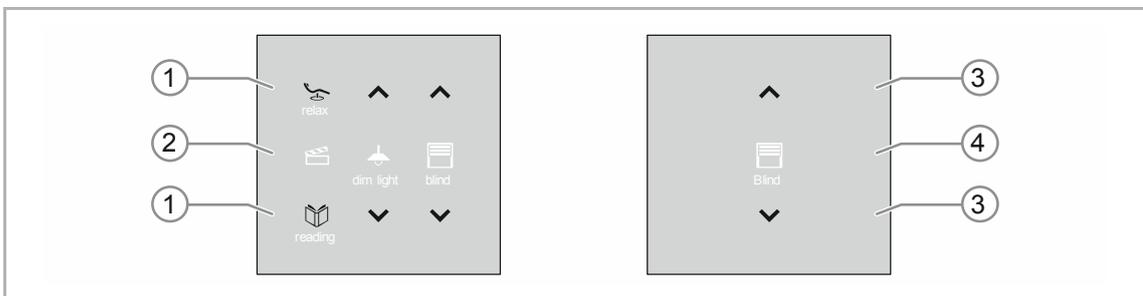


Fig. 2: Models of control elements (examples)

- [1] Buttons for 6gang control elements
- [2] Status indication for 6gang control elements
- [3] Buttons for 2gang control elements
- [4] Status indication for 2gang control elements

4.2.3 Support rings

The support rings are partly different from country to country. The correct support ring is supplied according to country.

Country-specific support rings are for example:

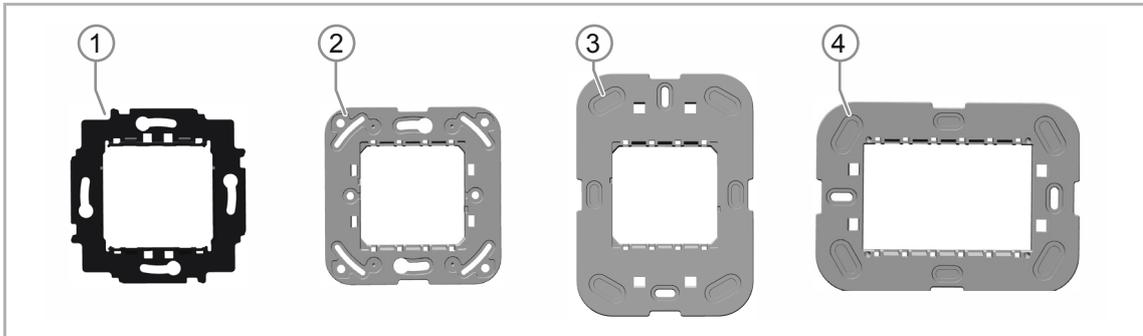


Fig. 3: Country-specific support rings

- [1] VDE Germany
- [2] Switzerland / British standard (BS)
(The support ring for Switzerland is supplied without earth terminal)
- [3] NEMA
- [4] Italy

4.3 Functions

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

Special features	Function
<ul style="list-style-type: none"> ▪ Orientation illumination (primary function) ▪ Configurable covers ▪ Configurable icons and/or text ▪ Function illumination ▪ Freely programmable ▪ LED colour concept ▪ Proximity function ▪ Day/night switchover of the LEDs ▪ Integrated temperature sensor ▪ Comprehensive application program 	<ul style="list-style-type: none"> ▪ 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 1: Overview of functions

4.4 Scope of supply

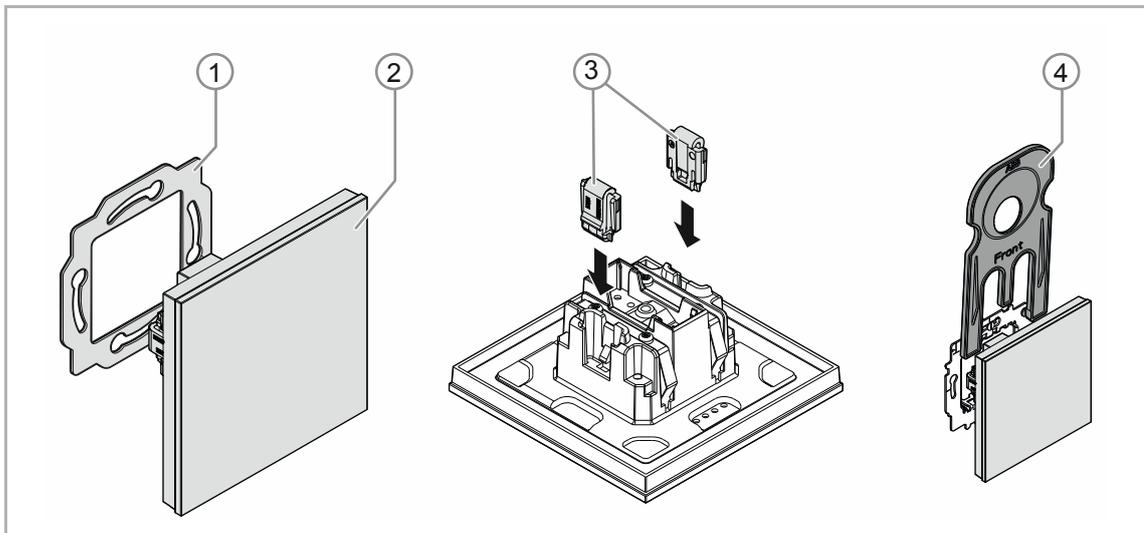


Fig. 4: Scope of delivery

Included in the scope of delivery are:

- Support ring [1]
- Flush-mounted insert with control element [2] (firmly installed unit)
- Clamps of removal protection [3] (optional)
- Removal tool [4] (optional)



Note

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

4.5 Overview of types

Models of control elements preconfigured or freely configurable

Article no.	Product name
TB/U1.x.x-xx	Control element 1gang incl. BAU <ul style="list-style-type: none"> ▪ Square ▪ Vertical ▪ Horizontal
TB/U2.x.x-xx	Control element 2gang incl. BAU <ul style="list-style-type: none"> ▪ Square with vertical printing ▪ Square with horizontal printing ▪ Vertical with horizontal printing ▪ Horizontal with vertical printing
TB/U4.x.x-xx	Control element 4gang incl. BAU <ul style="list-style-type: none"> ▪ Square with vertical printing ▪ Square with horizontal printing ▪ Vertical with horizontal printing ▪ Horizontal with vertical printing
TB/U6.x.x-xx	Control element 6gang incl. BAU <ul style="list-style-type: none"> ▪ Square with vertical printing ▪ Square with horizontal printing ▪ Vertical with horizontal printing ▪ Horizontal with vertical printing
TB/U12.x.x-xx	Control element 12gang incl. BAU <ul style="list-style-type: none"> ▪ Vertical with horizontal printing ▪ Horizontal with vertical printing

Table 2: Models of control elements preconfigured or freely configurable

5 Technical data

5.1 Technical data

Designation	Value
Power supply:	24 V DC (via bus line)
KNX connection	
▪ Bus connecting terminal, screwless:	0.6 - 0.8 mm
▪ Line type:	J-Y(St)Y, 2 x 2 x 0.8 mm
▪ Wire stripping:	5 - 6 mm
Bus subscribers:	1 (≤ 12 mA)
Temperature range:	-5°C to +45°C
Storage temperature:	-20°C to +70°C
Protection type:	IP 20

Table 3: Technical data

5.2 Dimensional drawings

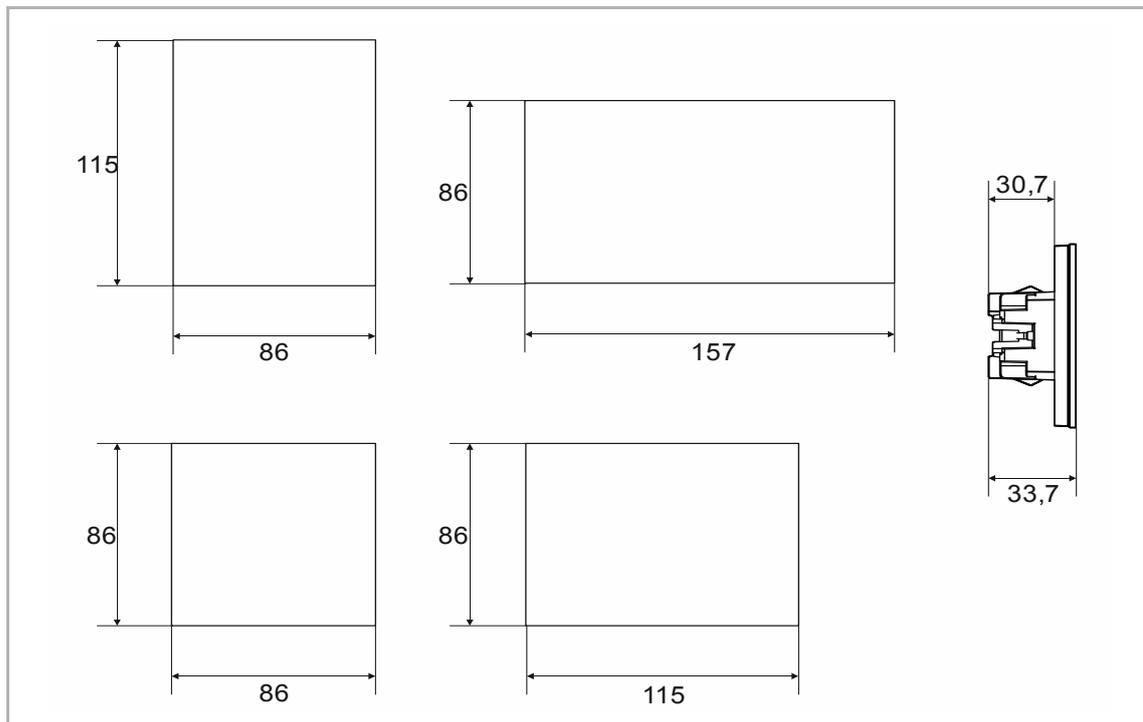


Fig. 5: Dimensions (all dimensions are in mm)

6 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.



Caution - Glass breakage!

The breakage of a glass plate could lead to the risk of injury.

The glass plate consists of high-quality safety glass. Yet breakage cannot be excluded.

- Avoid force being applied to the glass plate.
- Never reach into a broken glass with your bare hands.

6.1 Mounting



Caution! The device can sustain damage when coming into contact with hard objects!

The plastic parts of the device are sensitive.

- Pull the attachment off only with your hands.
- Do not lever parts off with screwdrivers or similar hard objects.

In Germany the flush-mounted insert must only be installed in flush-mounted boxes according to DIN 49073-1, Part 1, or suitable surface-mounted housings.

Different installation standards apply in other countries. These are to be taken into account when used in connection with a different support ring and flush-mounted box.

To install the device, perform the following steps:

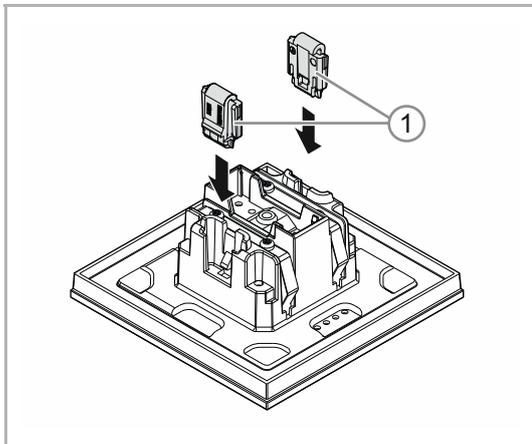


Fig. 6: Installation of the removal protection

Option

1. Installing the removal protection.
 - Push the removal protection into position by hand.

(The removal protection is not a component part of the device and is to be ordered separately.)

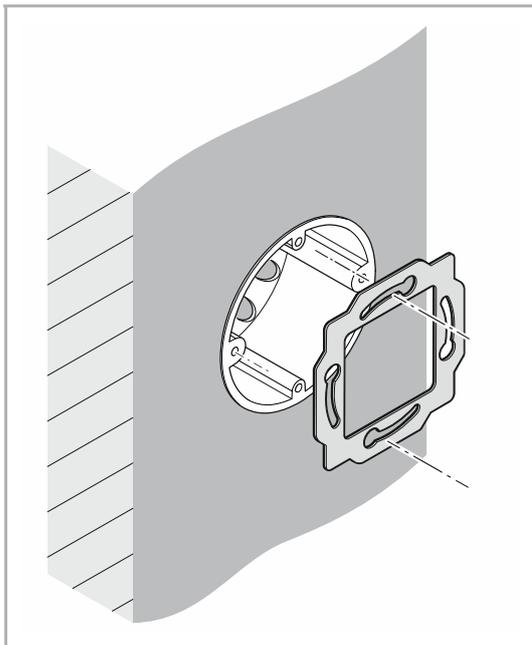
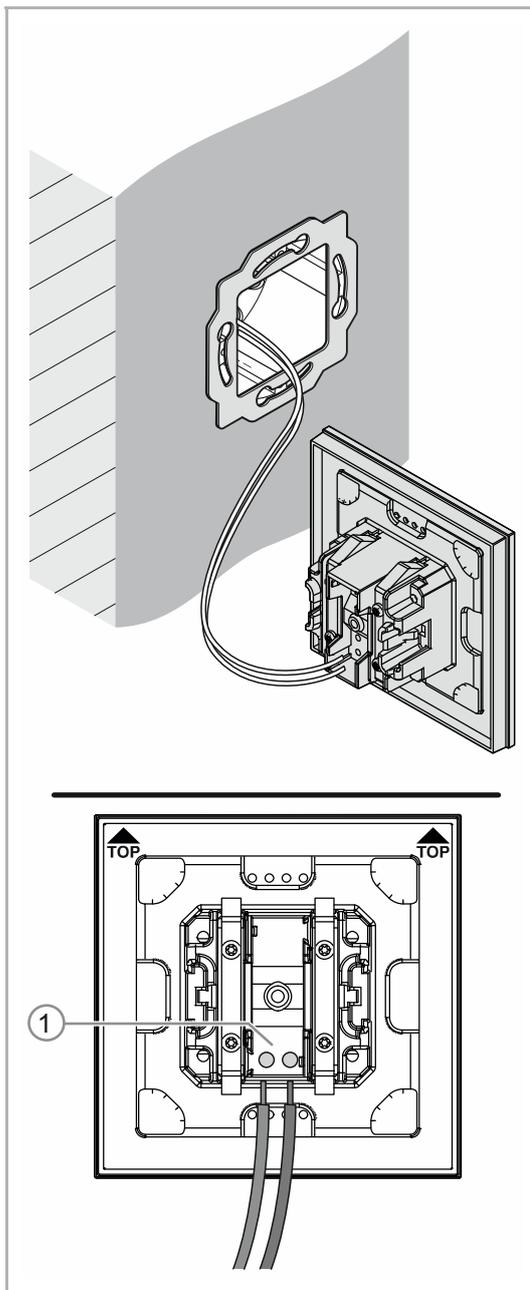


Fig. 7: Installation of the support ring

2. Installing the support ring.



3. Pull the bus line out of the flush-mounted box and connect the line to the bus connection terminal [1], see chapter 6.2 "Electrical connection" on page 24.
 - Check that the polarity is correct!

Fig. 8: Connection of the bus line

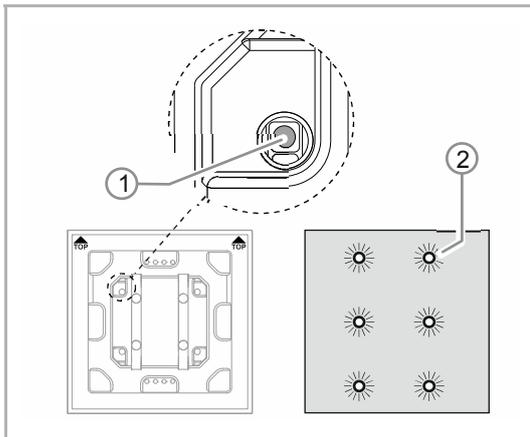


Fig. 9: Programming button

4. To commission the device, see chapter 7 “Commissioning” on page 25.
 - Programming is carried out via the programming button [1] on the rear of the device.
 - Press the programming button [1].
 - All LEDs [2] light up red.

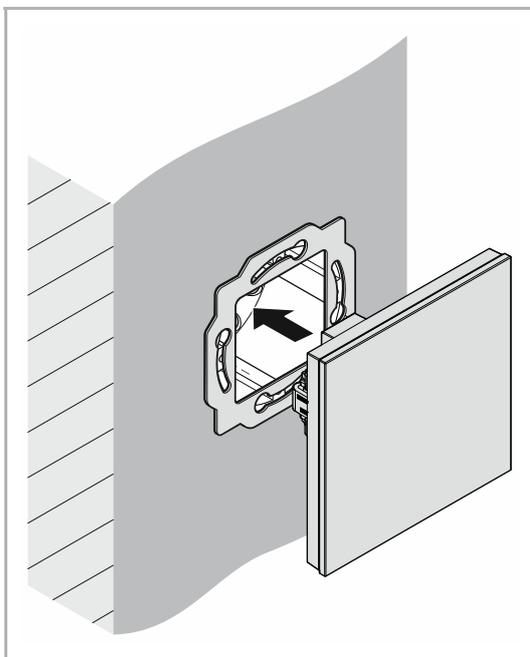


Fig. 10: Mounting devices

5. Installing the device.
 - Snap the device into the support ring by hand.

The device is now mounted.

6.2 Electrical connection

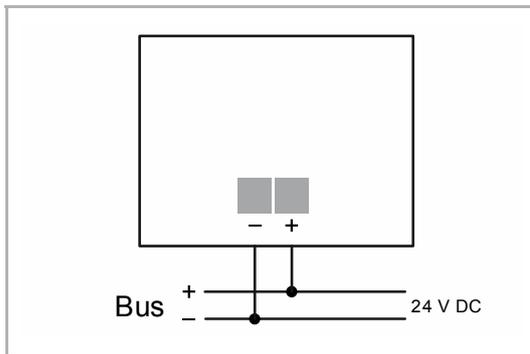


Fig. 11: Connection of bus coupler

Carry out the electrical connection according to the circuit diagram.

7 Commissioning

7.1 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.

7.1.1 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.

7.1.2 Assigning a physical address

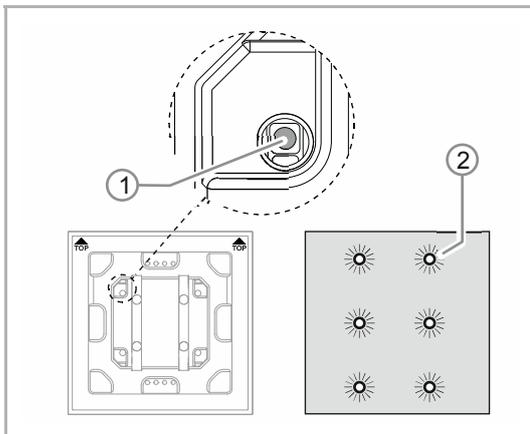


Fig. 12: Programming button

1. Press the programming button [1].
 - All LEDs [2] light up red.

7.1.3 Assigning the group address(es)

The group addresses are assigned in connection with the ETS.

7.1.4 Selecting the application program

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

7.1.5 Differentiating the application program

Various functions can be implemented via the ETS.

Detailed description of parameters, see chapter 11 "Description of application and parameters" on page 30 (only in languages DE, EN, ES, FR, IT and NL).

8 Updating options

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".

9 Operation



Caution - Glass breakage!

The breakage of a glass plate could lead to the risk of injury.

The glass plate consists of high-quality safety glass. Yet breakage cannot be excluded.

- Avoid force being applied to the glass plate.
- Never reach into a broken glass with your bare hands.



Note

The buttons of the device can be individually configured prior to delivery according to requirement or wishes. The buttons of your device are probably different from the examples listed here.

The type of operation, however, is carried out in the same way.

Operation is carried out by touching the individual operating fields.

The function is specified via the assigned application / function and their parameter settings. Extensive functions are available for the operating fields.

Range of applications: see chapter 11 "Description of application and parameters" on page 30 (in languages DE, EN, ES, FR, IT, NL, PL and RU).

9.1 Colour concept

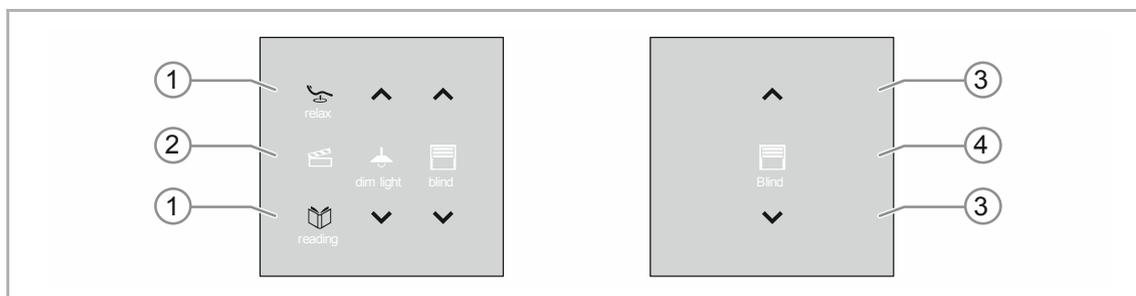


Fig. 13: Models of control elements (examples)

- The function icons [2] [4] have grey background.
 - The function icons describe the function.
- The control icons [1] [3] (on the buttons) have a coloured background.
 - The control icons "check" the function. The desired functions are carried out with the control icons.
 - The control icons can also be fitted with additional text.
- The text has a grey background.

10 Maintenance

10.1 Maintenance-free device

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).

10.2 Cleaning



Caution - Glass breakage!

The breakage of a glass plate could lead to the risk of injury.

The glass plate consists of high-quality safety glass. Yet breakage cannot be excluded.

- Avoid force being applied to the glass plate.
- Never reach into a broken glass with your bare hands.

Clean dirty devices with a soft dry cloth.

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

11 Description of application and parameters

11.1 Application program

Available devices (Control elements):

- TB/U1.x.x-xx Control element 1gang incl. BAU
- TB/U2.x.x-xx Control element 2gang incl. BAU
- TB/U4.x.x-xx Control element 4gang incl. BAU
- TB/U6.x.x-xx Control element 6gang incl. BAU
- TB/U12.x.x-xx Control element 12gang incl. BAU

The following application programs are available:

Application program
Control element xgang/1

The application program for the control elements contains the following applications:

Parameter area	KNX application
Device settings:	Buzzer application
	Proximity application
	Enable application
	Object during operation
Primary function:	1-button switching
	1-button switching
Function block x:	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 RTC"
	2-button switching
	2-button dimming
	2-button blind
	2-button value transmitter
	2-button value dimming sensor
2-button step switch	

Description of application and parameters

Application program

	LED function (<i>button 1 / button 2</i>)
Temperature:	Temperature sensor
General functions:	Cyclic telegrams
	Priority
	Logic gate
	Gate
	Staircase lighting
	Delay
	Min/max value transducer
	Light scene actuator

Depending on the application selected, the Engineering Tool Software (ETS) shows different parameters and communication objects.

11.2 Overview of functions

Application	Parameters	Options
Device settings — Acoustic feedback signal — Buzzer application	Selected feedback signal noise is on	Clicking / beeping
	Acoustic feedback signal via object	Deactivated / activated
	Activation of the acoustic feedback signal with	On/off telegram
	Feedback signal after bus voltage recovery	Deactivated / activated
	Acoustic alarm via object	Deactivated / activated
	Alarm via the button	Deactivated / activated
	Ending the alarm automatically	Deactivated / activated
	Time for automatic ending of the alarm	00:00:10 - 18:00:00 (hh:mm:ss)
	Time for automatic ending via object	Deactivated / activated
	Time for automatic ending at overwrite download	Deactivated / activated
Device settings — Proximity — Proximity application	External proximity via object	Deactivated / activated
	Automatic switchover time	00:00:10 - 18:00:00 (hh:mm:ss)
	Brightness of the LED during blockage	Off / dark / bright
	LED colour in a blocked state	Yellow - white
	Internal proximity status via object	Deactivated / activated
Device settings — Device enabling — Enable application	Enable with	On/off telegram
	After bus voltage recovery the device is	Disabled / enabled
	Use of automatic enable/blockage	No / automatic enable / automatic blockage
	Automatic switchover time	00:00:10 - 18:00:00 (hh:mm:ss)
	Switchover time via object	Deactivated / activated
	Overwrite switchover time at download	Deactivated / activated
	Brightness of the LED during blockage	Off / dark / bright
Device settings — In operation function — In operation object	Cycle time	00:00:55 - 01:30:00 (hh:mm:ss)
	Objects sends cyclic	On/off telegram
Primary function — 1-button switching	Object type	1 bit / 1 byte 0 - 100% / 1 byte 0 - 255 / Light scene number 1 - 64 / RTC operating mode switchover (1 byte)
	Reaction on rising edge	Value 1 / value 2 / alternating value 1/ value 2 / deactivated
	Reaction on falling edge	Value 1 / value 2 / alternating value 1/ value 2 / deactivated
	Consider device enable	Deactivated / activated

Description of application and parameters

Overview of functions

	Value 1	<i>Setting dependent on object type</i>
	Value 2	<i>Setting dependent on object type</i>
Function block x — 1-button switching	Reaction on rising edge	On / off / alternating on/of/ deactivated
	Reaction on falling edge	On / off / alternating on/of/ deactivated
Function block x — 1-button dimming	Duration of long operation	00.300 - 03.000 (ss.fff)
	Working mode of the buttons for switching	On / off / alternating on/of/ deactivated
	Working mode of the buttons for dimming	Off / dark / bright
Function block x — 1-button blind	Duration of long operation	00.300 - 03.000 (ss.fff)
	Cycle time of the telegram repetition	00.100 - 05.000 (ss.fff)
	Object type	1 bit / 1 byte 0-100%
	Function switchover blinds/roller shutters	Blinds / roller blinds
	Value for position down (%)	0 - 100 (%)
	Value for position up (%)	0 - 100 (%)
	Value for slats position down (%)	0 - 100 (%)
Function block x — 1-button short-long operation	Object type	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
	Reaction on short operation	No reaction / value 1 / value 2 / alternating value 1/ value 2
	Reaction on long operation	No reaction / value 1 / value 2 / alternating value 1/ value 2
	Duration of long operation	00.300 - 03.000 (ss.fff)
	Value 1 for short operation	<i>Setting dependent on object type</i>
	Value 2 for short operation	<i>Setting dependent on object type</i>
	Value 1 for long operation	<i>Setting dependent on object type</i>
	Value 2 for long operation	<i>Setting dependent on object type</i>
Function block x — 1-button value transmitter	Object type	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
	Reaction on rising edge	No reaction / value 1 / value 2 / alternating value 1/ value 2
	Reaction on falling edge	No reaction / value 1 / value 2 / alternating value 1/ value 2

Description of application and parameters

Overview of functions

	Value 1	<i>Setting dependent on object type</i>
	Value 2	<i>Setting dependent on object type</i>
Function block x — 1-button value transmitter, 2 objects	Object type for rising edge	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
	Object type for falling edge	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
	Reaction on rising edge	No reaction / value 1 / value 2 / alternating value 1/ value 2
	Reaction on falling edge	No reaction / value 1 / value 2 / alternating value 1/ value 2
	Value 1 for rising edge	<i>Setting dependent on object type</i>
	Value 2 for rising edge	<i>Setting dependent on object type</i>
	Value 1 for falling edge	<i>Setting dependent on object type</i>
	Value 2 for falling edge	<i>Setting dependent on object type</i>
Function block x — 1-button step switch	Number of objects	1 - 5
	Evaluation period	02.000 - 05.000 (ss.fff)
	Duration of long operation	00.300 - 02.500 (ss.fff)
	Sending of objects	At operation / at value change
	Object values	Normal / inverse
	Bit pattern of the object values	x off n / 1 off n
Function block x — 1-button multiple operation	Number of objects or operations	1 - 5
	Evaluation period	01.000 - 05.000 (ss.fff)
	Object type for object x	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
	Function for object type 1-bit for object x	Send value / alternating on/off
	Value for object x	<i>Setting dependent on object type</i>
Function block x — 1-button light scene extension unit with memory function	Duration of long operation	00.300 - 10.000 (ss.fff)
	Light scene memory function	Deactivated / activated
	Number of light scene	1 - 64
Function block x — 1-button operating mode, "Adjust RTC"	Object type for output	1 bit / 1 byte
	Working mode	Auto / comfort / standby / ECO / frost/heat protection

Description of application and parameters

Overview of functions

	Enable object	Deactivated / activated
	Object value enable object	Normal / inverse
	Enable object after return of voltage	Disabled / enabled
	Send comfort object	Deactivated / activated
	Send Eco object	Deactivated / activated
	Send frost object	Deactivated / activated
Function block x — 2-button switching	Working mode of the buttons for switching	1st button on - 2nd button off / 1st button off - 2nd button on / alternating on/off
Function block x — 2-button dimming	Duration of long operation	00.300 - 03.000 (ss.fff)
	Manner of dimming	Start-stop dimming / step-wise dimming
	Step size for step-wise dimming (%)	1.56 / 3.13 / 6.25 / 12.5 / 25 / 50
	Dimming function	Short operation dimming, long operation switching / short operation switching, long operation dimming
	Working mode of the buttons for switching	1st button on - 2nd button off / 1st button off - 2nd button on / alternating on/off
	Working mode of the buttons for dimming	1st button brighter, 2nd button darker / 1st button darker - 2nd button brighter
	Dimming stop telegram	Dimming stop is not sent / dimming stop is sent
	Cyclic sending of the dimming telegrams	Deactivated / activated
	Duration of telegram repetition	00.100 - 05.000 (ss.fff)
Function block x — 2-button blind	Duration of long operation	00.300 - 03.000 (ss.fff)
	Object type	1 bit / 1 byte 0-100%
	Working mode of the buttons	1st button up / 2nd button down / 1st button down - 2nd button up
	Value for position down (%)	0 - 100 (%)
	Value for position up (%)	0 - 100 (%)
	Value for slats position down (%)	0 - 100 (%)
	Value for slats position down (%)	0 - 100 (%)
Function block x — 2-button value transmitter	Object type	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
	Working mode of the buttons	1st button value 1 - 2nd button value 2 / 1st button value 2 - 2nd button value 1 / alternating value1/value 2
	Value 1	<i>Setting dependent on object type</i>

Description of application and parameters

Overview of functions

	Value 2	<i>Setting dependent on object type</i>
Function block x — 2-button value dimming sensor	Object type	1 byte 0-100% / 1 byte 0-255
	Step width (%)	<i>Setting dependent on object type</i>
	Working mode of the buttons	1st button brighter, 2nd button darker / 1st button darker - 2nd button brighter
Function block x — 2-button step switch	Number of objects	1 - 5
	Evaluation period	01.000 - 05.000 (ss.fff)
	Working mode of the buttons	1st button down / 2nd button up / 1st button up - 2nd button down
	Sending of objects	At operation / at value change
	Object values	Normal / inverse
	Bit pattern of the object values	x off n / 1 off n
Function block x — LED function	Operating mode	Status illumination / function illumination
	Object type for status object	1 bit / 1 byte 0-100%
	Brightness of the colours	Dark / bright
	Colour for Off	Off / yellow - white
	Colour for On	Off / yellow - white
	Colour for Zone 1 (corresponds to 0%)	Off / yellow - white
	Colour for Zone 2 (starting at 1%)	Off / yellow - white
	Threshold between Zone 2 and 3 (%)	1 - 98
	Colour for Zone 3	Off / yellow - white
	Threshold between Zone 3 and 4 (%)	2 - 99
	Colour for Zone 4 (up to 99%)	Off / yellow - white
	Colour for Zone 5 (corresponds to 100%)	Off / yellow - white
	Colour of function illumination	Off / yellow - white
	Day/Night mode	Deactivated / activated
	Light scene memory function	Deactivated / activated
Alarm function	Deactivated / activated	
Temperature — Temperature sensor	Send measured values	Only cyclic / cyclic and at a value change
	Cycle time for sending of the actual temperature	00:00:25 - 01:30:00 (hh:mm:ss)
	Temperature difference for sending within the cycle time *0.1 K	1 - 255
	Offset of the temperature sensor (x 0.1°C)	-127 - 127
	Overwriting internal object	No / yes
General functions —	Channel name	<Name>

Description of application and parameters

Overview of functions

channel x — Cyclic telegram	Object type	1 bit switching / 1 bit alarm / 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
	Cycle time	00:00:55 - 01:30:00 (hh:mm:ss)
	Enable object	Deactivated / activated
	Object value enable object	Normal / inverse
	Enable object after return of voltage	Disabled / enabled
	Cyclic sending	Always activated / activated at specified value / activated except specified value
	Value for cyclic sending	<i>Setting dependent on object type</i>
General functions — channel x — Priority	Channel name	<Name>
	Channel name	<Name>
General functions — channel x — Logic gate	Logical function	AND / OR / XOR / XNOR / NAND / NOR
	Number of input objects	1 - 10
	Object type input x	1 bit / 1 byte
	Initial value input x	Initialised with 0 / Initialised with 1
	Logic input x	Normal / inverse
	Object type output	1 bit / 1 byte
	Send output object	At each incoming telegram / at each change of output object
	Value of the output object for logic true	Output is set on 1 / defined via output default value true
	Output default value true	True = 0 / true = 1
	Output default value true	0 - 255
	Value of the output object for logic untrue	Output is set on 0 / defined via output default value untrue
	Output default value untrue	Untrue = 0 / untrue = 1
	Output default value untrue	0 - 255
	General functions — channel x — Gate	Channel name
Object type		1 bit switching / 1 bit moving / 1 bit stop/adjusting / 2 bit priority / 4 bit relative dimming 1 byte 0-100% / 1 byte 0-255 / 2 byte float / 2 byte signed / 2 byte unsigned / 3 byte time / 3 byte date / 4 byte float / 4 byte signed / 4 byte unsigned / not allocated

Description of application and parameters

Overview of functions

	Filter function	Deactivated / on filter out / off filter out
	Data flow direction	Input in direction of output / output in direction of input / in both directions
	Enable object	Deactivated / activated
	Object value enable object	Normal / inverse
	Enable object after return of voltage	Disabled / enabled
	Save input signal	Deactivated / activated
General functions — channel x — Staircase lighting	Channel name	<Name>
	Object type/number	One 1-bit object for the input and output / two 1-bit objects for the input and output / two 1-byte objects for the input and output
	Switch-off delay	00:00:10 - 01:30:00 (hh:mm:ss)
	Retriggering	Deactivated / activated
	Switch-off pre-warning	Deactivated / activated
	Time for switch-off pre-warning (s)	1 - 5400
	Value for switch-off prewarning (%)	1 - 100 (%)
	Overwrite at switch-off delay and switch-off prewarning time during download	Deactivated / activated
General functions — channel x — Delay	Channel name	<Name>
	Object type	1 bit switching / 1 bit moving / 1 bit stop/adjusting / 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
	Delay time	00:00:01.000-01:00:00.000 (hh:mm:ss.fff)
	Retriggering	Deactivated / activated
	Filter active	Deactivated / activated
	Filter function	Filter value is delayed, others are sent direct / filter value is delayed, others are suppressed / filter value is sent direct, others are delayed / filter value is suppressed, others are delayed
	Filter value	<i>Setting dependent on object type</i>
Overwrite delay time during download	Deactivated / activated	
General functions —	Channel name	<Name>

Description of application and parameters

Overview of functions

channel x — Min/max value transducer	Object type	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
	Number of input objects	1 - 8
	Output sends	At each input assignment / when the output object is changed
	Output object	Assumes the largest input value / assumes the smallest input value / assumes the input average
General functions — channel x — Light scene actuator	Channel name	<Name>
	Number of scenes	1 - 8
	Number of actuator groups	1 - 8
	Duration of telegram delay	00.100 - 10.000 (ss.fff)
	Overwrite scenes at download	Deactivated / activated
	Object type actuator group x	Light scene number / 1 bit switching / 1 bit blind / 1 byte 0-100% / temperature
	Scene number	1 - 64
	Scene can be saved	Deactivated / activated
	Actuator group x	Deactivated / activated
	Number of light scene	1 - 64
	Value	Off / on
	Value	Up / down
	Value (%)	0 - 100
Temperature	-33.5 - 93.5	

Table 4: Overview of applications and functions

11.3 Application "Device settings"

11.3.1 Acoustic feedback signal - Application

Options:	Inactive
	Buzzer application

- Inactive:
 - The application is not active.
- Buzzer application:
 - The application is active.

The application is used to specify whether an acoustic signal sounds when a button is pressed. This signal can be adapted individually after the activation.

The following communication objects are available:

- "BUZ: object activation of acoustic feedback signal"
- "BUZ: triggering an alarm"
- "BUZ: time for automatic deactivation of the alarm"

The communication objects are enabled via the associated parameters.



Note

The following parameters can only be adjusted when the function "Acoustic feedback signal" is set on "Buzzer application".

The parameters for application "Acoustic feedback signal" can be called up via **general parameters**.

11.3.1.1 Selected feedback signal noise is on

Options:	Click
	Beeping

- Clicking:
 - "Clicking" sounds at the press of the buttons.
- Beeping:
 - "Beeping" sounds at the press of the buttons.

The parameter is used to specify the type of acoustic signal for the feedback signal noise.

11.3.1.2 Acoustic feedback signal via object

Options:	Deactivated
	Activated

- Deactivated:
 - The communication object is not enabled.
- Activated:
 - The communication object is enabled.

A 1-bit communication object "BUZ: object activation of acoustic feedback signal" can be enabled with this parameter. The further differentiation is carried out via the parameter that is available after enabling.

11.3.1.3 Activation of the acoustic feedback signal with

Options:	On telegram
	Off telegram

- ON telegram:
 - Activation via On telegram.
- Off telegram:
 - Activation via Off telegram.

The parameter is used to specify whether the acoustic feedback signal is activated via the input object at the receipt of an On or an Off telegram.

**Note**

The parameter can only be set when parameter "Acoustic feedback signal via object" or parameter "Acoustic alarm via object" is activated.

11.3.1.4 Feedback signal after bus voltage recovery

Options:	Deactivated
	Activated

- Deactivated:
 - Automatic deactivation after bus voltage recovery.
- Activated:
 - Automatic activation after bus voltage recovery.

If the "Acoustic feedback signal via object" is to start automatically after the bus voltage recovery, the parameter "Feedback signal after bus voltage recovery" must be set on "activated". If "deactivated has been selected, the "Acoustic feedback signal via object" does not start after bus voltage recovery.

**Note**

The parameter can only be set when parameter "Acoustic feedback signal via object" is activated.

11.3.1.5 Acoustic alarm via object

Options:	Deactivated
	Activated

- Deactivated:
 - The communication object is not enabled.
- Activated:
 - The communication object is enabled.

A 1-byte communication object "BUZ: trigger alarm" can be enabled with this parameter. The further differentiation is carried out via the parameter that is available after enabling.

The alarm function can, for example, display a wind alarm or an open door when the user wants to lower a blind or a roller blind.

11.3.1.6 Activation of the acoustic feedback signal with

Options:	On telegram
	Off telegram

- ON telegram:
 - Activation via On telegram.
- Off telegram:
 - Activation via Off telegram.

The parameter is used to specify whether the acoustic feedback signal is activated via the input object at the receipt of an On or an Off telegram.

**Note**

The parameter can only be set when parameter "Acoustic feedback signal via object" or parameter "Acoustic alarm via object" is activated.

11.3.1.7 Alarm via the button

Options:	Deactivated
	Activated

- Deactivated:
 - The pending alarm can not be deactivated with a press of the button.
- Activated:
 - The pending alarm can be deactivated with a press of the button.

**Note**

The parameter can only be set when parameter "Acoustic alarm via object" is activated.

11.3.1.8 Ending the alarm automatically

Options:	Deactivated
	Activated

- Deactivated:
 - The alarm is not switched off automatically.
- Activated:
 - The alarm is switched off automatically at an adjustable time.

By activating the parameter the alarm is automatically switched off after a parameterised time. The switch-off time is set via parameter "Time for automatic ending of the alarm".

The further differentiation is carried out via the parameter that is available after enabling.

**Note**

The parameter can only be set when parameter "Acoustic alarm via object" is activated.

11.3.1.9 Time for automatic ending of the alarm

Options:	Setting option from 00:00:10 to 18:00:00 (hh:mm:ss)
----------	---

The set value defines the time for the automatic ending of the pending alarm.

The further differentiation is carried out via the parameter that is available after enabling.

**Note**

The parameter can only be set when parameters "Acoustic alarm via object" and "Ending the alarm automatically" are activated.

11.3.1.10 Time for automatic ending via object

Options:	Deactivated
	Activated

- Deactivated:
 - The communication object is not enabled.
- Activated:
 - The communication object is enabled.

A 2-byte communication object "BUZ: time for automatic activation of the alarm" can be enabled with this parameter. The further differentiation is carried out via the parameter that is available after enabling.

**Note**

The parameter can only be set when parameters "Acoustic alarm via object" and "Ending the alarm automatically" are activated.

11.3.1.11 Time for automatic ending at overwrite download

Options:	Deactivated
	Activated

- Deactivated:
 - Time for automatic ending is not overwritten during a download of the application.
- Activated:
 - Time for automatic ending is overwritten during a download of the application.

The parameter can be used to specify whether the data changed via communication object "BUZ: time for automatic deactivation of the alarm" are to be overwritten during the download or the times should be retained.

**Note**

The parameter can only be adjusted if the following parameters are activated:

- "Acoustic alarm via object"
- "Ending the alarm automatically"
- "Time for automatic ending via object"

11.3.2 Proximity - Application

Options:	Inactive
	Proximity application

- Inactive:
 - Application is not active.
- Proximity application:
 - Application is active.

The Application is used to specify whether it is recognized when the user approaches the device. The application can be used, for example, that the display and LEDs first switch on when the user is located in front of the device.

The following communication objects are available:

- "NARX: proximity"
- "NARX: internal proximity status"

The communication objects are enabled via the associated parameters.



Note

The following parameters can only be adjusted when the function "Proximity" is set on "Proximity application".

The parameters for application "Proximity" can be called up via **general parameters**.

11.3.2.1 External proximity via object

Options:	Deactivated
	Activated

- Deactivated:
 - The communication object is not enabled.
- Activated:
 - The communication object is enabled.

A 1-bit communication object "NARX: proximity" can be enabled with this parameter. If an On telegram is received via this object, the proximity function is active. If an Off telegram is received via this object, the proximity function is disabled.

11.3.2.2 Automatic switchover time

Options:	Setting option from 00:00:10 to 18:00:00 (hh:mm:ss)
----------	---

The switching on or switchover always occurs immediately the user has approached the device. The switching off or switchover can be delayed via parameter "Automatic switchover time". In this way, for example, the display stays switched on for a while longer although the user has just moved away from the device.

**Note**

The parameter can only be set when parameter "External proximity via object" is deactivated.

11.3.2.3 Brightness of the LED during blockage

Options:	Off
	Dark
	Bright

- Off:
 - The LED does not light up at blockage.
- Dark:
 - The LED lights up dark at blockage.
- Bright:
 - The LED lights up bright at blockage.

The parameter is used to specify whether or in which brightness the LED lights up when the device is blocked.

11.3.2.4 LED colour in a blocked state

Options:	Yellow
	Orange
	Red
	Violet
	Blue
	Green
	White

- Yellow - white:
 - The LED lights up in the specified colour during blockage.

The parameter is used to specify the colour the LED lights up in when the device is blocked.

**Note**

The parameter is only adjustable if the "Brightness of LED during blockage" parameter is set on "dark" or "bright".

11.3.2.5 Internal proximity status via object

Options:	Deactivated
	Activated

- Deactivated:
 - The communication object is not enabled.
- Activated:
 - The communication object is enabled.

A 1-bit communication object "NARX: internal proximity status" can be enabled with this parameter. A telegram is sent on the bus via the enabled object when the user approaches the device.

11.3.3 Device enable - Application

Options:	Inactive
	Enable application

- Inactive:
 - Application is not active.
- Enable application:
 - Application is active.

If the application is activated the device can be blocked temporarily via the 1-bit communication object "EF: enable". No telegrams are sent on the bus via the communication object of the device during a blockage. It can be enabled via an On or an Off telegram.

The following communication objects are available:

- "EF: enable"
- "EF: automatic switchover time"

The communication objects are enabled via the associated parameters.



Note

The following parameters can only be adjusted when the function "Device enable" is set on "Enable application".

The parameters for application "Device enable" can be called up via **general parameters**.

11.3.3.1 Enable with

Options:	On telegram
	Off telegram

- ON telegram:
 - Devices are enabled via an On telegram.
- Off telegram:
 - Devices are enabled via an Off telegram.

The device is normally enabled with the receipt of an ON telegram via 1-bit communication object "EF: enabled" and blocked with an OFF telegram. The parameter can invert this behaviour.

11.3.3.2 After bus voltage recovery the device is

Options:	Blocked
	Enabled

- Blocked:
 - The enable object has value "1" after bus voltage recovery.
- Enabled:
 - The enable object has value "0" after bus voltage recovery.

The parameter serves to ensure that a defined behaviour is present on communication object "EF: enable" after a return of bus voltage.

11.3.3.3 Use of automatic enable/blockage

Options:	No
	Automatic enable
	Automatic blockage

- No:
 - No automatic enable or blockage of the device.
- Automatic enable:
 - Function "Automatic enable" is active.
- Automatic blockage:
 - Function "Automatic blockage" is active.

The parameter can be used to automatically enable or automatically block the device.

11.3.3.4 Automatic switchover time

Options:	Setting option from 00:00:10 to 18:00:00 (hh:mm:ss)
----------	---

The switching on or switchover always occurs immediately the user has approached the device.

The switching off or switchover can be delayed via the parameter. In this way, for example, the display stays switched on for a while longer although the user has just moved away from the device.

**Note**

This parameter can only be adjusted when the "Use of automatic enable/blockage" parameter is set on "Automatic enable" or "Automatic blockage".

11.3.3.5 Switchover time via object

Options:	Deactivated
	Activated

- Deactivated:
 - The communication object is not enabled.
- Activated:
 - The communication object is enabled.

A 2-byte communication object "EF: automatic switchover time" can be enabled with this parameter. The time can then be adjusted via the KNX bus.

**Note**

This parameter can only be adjusted when the "Use of automatic enable/blockage" parameter is set on "Automatic enable" or "Automatic blockage".

11.3.3.6 Overwrite switchover time at download

Options:	Deactivated
	Activated

- Deactivated:
 - The switchover time is not overwritten during a download of the application.
- Activated:
 - The switchover time is overwritten during a download of the application.

The parameter can be used to specify whether the data changed via communication object "EF: automatic switchover time" are to be overwritten during the download or the times should be retained.

**Note**

This parameter can only be adjusted when the "Use of automatic enable/blockage" parameter is set on "Automatic enable" or "Automatic blockage".

11.3.3.7 Brightness of the LED during blockage

Options:	Off
	Dark
	Bright

- Off:
 - The LED does not light up at blockage.
- Dark:
 - The LED lights up dark at blockage.
- Bright:
 - The LED lights up bright at blockage.

The parameter is used to specify whether or in which brightness the LED lights up when the device is blocked.

11.3.3.8 LED colour in a blocked state

Options:	Yellow
	Orange
	Red
	Violet
	Blue
	Green
	White

- Yellow - white:
 - The LED lights up in the specified colour during blockage.

The parameter is used to specify the colour the LED lights up in when the device is blocked.

**Note**

The parameter is only adjustable if the "Brightness of LED during blockage" parameter is set on "dark" or "bright".

11.3.4 During operation function - Application

Options:	Inactive
	Object during operation

- Inactive:
 - Application is not active.
- Object during operation:
 - Application is active.

The application makes monitoring of the device possible. A 1-bit telegram for further evaluation is made cyclically available to the KNX bus via communication object "HB: output". This, for example, allows monitoring of the device on a visualization. When the device is removed, it does not send a cyclic telegram and a fault message appears on the visualization.

The following communication object is available:

- "HB: output"



Note

The following parameters can only be adjusted when the function "Function during operation" is set on "Object during operation".

The parameters for application "Function during operation" can be called up via **general parameters**.

11.3.4.1 Cycle time

Options:	Setting option from 00:00:55 to 01:30:00 (hh:mm:ss)
----------	---

The telegrams of the object during operation are sent cyclic on the bus.

The parameter specifies the time interval from which a new sending of the telegrams occurs.

11.3.4.2 Objects sends cyclic

Options:	On telegram
	Off telegram

- ON telegram:
 - Object during operation sends an On telegram.
- Off telegram:
 - Object during operation sends an Off telegram.

The parameter is used to specify whether an Off or an On telegram is sent cyclic on the KNX bus via communication object "HB: output" during the parameterized time.

11.4 Application "Primary function"

11.4.1 Primary function - Application

Options:	Inactive
	1-button switching

- Inactive:
 - Application is not active.
- 1-button switching:
 - Application is active.

The application is used to fix the primary function of the device. The primary function is the first function of the device that is carried out when the user presses 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").

When the application is active, a switching telegram is sent when the button is pressed or released.

The following communication object is available:

- "PF: switching"



Note

The following parameters can only be adjusted when the function "Primary function" is set on "1-button switching".

The parameters for "Primary function" can be called up via **general parameters**.

11.4.1.1 Object type

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

- 1 bit:
 - The value is sent as 1-bit switching commands (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
 - The value is sent as 1-byte value without a sign. Any value 0 - 255.
- Light scene number 1 - 64:
 - Value is sent as scene number or scene control (1 - 64).
- RTC operating mode switchover (1 byte):
 - Value is sent as 1-byte value for the RTC operating mode switchover, e.g. auto, comfort, ECO), when the room temperature controller has been linked.

The "1-button value switching" application makes communication object "PF: switching" available for both input and output. The bit size of the communication object is fixed via the "Object type" parameter. For the most diverse applications, the size of the communication object can be adapted via "Object type".

11.4.1.2 Reaction on rising edge

Options:	Value 1
	Value 2
	Alternating value1/value2
	Deactivated

- Value 1:
 - Value 1 is sent at the press of the button (at rising edge).
- Value 2:
 - Value 2 is sent at the press of the button (at rising edge).
- Alternating value 1/value 2:
 - Value 1 and value 2 are sent alternately at the press of the button.
- Deactivated:
 - No telegram is sent at the press of the button.

Application "1-button value switching" can differentiate between the press and the releasing of the button. A press is defined as "Rising edge" and the releasing as "Falling edge".

The parameter is used to specify whether a telegram with value 1 or value 2 is sent on the bus at a rising edge via communication object "PF: switching". A further option can be specified as to whether the telegrams are sent alternately. This means that after value 1 has been sent, value 2 is sent at a renewed press of the button. After it is pressed again, value 1 is again sent out.

**Note**

Parameter "Value 1" and "Value 2" is used to specify the values that are to be sent.

11.4.1.3 Reaction on falling edge

Options:	Value 1
	Value 2
	Alternating value1/value2
	Deactivated

- Value 1:
 - Value 1 is sent when the button is released (at falling edge).
- Value 2:
 - Value 2 is sent when the button is released (at falling edge).
- Alternating value 1/value 2:
 - Value 1 and value 2 are sent alternately when the button is released.
- Deactivated:
 - No telegram is sent when the button is released.

Application "1-button value switching" can differentiate between the press and the releasing of a button. A press is defined as "Rising edge" and the releasing as "Falling edge".

The parameter is used to specify whether a telegram with value 1 or value 2 is sent on the bus at a falling edge via communication object "PF: switching". A further option can be specified as to whether the telegrams are sent alternately. This means that after value 1 has been sent, value 2 is sent at a renewed release of the button. After it is released again, value 1 is again sent out.

**Note**

Parameter "Value 1" and "Value 2" is used to specify the values that are to be sent.

11.4.1.4 Consider device enable

Options:	Deactivated
	Activated

- Deactivated:
 - Device enable is not taken into account for the primary function.
- Activated:
 - Device enable is taken into account for the primary function.

The primary function can be included in the device enable via the parameter. The parameter must be activated for this. Operating the device via the primary would then not be possible in a disabled state.

When the parameter is deactivated the device enable or blockage has an effect only on the individual buttons.

11.4.1.5 Value 1/Value 2

The possible options depend on parameter "Object type".

Options for selection "1 bit":

Options:	Off
	One

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

Options for selection "1 byte 0-255":

Options:	Setting option from 0 to 255
----------	------------------------------

Options for selection "Light scene number (1-64)":

Options:	Setting option from 1 to 64
----------	-----------------------------

Options for selection "RTC operating mode switchover (1 byte)":

Options:	Auto
	Comfort
	Standby
	ECO
	Frost/heat protection

The parameter is used to set value 1 that is sent at a press of the button.

**Note**

Parameter can only be set if the "Reaction at rising/falling edge" parameter is set on "Value 1" or "Alternating Value1/Value2".

11.4.1.6 Value 2

The possible options depend on parameter "Object type".

Options for selection "1 bit":

Options:	Off
	One

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

Options for selection "1 byte 0-255":

Options:	Setting option from 0 to 255
----------	------------------------------

Options for selection "Light scene number (1-64)":

Options:	Setting option from 1 to 64
----------	-----------------------------

Options for selection "RTC operating mode switchover (1 byte)":

Options:	Auto
	Comfort
	Standby
	ECO
	Frost/heat protection

The parameter is used to set value 2 that is sent at a press of the button.

**Note**

Parameter can only be set if the "Reaction at rising/falling edge" parameter is set on "Value 2" or "Alternating Value1/Value2".

11.5 Application "Function block x"

Depending on the device type, from one to six function blocks with buttons and LED applications for up to 12 buttons are available:

- Function block 1: Settings for buttons 1 and 2.
For a 1gang device only one function block with a 1-button application is available.
- Function block 2: Settings for buttons 3 and 4.
- Function block 3: Settings for buttons 5 and 6.
- Function block 4: Settings for buttons 7 and 8.
- Function block 5: Settings for buttons 9 and 10.
- Function block 6: Settings for buttons 11 and 12.

11.5.1 Function block x - Application

Button applications:

Options:	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 RTC"
	2-button switching
	2-button dimming
	2-button blind
	2-button value transmitter
	2-button value dimming sensor
	2-button step switch
	Inactive



Note

The following parameters can only be adjusted when the corresponding application (see above) is selected.

- 1-button switching:
 - The application makes it possible to switch a light via a button. Additional information, See "Application - 1-button switching" on page 63.
- 1-button dimming:
 - The application makes it possible to dim and switch a light via a button. Additional information, See "Application - 1-button dimming" on page 65.

- 1-button blind:
 - The application makes it possible to control blinds and roller blinds via a button. The length of press of the button can be set for different movement commands. Additional information, See "Application - 1-button blind" on page 67.
- 1-button short-long operation:
 - The application can be used to set the value for long and short operations. Additional information, See "Application - 1-button short-long operation" on page 72.
- 1-button value transmitter:
 - At a press and release of the button the application makes it possible to send different, preset values via a joint communication object. Additional information, See "Application - 1-button value transmitter" on page 78.
- 1-button value transmitter, 2 objects:
 - At a press and release of the button the application makes it possible to send different, preset values via separate communication objects. Additional information, See "Application - 1-button value transmitter, 2 objects" on page 83.
- 1-button step switch:
 - Up to five switching levels can be activated for a button via the application. The switching levels of the first button can be combined with the switching levels of the second button of a function block. Additional information, See "Application - 1-button step switch" on page 89.
- 1-button multiple operation:
 - The application is used to create from one up to five button operations. Different bit values can be sent for each single and multiple press of the button. Additional information, See "Application - 1-button multiple operation" on page 93.
- 1-button light scene extension unit with memory function:
 - The application can be used to call up and save one of 64 possible light scenes with a press of the button. Additional information, See "Application - 1-button light scene extension unit with memory function" on page 98.
- 1-button operating mode, "Adjust RTC".
 - The operating mode of linked room temperature controllers can be switched over via the application with a press of the button. Additional information, See "Application - 1-button operating mode "Adjust RTC"" on page 100.
- 2-button switching:
 - The application makes it possible to switch a light via a button pair. Additional information, See "Application - 2-button switching" on page 107.
- 2-button dimming:
 - The application makes it possible to dim and switch a light via a button pair. Additional information, See "Application - 2-button dimming" on page 108.
- 2-button blind:
 - The application makes it possible to control blinds and roller blinds via a button pair. Additional information, See "Application - 2-button blind" on page 115.
- 2-button value transmitter:
 - The application makes it possible to send two preset values with the same bit size with a button pair via a joint communication object. Additional information, See "Application - 2-button value transmitter" on page 119.

- 2-button value dimming sensor:
 - The application makes it possible to dim the light brighter and darker via a button pair. The dimming values are sent via a joint communication object. Additional information, See "Application - 2-button value dimming sensor" on page 123.
- 2-button step switch:
 - Up to five switching levels can be activated for a button pair via the application. One button is used to switch the steps up and the other button to switch them down. Additional information, See "Application - 2-button step switch" on page 125.
- Inactive:
 - No applications are enabled.

11.5.2 Application - 1-button switching

The application makes it possible to switch a light via a button.

The following communication object is available:

- "Sx: switching"

The application can differentiate between the press and the releasing of a button. When actuated and released a switching telegram is sent out each time.

In each case, the application makes a separate set of parameters and communication objects available in function block x for both buttons. The second button of each function block can be occupied with an additional button function.



Note

The parameters for application "1-button switching" can be called up via **general parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.2.1 Reaction on rising edge

Options:	Deactivated
	Off
	On
	Alternating on/off

- Deactivated:
 - No telegram is sent at the press of the button.
- Off:
 - The "Off" telegram is sent at the press of the button (at rising edge).
- On:
 - The "On" telegram is sent at the press of the button (at rising edge).
- Alternating on/off:
 - "On" and "Off" are sent alternately at the press of the button.

Application "1-button value switching" can differentiate between the press and the releasing of the button. A press is defined as "Rising edge" and the releasing as "Falling edge".

The parameter is used to specify whether an On or Off telegram is sent on the bus at a rising edge via the 1-bit communication object "Sx: switching". A further option can be specified as to whether the switching telegrams are sent alternately. This means that after "On" is sent, "Off" is sent at a renewed press of the button. After it is pressed again, "On" is sent.

11.5.2.2 Reaction on falling edge

Options:	Deactivated
	Off
	On
	Alternating on/off

- Deactivated:
 - No telegram is sent when the button is released.
- Off:
 - The "Off" telegram is sent when the button is released (at falling edge).
- On:
 - The "On" telegram is sent when the button is released (at falling edge).
- Alternating on/off:
 - "On" and "Off" are sent alternately when the button is released.

Application "1-button value switching" can differentiate between the press and the releasing of the button. A press is defined as "Rising edge" and the releasing as "Falling edge".

The parameter is used to specify whether an On or Off telegram is sent on the bus at a falling edge via the 1-bit communication object "Sx: switching". A further option can be specified as to whether the switching telegrams are sent alternately. This means that after value "On" has been sent, "Off" is sent at a renewed release of the button. After it is released again, "On" is again sent out.

11.5.3 Application - 1-button dimming

The application makes it possible to dim and switch a light via a button.

The following communication objects are available:

- "Sx: switching"
- "Sx: relative dimming"

The button has a switching object and a dimming object. A distinction is made between a short press of the button (switching) and a long press (dimming).

In each case, the application makes a separate set of parameters and communication objects available in function block x for both buttons.



Note

The parameters for application "1-button dimming" can be called up via **general parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.3.1 Duration of long operation

Options:	Setting option from 00.300 to 03.000 (ss.fff)
----------	---

The application can differentiate between a short and a long press of the button. With a short press of the button, the next level forward is switched to. With a long press of the button, the first level is activated. Thus with a long press of the button a jump back from every level to the first level is possible, without having to run through the remaining levels.

The parameter is used to specify the time from which a long press of the button is recognised and the object values are reset. A typical value for a long press of the button is 0.4 seconds.

11.5.3.2 Working mode of the buttons for switching

Options:	Deactivated
	Off
	On
	Alternating on/off

- Deactivated:
 - No command is sent at the press of the button.
- Off:
 - The "Off" command is sent at the press of the button.
- On:
 - The "On" command is sent at the press of the button.
- Alternating on/off:
 - "On" and "Off" are sent alternately at the press of the button.

The parameter is used to specify whether an On or an Off command is sent on the bus via 1-bit communication object "Sx: switching" when the button is pressed.

A further option can be specified as to whether the switching commands are sent alternately. This means that after "On" is sent, "Off" is sent at a renewed press of the button. After it is pressed again, "On" is sent.

11.5.3.3 Working mode of the buttons for dimming

Options:	Darker
	Brighter
	Alternating brighter/darker

- Darker:
 - The "Dim darker" command is sent at a long press of the button.
- Brighter:
 - The "Dim brighter" command is sent at a long press of the button.
- Alternating brighter/darker:
 - "Dim darker" and "Dim brighter" are sent alternately at a long press of the button.

The parameter is used to specify whether a telegram with the "Dim brighter" or "Dim darker" command is sent on the bus via the 3-bit communication object "Sx: relative dimming" at a long press of the button.

A further option can be specified as to whether the dimming telegrams are sent alternately at each long press of the button. This means that after "Dim brighter" is sent, "Dim darker" is sent at a renewed press of the button. After it is pressed again, "Dim brighter" is sent.

11.5.4 Application - 1-button blind

The application makes it possible to control blinds and roller blinds via a button.

The following communication objects are available:

- "Sx: moving" (for blinds/roller blinds, 1 Bit)
- "Sx: adjusting" (for blinds, 1-bit)
- "Sx: position" (for blinds, 1-byte)
- "Sx: slats" (for blinds, 1-byte)
- "Sx: stop" (for roller blinds, 1 bit)

The application can be used to set the length of the button actuations for the operating functions of blinds and roller blinds.

Blinds: Movement and slat adjustment commands are sent to linked blind actuators with long and short button operations. A long press of the button triggers a move command. A short press of the button triggers a command to adjust the slats.

Roller blinds: Movement and stop commands are sent to linked roller blind actuators with long and short button operations. A long press of the button triggers a move command. A short press of the button triggers a stop command.

Blinds and roller blinds: The sensor stores the last command carried out with the button that is occupied with the application. This means, for example, if a blind was lowered and halted at half height via a short press of the button, then a renewed long press of the button will raise the blind.

In each case, the application makes a separate set of parameters and communication objects available in function block x for both buttons.

**Note**

The parameters for application "1-button blind" can be called up via **general parameters** and **extended parameters**.

**Note**

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.4.1 Duration of long operation

Options:	Setting option from 00.300 to 03.000 (ss.fff)
----------	---

The application can differentiate between a short and a long press of the button. At a short press of the button a telegram with the command "Move blind/roller blind" is sent on the bus. At a long press of the button a telegram with the command "Adjust slats" or "Stop roller blind" is sent.

The parameter is used to specify the time after which a long button press is recognised. A telegram is sent on the bus via communication object "Sx: adjust" or "Sx: stop" only after this time has expired. A typical value for a long press of the button is 0.4 seconds.

**Note**

The command "Move blind" is sent immediately after the press of the button. The command is also sent if the button is pressed long and a "Adjust slats" command is sent due to the long operation. This causes a short jerking of the blind since the first slats adjustment command is always interpreted by a blind actuator as a stop command.

11.5.4.2 Cycle time of the telegram repetition

Options:	Setting option from 00.100 to 05.000 (ss.fff)
----------	---

Telegrams are sent cyclic to the blind actuator via communication object "Sx: adjust" as long as the button is pressed.

The parameter is used to set time intervals between the telegrams. The default setting is 1 second.

This function serves to more accurately position larger slats that require a longer time for a complete slat rotation. This means that the button can remain pressed and be specifically released when the slats have reached the desired position.

**Note**

The parameter can only be set if the "Object type" parameter is set on "1 bit" and the "Blind/roller blind function switchover" parameter is set on "Blind".

11.5.4.3 Object type

Options:	1 bit
	1 byte 0 - 100%

- 1 bit:
 - The value is sent as 1-bit switching commands (up/down or adjustment).
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (position in percent).

The parameter is used to set the size of communication objects for the control of blinds. For selection "1 bit", objects "Sx: moving" and "Sx: adjusting" are available. For selection "1 byte 0-100%", objects "Sx: position" and "Lx: slat position" are available.

If option "1 byte 0-100%" is selected, communication objects can be connected with 1-byte position objects of the blind actuators. Also desired positions of the blind can be preset under **Extended parameters**.

Example: Button 1 always moves the blind down to 50%, with the slats closed at 50%. Button 1 always moves the blind down to 80%, with the slats closed at 100%.

**Note**

The parameter can only be set if the "Blind/roller blind function switchover" parameter is set on "Blind".

11.5.4.4 Function switchover blinds/roller blinds

Options:	Blind
	Roller blind

- Blind:
 - The application is fixed on blind control.
- Roller blind:
 - The application is fixed on roller blind control.

The parameter is used to specify whether the sensor or the selected button can be used for a blind or a roller blind control.

**Note**

If the "Blind" function is selected and parameter "Object type" is fixed on "1 byte 0-100%", the following parameters are available.

11.5.4.5 Value for position down (%)

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

The parameter is used to set the position to which a linked blind is to be lowered. The associated 1-byte communication object "Sx: position" must hereby be connected with a 1-byte position object of the blind actuator.

Percentage values can be set in steps of 1%. Meaning of the percentage values:

- 0% = blind completely raised.
- 100% = blind completely lowered.

**Note**

The parameter can only be set if the "Blind/roller blind switchover function" parameter is set on "Blind" and the "Object type" parameter is set on "1-byte 0-100%".

11.5.4.6 Value for position up (%)

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

The parameter is used to set the position to which a linked blind is to be raised. The associated 1-byte communication object "Sx: position" must hereby be connected with a 1-byte position object of the blind actuator.

Percentage values can be set in steps of 1%. Meaning of the percentage values:

- 0% = blind completely raised.
- 100% = blind completely lowered.

**Note**

The parameter can only be set if the "Blind/roller blind switchover function" parameter is set on "Blind" and the "Object type" parameter is set on "1-byte 0-100%".

11.5.4.7 Value for slats position down (%)

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

The parameter is used to set the position to which the slats of the linked blind are to open. The associated 1-byte "Sx: slat position" communication object must hereby be connected with the 1-byte slat position object of the blind actuator.

Percentage values can be set in steps of 1%. Meaning of the percentage values:

- 0 % = slats completely open.
- 100 % = slats completely closed.

**Note**

The parameter can only be set if the "Blind/roller blind switchover function" parameter is set on "Blind" and the "Object type" parameter is set on "1-byte 0-100%".

11.5.4.8 Value for slats position down (%)

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

The parameter is used to set the position to which the slats of the linked blind are to close. The associated 1-byte "Sx: slat position" communication object must hereby be connected with the 1-byte slat position object of the blind actuator.

Percentage values can be set in steps of 1%. Meaning of the percentage values:

- 0 % = slats completely open.
- 100 % = slats completely closed.

**Note**

The parameter can only be set if the "Blind/roller blind switchover function" parameter is set on "Blind" and the "Object type" parameter is set on "1-byte 0-100%".

11.5.5 Application - 1-button short-long operation

The application can be used to set the value for long and short operations.

The following communication objects are available:

- "Sx: reaction on short operation"
- "Sx: reaction on long operation"

The two objects can take on different sizes (1 bit - 4 byte, depending on the object type selected).

In each case, the application makes a separate set of parameters and communication objects available in function block x for both buttons. The second button of each function block can be occupied with an additional button function.



Note

The parameters for application "1-button short-long operation" can be called up via **general parameters** and **extended parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.5.1 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

- 1 bit:
 - The value is sent as 1-bit switching commands (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
 - The value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
 - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
 - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
 - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.
- 4-byte float:
 - The value is sent as 4-byte floating point value, physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
 - The value is sent as 4-byte value with a sign (-2147483648 - 2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
 - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.

The set option jointly fixes the bit size of communication objects "Sx: reaction on short operation" and "Sx: reaction on long operation".

11.5.5.2 Reaction on short operation

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

- No reaction:
 - No telegram is sent at a short press of the button.
- Value 1:
 - Value 1 is sent at a short press of the button.
- Value 2:
 - Value 2 is sent at a short press of the button.
- Alternating value 1/value 2:
 - Value 1 and value 2 are sent alternately at a short press of the button.

The parameter is used to specify whether value 1 or value 2 is sent on the bus at a short press of the button. A further option can be specified as to whether the telegrams are sent alternately. This means that after value 1 has been sent, value 2 is sent at a renewed press of the button. After it is pressed again, value 1 is again sent out.

**Note**

Parameter "Value x for short operation" is used to specify the values that are to be sent.

11.5.5.3 Reaction on long operation

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

- No reaction:
 - No telegram is sent at a long press of the button.
- Value 1:
 - Value 1 is sent at a long press of the button.
- Value 2:
 - Value 2 is sent at a long press of the button.
- Alternating value 1/value 2:
 - Value 1 and value 2 are sent alternately at a long press of the button.

The parameter is used to specify whether value 1 or value 2 is sent on the bus at a long press of the button. A further option can be specified as to whether the telegrams are sent alternately. This means that after value 1 has been sent, value 2 is sent at a renewed press of the button. After it is pressed again, value 1 is again sent out.

**Note**

Parameter "Value x for long operation" is used to specify the values that are to be sent.

11.5.5.4 Duration of long operation

Options:	Setting option from 00.300 to 03.000 (ss.fff)
----------	---

The application can differentiate between a short and a long press of the button. At a short press of the button a value is sent on the bus via communication object "Sx: value switching at short operation". At a long press of the button a value is sent on the bus via communication object "Sx: value switching at long operation".

The parameter is used to specify the time after which a long button press is recognised. A typical value for a long press of the button is 0.4 seconds.

11.5.5.5 Value 1/value 2 for short operation

The possible options and setting limits depend on parameter "Object type".

Options for selection "1 bit":

Options:	Off
	One

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

Options for selection "1 byte 0-255":

Options:	Setting option from 0 to 255
----------	------------------------------

Options for selection "2-byte float":

Options:	Setting option from -671088.64 to 670760.96
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Options for selection "2-byte signed":

Options:	Setting option from -32768 to +32767
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Options for selection "2-byte unsigned":

Options:	Setting option from 0 to 65535
----------	--------------------------------

Options for selection "4-byte float":

Options:	Setting option from -4000000 to 4000000
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Options for selection "4-byte signed":

Options:	Setting option from -2147483648 to 2147483647
----------	---

Options for selection "4-byte unsigned":

Options:	Setting option from 0 to 4294967295
----------	-------------------------------------

The parameter is used to set value 1 or value 2 that is sent at a short press of the button.

**Note**

Parameter "Value 1 for short operation" can only be set when parameter "Reaction at short operation" is set on "Value 1" or on "Alternating Value1/Value2".

Parameter "Value 2 for short operation" can only be set when parameter "Reaction at short operation" is set on "Value 2" or on "Alternating Value1/Value2".

11.5.5.6 Value 1/value 2 for long operation

The possible options and setting limits depend on parameter "Object type".

Options for selection "1 bit":

Options:	Off
	One

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

Options for selection "1 byte 0-255":

Options:	Setting option from 0 to 255
----------	------------------------------

Options for selection "2-byte float":

Options:	Setting option from -671088.64 to 670760.96
----------	---

Options for selection "2-byte signed":

Options:	Setting option from -32768 to +32767
----------	--------------------------------------

Options for selection "2-byte unsigned":

Options:	Setting option from 0 to 65535
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Options for selection "4-byte float":

Options:	Setting option from -4000000 to 4000000
----------	---

Options for selection "4-byte signed":

Options:	Setting option from -2147483648 to 2147483647
----------	---

Options for selection "4-byte unsigned":

Options:	Setting option from 0 to 4294967295
----------	-------------------------------------

The parameter is used to set value 1 or value 2 that is sent at a long press of the button.

**Note**

Parameter "Value 1 for long operation" can only be set when parameter "Reaction at long operation" is set on "Value 1" or on "Alternating Value1/Value2".

Parameter "Value 2 for long operation" can only be set when parameter "Reaction at long operation" is set on "Value 2" or on "Alternating Value1/Value2".

11.5.6 Application - 1-button value transmitter

At a press and release of the button the application makes it possible to send different, preset values via a joint communication object.

The following communication object is available:

- "Sx: switching"

The application can differentiate between the press and the releasing of a button (rising/falling edge). All telegrams have the same bit size.

In each case, the application makes a separate set of parameters and communication objects available in function block x for both buttons. The second button of each function block can be occupied with an additional button function.



Note

The parameters for application "1-button value transmitter" can be called up via **general parameters** and **extended parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.6.1 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

- 1 bit:
 - The value is sent as 1-bit switching commands (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
 - Value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
 - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
 - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
 - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.
- 4-byte float:
 - The value is sent as 4-byte floating point value, physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
 - The value is sent as 4-byte value with a sign (-2147483648 - +2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
 - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.

The set option fixes the bit size of communication object "Sx: switching" (input/output).

11.5.6.2 Reaction on rising edge

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

- No reaction:
 - No telegram is sent at the press of the button.
- Value 1:
 - Value 1 is sent at the press of the button (at rising edge).
- Value 2:
 - Value 2 is sent at the press of the button (at rising edge).
- Alternating value 1/value 2:
 - Value 1 and value 2 are sent alternately at the press of the button.

Application "1-button value transmitter" can differentiate between the press and the releasing of the button. A press is defined as "Rising edge" and the releasing as "Falling edge". Only one communication object is available for both edges.

The parameter is used to specify whether a telegram with value 1 or value 2 is sent on the bus at a rising edge via communication object "Sx: switching". A further option can be specified as to whether the telegrams are sent alternately. This means that after value 1 has been sent, value 2 is sent at a renewed press of the button. After it is pressed again, value 1 is again sent out.

**Note**

Parameter "Value 1" and "Value 2" is used to specify the values that are to be sent.

11.5.6.3 Reaction on falling edge

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

- No reaction:
 - No telegram is sent when the button is released.
- Value 1:
 - Value 1 is sent when the button is released (at falling edge).
- Value 2:
 - Value 2 is sent when the button is released (at falling edge).
- Alternating value 1/value 2:
 - Value 1 and value 2 are sent alternately when the button is released.

Application "1-button value transmitter" can differentiate between the press and the releasing of a button. A press is defined as "Rising edge" and the releasing as "Falling edge". Only one communication object is available for both edges.

The parameter is used to specify whether a telegram with value 1 or value 2 is sent on the bus at a falling edge via communication object "Sx: switching". A further option can be specified as to whether the telegrams are sent alternately. This means that after value 1 has been sent, value 2 is sent at a renewed release of the button. After it is released again, value 1 is again sent out.

**Note**

Parameter "Value 1" and "Value 2" is used to specify the values that are to be sent.

11.5.6.4 Value 1/Value 2

The possible options and setting limits depend on parameter "Object type".

Options for selection "1 bit":

Options:	Off
	One

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)
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Options for selection "1 byte 0-255":

Options:	Setting option from 0 to 255
----------	------------------------------

Options for selection "2-byte float":

Options:	Setting option from -671088.64 to 670760.96
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Options for selection "2-byte signed":

Options:	Setting option from -32768 to +32767
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Options for selection "2-byte unsigned":

Options:	Setting option from 0 to 65535
----------	--------------------------------

Options for selection "4-byte float":

Options:	Setting option from -4000000 to 4000000
----------	---

Options for selection "4-byte signed":

Options:	Setting option from -2147483648 to 2147483647
----------	---

Options for selection "4-byte unsigned":

Options:	Setting option from 0 to 4294967295
----------	-------------------------------------

The parameter is used to set value 1 or value 2 that is sent at a rising or falling edge.

11.5.7 Application - 1-button value transmitter, 2 objects

At a press and release of the button the application makes it possible to send different, preset values via separate communication objects.

The following communication objects are available:

- "Sx: switching (rising edge)"
- "Sx: switching (falling edge)"

The application can differentiate between the press and the releasing of a button (rising/falling edge). The telegrams for the rising and falling edge can have different bit sizes. This, for example, allows a switching function and a floating point value to be sent.

In each case, the application makes a separate set of parameters and communication objects available in function block x for both buttons. The second button of each function block can be occupied with an additional button function.



Note

The parameters for application "1-button value transmitter, 2 objects" can be called up via **general parameters** and **extended parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.7.1 Object type for rising/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

- 1 bit:
 - The value is sent as 1-bit switching commands (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
 - Value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
 - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
 - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
 - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.
- 4-byte float:
 - The value is sent as 4-byte floating point value, physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
 - The value is sent as 4-byte value with a sign (-2147483648 - +2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
 - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.

The set option fixes the bit size of communication objects "Sx: switching (rising edge)" and "Sx: switching (falling edge)" of a button independent from each other.

11.5.7.2 Reaction on rising edge

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

- No reaction:
 - No telegram is sent at the press of the button.
- Value 1:
 - Value 1 is sent at the press of the button (at rising edge).
- Value 2:
 - Value 2 is sent at the press of the button (at rising edge).
- Alternating value 1/value 2:
 - Value 1 and value 2 are sent alternately at the press of the button.

Application "1-button value transmitter, 2 objects" can differentiate between the press and the releasing of a button. A press is defined as "Rising edge" and the releasing as "Falling edge". The application makes two separate communication objects available for the rising and falling edge of a button.

The parameter is used to specify whether a telegram with value 1 or value 2 is sent on the bus at a rising edge via communication object "Sx: switching (rising edge)". A further option can be specified as to whether the telegrams are sent alternately. This means that after value 1 has been sent, value 2 is sent at a renewed press of the button. After it is pressed again, value 1 is again sent out.

**Note**

Parameter "Value 1 for rising edge" and "Value 2 for rising edge" is used to specify the values that are to be sent.

11.5.7.3 Reaction on falling edge

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

- No reaction:
 - No telegram is sent when the button is released.
- Value 1:
 - Value 1 is sent when the button is released (at falling edge).
- Value 2:
 - Value 2 is sent when the button is released (at falling edge).
- Alternating value 1/value 2:
 - Value 1 and value 2 are sent alternately when the button is released.

Application "1-button value transmitter, 2 objects" can differentiate between the press and the releasing of a button. A press is defined as "Rising edge" and the releasing as "Falling edge". The application makes two separate communication objects available for the rising and falling edge of a button.

The parameter is used to specify whether a telegram with value 1 or value 2 is sent on the bus at a falling edge via communication object "Sx: switching (falling edge)". A further option can be specified as to whether the telegrams are sent alternately. This means that after value 1 has been sent, value 2 is sent at a renewed release of the button. After it is released again, value 1 is again sent out.

**Note**

Parameter "Value 1 for falling edge" and "Value 2 for falling edge" is used to specify the values that are to be sent.

11.5.7.4 Value 1/value 2 for rising edge

The possible options and setting limits depend on parameter "Object type".

Options for selection "1 bit":

Options:	Off
	One

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

Options for selection "1 byte 0-255":

Options:	Setting option from 0 to 255
----------	------------------------------

Options for selection "2-byte float":

Options:	Setting option from -671088.64 to 670760.96
----------	---

Options for selection "2-byte signed":

Options:	Setting option from -32768 to +32767
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Options for selection "2-byte unsigned":

Options:	Setting option from 0 to 65535
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Options for selection "4-byte float":

Options:	Setting option from -4000000 to 4000000
----------	---

Options for selection "4-byte signed":

Options:	Setting option from -2147483648 to 2147483647
----------	---

Options for selection "4-byte unsigned":

Options:	Setting option from 0 to 4294967295
----------	-------------------------------------

The parameter is used to set value 1 or value 2 that is sent at a rising edge.

**Note**

Parameter "Value 1 for rising edge" can only be set if the "Reaction at rising edge" parameter is set on either "Value 1" or "Alternating Value1/Value2".

Parameter "Value 2 for rising edge" can only be set if the "Reaction at rising edge" parameter is set on either "Value 2" or "Alternating Value1/Value2".

11.5.7.5 Value 1/value 2 for falling edge

The possible options and setting limits depend on parameter "Object type".

Options for selection "1 bit":

Options:	Off
	One

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

Options for selection "1 byte 0-255":

Options:	Setting option from 0 to 255
----------	------------------------------

Options for selection "2-byte float":

Options:	Setting option from -671088.64 to 670760.96
----------	---

Options for selection "2-byte signed":

Options:	Setting option from -32768 to +32767
----------	--------------------------------------

Options for selection "2-byte unsigned":

Options:	Setting option from 0 to 65535
----------	--------------------------------

Options for selection "4-byte float":

Options:	Setting option from -4000000 to 4000000
----------	---

Options for selection "4-byte signed":

Options:	Setting option from -2147483648 to 2147483647
----------	---

Options for selection "4-byte unsigned":

Options:	Setting option from 0 to 4294967295
----------	-------------------------------------

The parameter is used to set value 1 or value 2 that is sent at a falling edge.

**Note**

Parameter "Value 1 for falling edge" can only be set if the "Reaction at falling edge" parameter is set on either "Value 1" or "Alternating Value1/Value2".

Parameter "Value 2 for falling edge" can only be set if the "Reaction at falling edge" parameter is set on either "Value 2" or "Alternating Value1/Value2".

11.5.8 Application - 1-button step switch

Up to five switching levels can be activated for a button via the application. The switching levels of the first button can be combined with the switching levels of the second button of a function block.

The following communication object is available:

- "Sx: switching level x"

The application makes step-type switching of the room lighting possible. A different switching process is triggered with each new press of the programmed button.

The application differentiates whether the first or second button of a function block is pressed. Depending on the setting, one lower or one higher level can be switched to.

Example (1st button up, 2nd button down):

[1st button – 1st press – 1st step] = switches lamp 1 on.

[1st button – 2nd press – 2nd step] = switches lamp 1 off and lamp 2 on.

[1st button – 3rd press – 3rd step] = switches lamp 2 off and lamp 3 on.

[2nd button – 1st press – 2nd step] = switches lamp 3 off and lamp 2 on.

[2nd button – 2nd press – 1st step] = switches lamp 2 off and lamp 1 on.

In each case, the application makes a separate set of parameters and communication objects available in function block x for both buttons. The second button of each function block can be occupied with an additional button function.



Note

The parameters for application "1-button step switch" can be called up via **general parameters** and **extended parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.8.1 Number of objects

Options:	Setting option from 1 to 5
----------	----------------------------

The parameter is used to set the number of communication objects or switching step of a button.

For every level, its own 1-bit communication object "Sx: switching step x" is available.

11.5.8.2 Evaluation period

Options:	Setting option from 02.000 to 05.000 (ss.fff)
----------	---

Room lighting can be switched step-wise via a button.

To be able send a switching telegram after each actuation, the device requires a defined time period (evaluation period) to decide whether the telegram is to be sent.

For example:

The button is pressed three times. If no further actuation is made within the set evaluation period, the value for step 3 is sent.

11.5.8.3 Duration of long operation

Options:	Setting option from 00.300 to 02.5000 (ss.fff)
----------	--

The application can differentiate between a short and a long press of the button. With a short press of the button, the next level forward is switched to. With a long press of the button, the first level is activated. Thus with a long press of the button a jump back from every level to the first level is possible, without having to run through the remaining levels.

The parameter is used to specify the time from which a long press of the button is recognised and the object values are reset. A typical value for a long press of the button is 0.4 seconds.

11.5.8.4 Sending of objects

Options:	For operation
	For change of value

- For operation:
 - Telegram are sent at each press of the button.
- For change of value
 - Telegrams are only sent at a change of the object value.

The parameter is used to specify whether the object values for every button operation are sent out on the bus or only if the object values have changed since they were sent last.

11.5.8.5 Object values

Options:	Normal
	Inverse

- Normal:
 - Values of the individual switching levels are not sent inverted.
- Inverse:
 - Values of the individual switching levels are sent inverted.

The parameter is used to specify whether values of the 1-bit communication objects "Sx: switching step x" are sent normal or inverted.

Example (five objects, x of n):

The object value "10000" is sent inverted as object value "01111".

11.5.8.6 Bit pattern of the object values

Options:	x of n
	1 of n

The levels can be switched in two different bit patterns:

Object values for the bit pattern "x off n"

	1 object	2 objects	3 objects	4 objects	5 objects
Level 0	0	00	000	0000	00000
Level 1	1	10	100	1000	10000
Level 2		11	110	1100	11000
Level 3			111	1110	11100
Level 4				1111	11110
Level 5					11111

Object values for the bit pattern "1 off n"

	1 object	2 objects	3 objects	4 objects	5 objects
Level 0	0	00	000	0000	00000
Level 1	1	10	100	1000	10000
Level 2		01	010	0100	01000
Level 3			001	0010	00100
Level 4				0001	00010
Level 5					00001

11.5.9 Application - 1-button multiple operation

The application is used to create from one up to five button operations. Different bit values can be sent for each single and multiple press of the button.

For every multiple operation an own communication object is available.

- "Sx: switching 1 actuation"
- "Sx: switching x actuations"

In each case, the application makes a separate set of parameters and communication objects available in function block x for both buttons. The second button of each function block can be occupied with an additional button function.



Note

The parameters for application "1-button multiple actuation" can be called up via **general parameters** and **extended parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.9.1 Number of objects or operations

Options:	Setting option from 1 to 5
----------	----------------------------

The parameter is used to set the number of communication objects or multiple operations available for one button.

One object: single operation

Two objects: single and double operation

Three objects: single, double and triple operation

Four objects: single, double, triple and quadruple operation

Five objects: single, double, triple, quadruple quintuple operation

11.5.9.2 Evaluation period

Options:	Setting option from 01.000 to 05.000 (ss.fff)
----------	---

The parameter is used to set the period for the multiple actuation of the button. This enables the user to switch several lamps at the same time. After the evaluation period has expired, all telegrams are sent parallel via the activated communication objects.

For the device to recognize a multiple operation, the button operation must be carried out within a defined time period (evaluation period). The time is started after the first actuation and continues for the set evaluation period. A typical value for the evaluation period is 3 seconds.

Example (five objects):

The five objects "Sx: switching x actuation(s)" are connected with five actuator channels. If all five channels are to be switched at the same time, the button must be pressed five times within the evaluation period.

11.5.9.3 Object type for object x

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

- 1 bit:
 - The value is sent as 1-bit switching commands (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
 - The value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
 - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
 - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
 - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.
- 4-byte float:
 - The value is sent as 4-byte floating point value, physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
 - The value is sent as 4-byte value with a sign (-2147483648 - +2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
 - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.

The set option fixes the bit size of communication objects "Sx: switching 1 operation" and "Sx: switching x operations" of a button or multiple operations independent from each other.

For every application or multiple operation a different bit size and thus a different function can be selected.

**Note**

The number of the adjustable parameters "Object type for object x" is dependent on the setting of parameter "Number of objects or operations".

11.5.9.4 Function for object type 1-bit for object x

Options:	Send value
	Alternating on/off

- Send value:
 - The value that is fixed via parameter "Value for object x" is sent when the button is pressed. This means that an On or Off telegram is sent.
- Alternating on/off:
 - "On" and "Off" are sent alternately at the press of the button.

The parameter is used to specify whether an On or an Off telegram is sent via 1-bit communication object "Sx: switching x actuation(s)" when the button is pressed.

A further option can be specified as to whether the switching telegrams are sent alternately. This means that after "On" is sent, "Off" is sent at a renewed press of the button. After it is pressed again, "On" is sent.

**Note**

The parameter can only be set if the "Object type for object x" parameter is set on "1 bit".

11.5.9.5 Value for object x

The possible options and setting limits depend on parameter "Object type for object x".

Options for selection "1 bit":

Options:	Off
	One

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

Options for selection "1 byte 0-255":

Options:	Setting option from 0 to 255
----------	------------------------------

Options for selection "2-byte float":

Options:	Setting option from -671088.64 to 670760.96
----------	---

Options for selection "2-byte signed":

Options:	Setting option from -32768 to +32767
----------	--------------------------------------

Options for selection "2-byte unsigned":

Options:	Setting option from 0 to 65535
----------	--------------------------------

Options for selection "4-byte float":

Options:	Setting option from -4000000 to 4000000
----------	---

Options for selection "4-byte signed":

Options:	Setting option from -2147483648 to 2147483647
----------	---

Options for selection "4-byte unsigned":

Options:	Setting option from 0 to 4294967295
----------	-------------------------------------

The parameter is used to set the value that is sent at a multiple operation of the button. For the single to five button actuations an own value can be set for each, depending on the number of disabled communication objects.

**Note**

The parameter can only be set if the "Object type for object x" parameter is set on "1 bit" and parameter "Function for object type 1-bit for object x" is set on "Send value".

11.5.10 Application - 1-button light scene extension unit with memory function

The application can be used to call up and save one of 64 possible light scenes with a press of the button.

The following communication object is available:

- "Sx: light scene number"

The fixed light scene is called up with a press of the button. A save command for the light scene can be sent with a long press of the same button.

In each case, the application makes a separate set of parameters and communication objects available in function block x for both buttons. The second button of each function block can be occupied with an additional button function.



Note

The parameters for application "1-button light scene extension unit with memory function" can be called up via **general parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.10.1 Duration of long operation

Options:	Setting option from 00.300 to 10.000 (ss.fff)
----------	---

The application can differentiate between a normal and a long press of the button. At a normal press of the button a 1-byte value is sent on the bus via communication object "Sx: light scene number". At a long press of the button a memory bit is sent in addition to the light scene number.

The parameter is used to specify the time after which a long button press is recognised. A typical value for a long press of the button is 5 seconds.

11.5.10.2 Light scene memory function

Options:	Deactivated
	Activated

- Deactivated:
 - A save command is not sent with the light scene call-up.
- Activated:
 - A save command is sent with the light scene call-up with a long press of the button.

A memory bit can be sent in addition to the light scene number via the parameter.

A memory bit is set within the 1-byte value of the light scene number. If a light scene module (e.g. Busch-ComfortTouch®) receives this 1-byte value, the module can identify the associated light scene and trigger a storage process. Read requests are sent to all connected actuators that answer with their current object values. The answers are saved by the light scene module and are sent out at every new receipt of the light scene number.

11.5.10.3 Number of light scene

Options:	Setting option from 1 to 64
----------	-----------------------------

The parameter is used to specify the light scene number which is sent via the 1-byte communication object "Sx: light scene number" at the press of the button.

The button serves exclusively as light scene extension unit, i.e. only the light scene number is called up via the button. 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 receives the light scene number and subsequently sends the stored light scene values consecutively to the connected actuators.

11.5.11 Application - 1-button operating mode "Adjust RTC"

The operating mode of linked room temperature controllers can be switched over via the application with a press of the button.

The following communication objects are available:

- "Sx: enable"
- "Sx: comfort operating mode"
- "Sx: Eco operating mode"
- "Sx: frost operating mode"

Object type "1-bit" serves for activating room temperature controllers that have the 1-bit objects for the switchover of the operating modes.

Object type "1 byte" serves for activating room temperature controllers that have a 1-byte object for the switchover of the KNX operating modes.

The following operating modes and object values can be set via the application:

- Auto (value "0")
- Comfort (value "1")
- Standby (value "2")
- Eco (value "3")
- Frost protection, heat protection (value "4")

The function can be temporarily blocked via 1-bit object "Sx: enable".

In each case, the application makes a separate set of parameters and communication objects available in function block x for both buttons. The second button of each function block can be occupied with an additional button function.

**Note**

The parameters for application "1-button operating mode "Adjust RTC"" can be called up via **general parameters** and **extended parameters**.

**Note**

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.11.1 Object type for output

Options:	1 bit
	1 byte

- 1 bit:
 - Object type for the control of RTC with 1-bit communication objects for operating mode switchover.
- 1 byte:
 - Object type for the control of RTC with 1-byte communication objects for KNX operating mode switchover.

The parameter is used to fix the size of object "Sx: operating mode...".

For setting "1 byte" the following values are sent dependent on the setting of the "Operating mode" parameter.

0 = auto

1 = comfort

2 = standby

3 = night

4 = frost/heat protection

11.5.11.2 Operating mode

The possible options depend on parameter "Object type for output".

Options for object type "1 bit":

Options:	Comfort
	Standby
	ECO
	Frost/heat protection

- Comfort:
 - Switching signal "On" is sent via the 1-bit object and a linked RTC switches over into comfort mode.
- Standby:
 - Switching signal "On" is sent via the 1-bit object and a linked RTC switches over into standby mode.
- ECO:
 - Switching signal "On" is sent via the 1-bit object and a linked RTC switches over into ECO mode.
- Frost/heat protection:
 - Switching signal "On" is sent via the 1-bit object and a linked RTC switches over into frost/heat protection mode.

The parameter is used to specify the operating mode which is sent via communication object "Sx: operating mode" at the press of the button.

Options for object type "1 byte":

Options:	Auto
	Comfort
	Standby
	ECO
	Frost/heat protection

- Auto:
 - Value "0" is sent via the 1-byte object. At each press of the button a linked RTC switches over between operating modes "Comfort", "Standby" and "ECO". When forced guidance is activated, selection "Auto" is used to switch over to the standard operating mode object.
- Comfort:
 - Value "1" is sent via the 1-byte object and a linked RTC switches over into comfort mode.
- Standby:
 - Value "2" is sent via the 1-byte object and a linked RTC switches over into standby mode.
- ECO:
 - Value "3" is sent via the 1-byte object and a linked RTC switches over into ECO mode.
- Frost/heat protection:
 - Value "4" is sent via the 1-byte object and a linked RTC switches over into frost/heat protection mode.

The parameter is used to specify the operating mode which is sent via communication object "Sx: operating mode" at the press of the button.

11.5.11.3 Enable object

Options:	Deactivated
	Activated

- Deactivated:
 - Communication object "Sx: enable" is not enabled. Local switchover of operating modes via the device button is always possible and cannot be blocked temporarily.
- Activated:
 - Communication object "Sx: enable" is enabled. Local switchover of operating modes via the device button can be blocked temporarily.
 - If an On telegram (value "1") is received via the enabled object, local switchover of operating modes is possible.
 - If an Off telegram (value "0") is received via the enabled object, local switchover of operating modes is blocked. This means that no telegram is sent via output object "Sx: operating mode ...".

**Note**

If the "Enable object" parameter is activated, the following parameters can be set:

- "Object value enable object"
- "Enable object after return of voltage"

11.5.11.4 Object value enable object

Options:	Normal
	Inverse

- Normal:
 - If an On telegram (value "1") is received via communication object "Sx: enable", local switchover of operating modes is possible. An Off telegram (value "0") deactivates the function and no telegrams are sent on object "Sx: operating mode...".
- Inverse:
 - If an Off telegram (value "0") is received via communication object "Sx: enable", local switchover of operating modes is possible. An On telegram (value "1") deactivates the function and no telegrams are sent on object "Sx: operating modes ..."

The parameter is used to specify whether application "Set 1-button operating mode "RTC"" is blocked temporarily at the receipt of an On or Off telegram.

**Note**

This parameter can only be set if the "Enable object" parameter is set on "activated".

11.5.11.5 Enable object after return of voltage

Options:	Blocked
	Enabled

- Blocked:
 - Object "Sx: enable" is not activated at bus voltage recovery. The blocking function is deactivated.
- Enabled:
 - If object "Sx: enable" was activated prior to bus voltage recovery, it will also be activated after bus voltage recovery.

The parameter serves to ensure that a defined value is present on communication object "GF1: enable" after a return of bus voltage.

**Note**

This parameter can only be set if the "Enable object" parameter is set on "activated".

11.5.11.6 Send comfort object

Options:	Deactivated
	Activated

- Deactivated:
 - No telegram is sent via object "Sx: comfort operating mode" at the press of the operating mode switchover button.
- Activated:
 - A telegram is sent via object "Sx: comfort operating mode" at the press of the operating mode switchover button.
 - The telegram that is sent, always has the inverted value of the value sent last. This means that "0" or "1" is sent (toggle mode) alternately via object "Sx: comfort operating mode" at each press of the button.

The parameter is used to specify whether a telegram is sent on the bus via the 1-bit communication object "Sx: comfort operating mode" when the operating mode switchover button is pressed. This may be necessary for switching the linked room temperature controller (RTC) into a defined operating mode.

**Note**

The parameter can only be set if the "Object type for output" parameter is set on "1 bit" and the "Operating mode" parameter is set on "Comfort", "Standby" or "ECO".

11.5.11.7 Send Eco object

Options:	Deactivated
	Activated

- Deactivated:
 - No telegram is sent via object "Sx: Eco operating mode" at the press of the operating mode switchover button.
- Activated:
 - A telegram is sent via object "Sx: Eco operating mode" at the press of the operating mode switchover button.
 - The telegram that is sent, always has the inverted value of the value sent last. This means that "0" or "1" is sent (toggle mode) alternately via object "Sx: comfort operating mode" at each press of the button.

The parameter is used to specify whether a telegram is sent on the bus via the 1-bit communication object "Sx: Eco operating mode" when the operating mode switchover button is pressed. This may be necessary for switching the linked room temperature controller (RTC) into a defined operating mode.

**Note**

The parameter can only be set if the "Object type for output" parameter is set on "1 bit" and the "Operating mode" parameter is set on "Standby" or "ECO".

11.5.11.8 Send frost object

Options:	Deactivated
	Activated

- Deactivated:
 - No telegram is sent via object "Sx: frost operating mode" at the press of the operating mode switchover button.
- Activated:
 - A telegram is sent via object "Sx: frost operating mode" at the press of the operating mode switchover button.
 - The telegram that is sent, always has the inverted value of the value sent last. This means that "0" or "1" is sent (toggle mode) alternately via object "Sx: frost operating mode" at each press of the button.

The parameter is used to specify whether a telegram is sent on the bus via the 1-bit communication object "Sx: frost operating mode" when the operating mode switchover button is pressed. This may be necessary for switching the linked room temperature controller (RTC) into a defined operating mode.

**Note**

The parameter can only be set if the "Object type for output" parameter is set on "1 bit" and the "Operating mode" parameter is set on "Comfort", "Standby" or "ECO".

11.5.12 Application - 2-button switching

The application makes it possible to switch a light via a button pair.

The following communication object is available:

- "Sx: switching"

At the press of one of the two buttons a switching command is sent via the same communication object. The application distinguishes whether the first or second button is pressed.

The application makes a joint set of parameters and communication objects available in function block x for both buttons.



Note

The parameters for application "2-button switching" can be called up via **general parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.12.1 Working mode of the buttons for switching

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

- 1st Button on / 2nd button off:
 - When the first button is pressed the "On" command is sent and the "Off" command when the second button is pressed.
- 1st Button off / 2nd button on:
 - When the first button is pressed the "Off" command is sent and the "On" command when the second button is pressed.
- Alternating on/off:
 - "On" and "Off" are sent alternately at the press of the first or second button.

The parameter is used to specify, for example, whether a light is switched on or off with the first and second button.

A further option can be specified as to whether the switching commands are sent alternately, independent from the button pressed. This means that after "On" is sent, "Off" is sent at a renewed press of one of the two buttons. After one of the two buttons is pressed again, "On" is sent again.

This also applies for values that are received via the associated 1-bit communication object "Sx: switching". This means that when an Off command is received after an On command was sent via object "Sx: switching", an On command is sent after the button is pressed again. It must be ensured here that the S-flag (writing) of the communication object is activated.

11.5.13 Application - 2-button dimming

The application makes it possible to dim and switch a light via a button pair.

The following communication objects are available:

- "Sx: switching"
- "Sx: relative dimming"

The button pair has a joint switching and dimming object. The application is used to specify which of the two buttons triggers a switching telegram or a dimming telegram. The first button, for example, can be used to dim a lamp and the second button to switch it on or off.

It can also be specified whether the light is dimmed with a short or long press of the button.

The application makes a joint set of parameters and communication objects available in function block x for both buttons.



Note

The parameters for application "2-button dimming" can be called up via **general parameters** and **extended parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.13.1 Duration of long operation

Options:	Setting option from 00.300 to 03.000 (ss.fff)
----------	---

The application can differentiate between a short and a long press of the button and thus trigger a dimming or switching signal.

The parameter is used to specify the time from which a long press of the button is recognised and the object values are reset. A typical value for a long press of the button is 0.4 seconds.

11.5.13.2 Manner of dimming

Options:	Start-stop dimming
	Step-wise dimming

- Start-stop dimming:
 - At the press of a button the command "dim brighter" or "dim darker" is sent. When the button is released, the command "Stop dimming" is sent.
- Step-wise dimming:
 - A defined value, e.g. "Dim brighter by 6.25%" is always sent out for triggering of a dimming command.

The parameter is used to specify the way a light is dimmed with a press of a button.

For "Start-Stop dimming" two 3-bit telegrams for dimming are sent. At a press of the button the first telegram with the command "Dim 100% brighter" or "Dim 100% darker" is sent to the linked dimming actuator. When the button is released, the second telegram with the command "Stop dimming" is sent. Hence, a connected dimming actuator can be halted at any time during the dimming phase.

For step-wise dimming, a defined value, e.g. "Dim brighter by 6.25%", is sent to the linked dimming actuator after triggering a dimming command. This type of dimming is especially suitable for systems in which dimming sensors and dimming actuators are installed in different lines. In this case couplers could cause a delay in telegrams, which could lead to different brightness values.

11.5.13.3 Step size for step-wise dimming (%)

Options:	1.56
	3.13
	6.25
	12.5
	25
	50

The parameter is used to specify how many percent per step the light is dimmed. The value sent, always relates to the current brightness value.

Example (setting 12.5%):

The light is dimmed to a brightness value of 70%. With a press of the button the command "Dim brighter by 12.5%" is sent. After receiving the dimming command, the dimming actuator increases the brightness value to 82.5%.

**Note**

If step-wise dimming is used to evenly dim multiple dimming actuators in different lines, a low step size should be selected, e.g. 3.13%. At the same time the cyclical sending of the dimming telegrams should be activated. This ensures that dimming telegrams are sent continuously as long as the button is pressed.

**Note**

The parameter is only adjustable if the "Dimming mode" parameter is set on "Step-wise dimming".

11.5.13.4 Dimming function

Options:	Short operation dimming, long operation switching
	Short operation switching, long operation dimming

- Short operation dimming, long operation switching:
 - The "dimming" telegram is sent at a short press of the button. The "switching" telegram is sent at a long press of the button.
- Short operation switching, long operation dimming:
 - The "switching" telegram is sent at a short press of the button. The "dimming" telegram is sent at a long press of the button.

The application can differentiate between a short and a long press of the button.

The parameter is used to specify whether a switching telegram or a dimming telegram is sent on the bus at a short or long press of the button.

The time for a long press of the button is set via parameter "Time for long operation".

**Note**

The parameter is only adjustable if the "Dimming mode" parameter is set on "Step-wise dimming".

11.5.13.5 Working mode of the buttons for switching

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

- 1st Button on / 2nd button off:
 - When the first button is pressed the "On" command is sent and the "Off" command when the second button is pressed.
- 1st Button off / 2nd button on:
 - When the first button is pressed the "Off" command is sent and the "On" command when the second button is pressed.
- Alternating on/off:
 - "On" and "Off" are sent alternately at the press of the first or second button.

The parameter is used to specify, for example, whether a light is switched on or off with the first and second button.

A further option can be specified as to whether the switching commands are sent alternately, independent from the button pressed. This means that after "On" is sent, "Off" is sent at a renewed press of one the two buttons. After one of the two buttons is pressed again, "On" is sent again.

This also applies for values that are received via the associated 1-bit communication object "Sx: switching". This means that when an Off command is received after an On command was sent via object "Sx: switching", an On command is sent after the button is pressed again. It must be ensured here that the S-flag (writing) of the communication object is activated.

11.5.13.6 Working mode of the buttons for dimming

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

- First button brighter / 2nd button darker:
 - When the first button is pressed the "dim brighter" command is sent and the "dim darker" command when the second button is pressed.
- First button darker / 2nd button brighter:
 - When the first button is pressed the "dim darker" command is sent and the "dim brighter" command when the second button is pressed.

The parameter is used to specify whether the light is dimmed brighter or darker with the first and second button.

At the press of a button a telegram is sent to the dimming actuator via the 3-bit communication object "Sx: relative dimming".

11.5.13.7 Dimming stop telegram

Options:	Dimming stop is not sent
	Dimming stop is sent

- Dimming stop is not sent:
 - When the button is released, no "Stop dimming" command is sent.
- Dimming stop is sent:
 - When the button is released, the command "Stop dimming" is sent.

The parameter is used to specify whether the "Stop dimming" command is sent when the button is released after a long press. Hence, a connected dimming actuator can be halted at any time during the dimming phase.

**Note**

This parameter is only adjustable if parameter "Manner of dimming" is set on "Step-wise dimming" and parameter "Dimming function" is set on "Short operation switching, long operation dimming".

11.5.13.8 Cyclic sending of the dimming telegrams

Options:	Deactivated
	Activated

- Deactivated:
 - No dimming telegrams are sent cyclic as long as the button is pressed.
- Activated:
 - Telegrams are sent cyclic as long as the button is pressed.

The parameter is used to specify whether dimming telegrams are sent cyclic on the bus via 3-bit communication object "S1: relative dimming" as long as the button is pressed.

After releasing the button, the cyclic sending of the dimming telegrams is stopped. The cycle time is specified via the "Duration of the telegram repetition" parameter.

**Note**

This parameter is only adjustable if parameter "Manner of dimming" is set on "Step-wise dimming" and parameter "Dimming function" is set on "Short operation switching, long operation dimming".

11.5.13.9 Duration of telegram repetition

Options:	Setting option from 00.100 to 05.000 (ss.fff)
----------	---

Telegrams are sent cyclic to the dimming actuator via communication object "Sx: relative dimming" as long as the button is pressed.

The parameter is used to set time intervals between the telegrams. The default setting is 1 second.

**Note**

The parameter is available only via the following settings:

- Parameter "Manner of dimming" is set on "Step-wise dimming".
and
- Parameter "Dimming function" is set on "Short operation switching, long operation dimming".
and
- Parameter "Cyclic sending of dimming telegrams" is set on "activated".

11.5.14 Application - 2-button blind

The application makes it possible to control blinds and roller blinds via a button pair.

The following communication objects are available:

- "Sx: moving" (1-bit object)
- "Sx: adjusting" (1-bit object)
- "Sx: position" (1-byte object)
- "Sx: slats" (1-byte object)

The application is used to specify whether the first or second button triggers the "Up" or "Down" movement command. Also Up and Down positions as well as slat position can be preset.

Movement and slat adjustment commands are sent to linked blind actuators with long and short button operations. A long press of the button triggers a move command. A short press of the button triggers a command to adjust the slats.

The sensor stores the last command carried out with the button that is occupied with the application. This means, for example, if a blind was lowered and halted at half height via a short press of the button, then a renewed long press of the button will raise the blind.

The application makes a joint set of parameters and communication objects available in function block x for both buttons.

**Note**

The parameters for application "2-button blind" can be called up via **general parameters** and **extended parameters**.

**Note**

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.14.1 Duration of long operation

Options:	Setting option from 00.300 to 03.000 (ss.fff)
----------	---

The application can differentiate between a short and a long press of the button. At a short press of the button a telegram with the command "Move/position blind" is sent on the bus. At a long press of the button a telegram with the command "Adjust/position slats" is sent.

The parameter is used to specify the time after which a long button press is recognised. A telegram is sent on the bus via communication object "Sx: adjust" or "Sx: slat position" only after this time has expired. A typical value for a long press of the button is 0.4 seconds.

**Note**

The command "Adjust/position blind" is sent immediately after the press of the button. The command is also sent if the button is pressed long and a "Adjust/position slats" command is sent due to the long operation. This causes a short jerking of the blind since the first slats adjustment command is always interpreted by a blind actuator as a stop command.

11.5.14.2 Object type

Options:	1 bit
	1 byte 0 - 100%

- 1 bit:
 - The value is sent as 1-bit switching commands (up/down or adjustment).
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (position in percent).

The parameter is used to set the size of communication objects for the control of blinds. For selection "1 bit", objects "Sx: moving" and "Sx: adjusting" are available. For selection "1 byte 0-100%", objects "Sx: position" and "Lx: slat position" are available.

If option "1 byte 0-100%" is selected, communication objects can be connected with 1-byte position objects of the blind actuators. Also desired positions of the blind can be preset under **Extended parameters**.

Example: Button 1 always moves the blind down to 50%, with the slats closed at 50%. Button 1 always moves the blind down to 80%, with the slats closed at 100%.

11.5.14.3 Working mode of the buttons

Options:	1st button Up / 2nd button Down
	1st button Down / 2nd button Up

- 1st button Up / 2nd button Down:
 - When the first button is pressed the "Up" command is sent and the "Down" command when the second button is pressed.
- 1st button Down / 2nd button Up:
 - When the first button is pressed the "Down" command is sent and the "Up" command when the second button is pressed.

The parameter is used to specify whether the first or second button triggers the "Up" or "Down" movement command.

11.5.14.4 Value for position down (%)

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

The parameter is used to set the position to which a linked blind is to be lowered. The associated 1-byte communication object "Sx: position" must hereby be connected with a 1-byte position object of the blind actuator.

Percentage values can be set in steps of 1%. Meaning of the percentage values:

- 0% = blind completely raised.
- 100% = blind completely lowered.

**Note**

The parameter is only adjustable if the "object type" parameter is set to "1 byte 0 - 100%".

11.5.14.5 Value for position up (%)

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

The parameter is used to set the position to which a linked blind is to be raised. The associated 1-byte communication object "Sx: position" must hereby be connected with a 1-byte position object of the blind actuator.

Percentage values can be set in steps of 1%. Meaning of the percentage values:

- 0% = blind completely raised.
- 100% = blind completely lowered.

**Note**

The parameter is only adjustable if the "object type" parameter is set to "1 byte 0 - 100%".

11.5.14.6 Value for slats position down (%)

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

The parameter is used to set the position to which the slats of the linked blind are to open. The associated 1-byte "Sx: slat position" communication object must hereby be connected with the 1-byte slat position object of the blind actuator.

Percentage values can be set in steps of 1%. Meaning of the percentage values:

- 0 % = slats completely open.
- 100 % = slats completely closed.

**Note**

The parameter is only adjustable if the "object type" parameter is set to "1 byte 0 - 100%".

11.5.14.7 Value for slats position down (%)

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

The parameter is used to set the position to which the slats of the linked blind are to close. The associated 1-byte "Sx: slat position" communication object must hereby be connected with the 1-byte slat position object of the blind actuator.

Percentage values can be set in steps of 1%. Meaning of the percentage values:

- 0 % = slats completely open.
- 100 % = slats completely closed.

**Note**

The parameter is only adjustable if the "object type" parameter is set to "1 byte 0 - 100%".

11.5.15 Application - 2-button value transmitter

The application makes it possible to send preset values with a button pair via a joint communication object.

The following communication object is available:

- "Sx: switching value"

A telegram with value 1 is sent with the press of the first button. A telegram with value 2 is sent with the second button. Both values have the same bit size and are sent on the bus via the "Sx: switching value" communication object. The bit size is specified via the "Object type" parameter.

The application makes a joint set of parameters and communication objects available in function block x for both buttons.



Note

The parameters for application "2-button value transmitter" can be called up via **general parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.15.1 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

- 1 bit:
 - The value is sent as 1-bit switching commands (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
 - Value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
 - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
 - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
 - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.
- 4-byte float:
 - The value is sent as 4-byte floating point value, physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
 - The value is sent as 4-byte value with a sign (-2147483648 - +2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
 - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.

The set option fixes the bit size of communication object "Sx: switching value" (input/output) for a button pair.

11.5.15.2 Working mode of the buttons

Options:	1st button value 1 / 2nd button value 2
	1st button value 2 / 2nd button value 1
	Alternating value1/value2

- 1st button value 1 / 2nd button value 2:
 - When the first button is pressed the value 1 is sent and value 2 when the second button is pressed.
- 1st button value 2 / 2nd button value 1:
 - When the first button is pressed the value 2 is sent and value 1 when the second button is pressed.
- Alternating value 1/value 2:
 - "Value 1" and "Value 2" are sent alternately at the press of the first or second button.

The parameter is used to specify the value that is sent on the bus via communication object "Sx: switching" at a press of the first or second button.

A further option can be specified as to whether the values are sent alternately, independent from the button pressed. This means that after value 1 is sent, value 2 is sent at a renewed press of one the two buttons. After one of the two buttons is pressed again, value 1 is sent again.

This also applies for values that are received via the associated communication object "Sx: switching value". This means that when value 2 is received via object "Sx: switching value" after value 1 is sent, value 1 is sent again after the button is pressed. It must be ensured here that the S-flag (writing) of the communication object is activated.

11.5.15.3 Value 1/Value 2

The possible options and setting limits depend on parameter "Object type".

Options for selection "1 bit":

Options:	Off
	One

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

Options for selection "1 byte 0-255":

Options:	Setting option from 0 to 255
----------	------------------------------

Options for selection "2-byte float":

Options:	Setting option from -671088.64 to 670760.96
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Options for selection "2-byte signed":

Options:	Setting option from -32768 to +32767
----------	--------------------------------------

Options for selection "2-byte unsigned":

Options:	Setting option from 0 to 65535
----------	--------------------------------

Options for selection "4-byte float":

Options:	Setting option from -4000000 to 4000000
----------	---

Options for selection "4-byte signed":

Options:	Setting option from -2147483648 to 2147483647
----------	---

Options for selection "4-byte unsigned":

Options:	Setting option from 0 to 4294967295
----------	-------------------------------------

The parameter is used to set value 1 or value 2 that is sent at a press of one of the two buttons of the function block.

11.5.16 Application - 2-button value dimming sensor

The application makes it possible to dim the light brighter and darker via a button pair.

The following communication object is available:

- "Sx: value":

The parameter is used to specify whether the light is dimmed brighter or darker with the first and second button.

At the press of a button a value telegram is sent to the linked dimming actuator via the 1-bit communication object "Sx: value". The bit size is specified jointly for both buttons via the "Object type" parameter.

The application makes a joint set of parameters and communication objects available in function block x for both buttons.



Note

The parameters for application "2-button value dimming sensor" can be called up via **general parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.16.1 Object type

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

- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value). The current dimming value is raised or lowered by a fixed percentage value at each press of the button.
- 1 byte 0 - 255:
 - The value is sent as 1-byte value without a sign. The current dimming value is raised or lowered by a fixed absolute value at each press of the button.

The set option fixes the bit size of communication object "Sx: value" (input/output) for a button pair.

The size of the percentage or absolute value is fixed via parameter "Step size".

11.5.16.2 Step size (%)

The possible options and setting limits depend on parameter "Object type".

Options for selection "1 byte 0-100%":

Options:	Setting option from 1 to 50 (%)
----------	---------------------------------

Options for selection "1 byte 0-255":

Options:	Setting option from 1 to 128
----------	------------------------------

The parameter is used to specify the value the light is dimmed per step. The value sent, always relates to the current brightness value.

Selection of object type "1 byte 0-100%". The current value is raised or lowered by the set percentage value with a press of a button.

Example: The current value of the dimming actuator is 40%.

If the parameter is set on step size "10", the current value is raised from 40% to 50% or lowered to 30% with a press of the button.

Selection of object type "1 byte 0-255": The current value is raised or lowered by the set absolute value with a press of a button.

Example: The current value of the dimming actuator is 100.

If the parameter is set on step size "20", the current value is raised from 100 to 120 or lowered to 80 with a press of the button.

11.5.16.3 Working mode of the buttons

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

- First button brighter / 2nd button darker:
 - When the first button is pressed the "dim brighter" command is sent and the "dim darker" command when the second button is pressed.
- First button darker / 2nd button brighter:
 - When the first button is pressed the "dim darker" command is sent and the "dim brighter" command when the second button is pressed.

The parameter is used to specify whether the light is dimmed brighter or darker with the first and second button.

At the press of a button the value set via the "Step size" parameter is sent to the dimming actuator via the 1-bit communication object "Sx: value".

11.5.17 Application - 2-button step switch

Up to five switching levels can be activated for a button pair via the application. One button is used to switch the steps up and the other button to switch them down.

The following communication object is available:

- "Sx: switching level x"

The application makes step-type switching of the room lighting possible. A different switching process is triggered with each new press of the programmed button.

The application differentiates whether the first or second button of a function block is pressed. Depending on the setting, one lower or one higher level can be switched to.

Example (1st button up, 2nd button down):

[1st button – 1st press – 1st step] = switches lamp 1 on.

[1st button – 2nd press – 2nd step] = switches lamp 1 off and lamp 2 on.

[1st button – 3rd press – 3rd step] = switches lamp 2 off and lamp 3 on.

[2nd button – 1st press – 2nd step] = switches lamp 3 off and lamp 2 on.

[2nd button – 2nd press – 1st step] = switches lamp 2 off and lamp 1 on.

The application makes a joint set of parameters and communication objects available in function block x for both buttons.



Note

The parameters for application "2-button step switch" can be called up via **general parameters** and **extended parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.17.1 Number of objects

Options:	Setting option from 1 to 5
----------	----------------------------

The parameter is used to set the number of communication objects or switching step of a button.

For every level, its own 1-bit communication object "Sx: switching step x" is available.

11.5.17.2 Evaluation period

Options:	Setting option from 01.000 to 05.000 (ss.fff)
----------	---

Room lighting can be switched step-wise via a button.

To be able send a switching telegram after each actuation, the device requires a defined time period (evaluation period) to decide whether the telegram is to be sent.

For example:

The button is pressed three times. If no further actuation is made within the set evaluation period, the value for step 3 is sent.

11.5.17.3 Working mode of the buttons

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

- 1st button down / 2nd button up:
 - When the first button is pressed the "Step down" command is sent and the "Step up" command when the second button is pressed.
- 1st button up / 2nd button down:
 - When the first button is pressed the "Step up" command is sent and the "Step down" command when the second button is pressed.

The parameter is used to specify whether the first or second button triggers the switching command "Step up" or "Step down".

11.5.17.4 Sending of objects

Options:	For operation
	For change of value

- For operation:
 - Telegram are sent at each press of the button.
- For change of value
 - Telegrams are only sent at a change of the object value.

The parameter is used to specify whether the object values for every button operation are sent out on the bus or only if the object values have changed since they were sent last.

11.5.17.5 Object values

Options:	Normal
	Inverse

- Normal:
 - Values of the individual switching levels are not sent inverted.
- Inverse:
 - Values of the individual switching levels are sent inverted.

The parameter is used to specify whether values of the 1-bit communication objects "Sx: switching step x" are sent normal or inverted.

Example (five objects, x of n):

The object value "10000" is sent inverted as object value "01111".

11.5.17.6 Bit pattern of the object values

Options:	x of n
	1 of n

The levels can be switched in two different bit patterns:

Object values for the bit pattern "x off n"

	1 object	2 objects	3 objects	4 objects	5 objects
Level 0	0	00	000	0000	00000
Level 1	1	10	100	1000	10000
Level 2		11	110	1100	11000
Level 3			111	1110	11100
Level 4				1111	11110
Level 5					11111

Object values for the bit pattern "1 off n"

	1 object	2 objects	3 objects	4 objects	5 objects
Level 0	0	00	000	0000	00000
Level 1	1	10	100	1000	10000
Level 2		01	010	0100	01000
Level 3			001	0010	00100
Level 4				0001	00010
Level 5					00001

11.5.18 Application - LED function

The application can be used to configure the button LEDs for the status or function display.

The following communication objects are available:

- "Lx: Status LED"
- "Lx: Day/night mode"
- "Lx: Alarm"
- "Lx: Scene storage"

The LED of button x can light up with two different colours and brightness levels. The LED can also flash for alarm display and/or scene storage display.

In each case, the application makes a separate set of parameters and communication objects available in function block x for both LEDs. The second button of each function block can be occupied with an additional button function.



Note

The parameters for application "LED function" can be called up in each function block via **general parameters** and **extended parameters**.



Note

The number (S1 - Sx) of the object depends on the function block and the button number.

11.5.18.1 Operating mode

Options:	Status illumination
	Function illumination

- Status illumination:
 - The LED displays the device status with different colours.
- Function illumination:
 - The LED displays the device functions with different colours.

The parameter is used to specify whether the LED displays the current device status or the selected device function with a colour.

If the operating mode "Status illumination" is selected, the LED has the 1-bit or 1-byte communication object "Lx: status LED". If a telegram is received via the status object, the LED lights up in the colour of the received value.

If operating mode "Function illumination" is selected, the colour for the configured button function (e.g. light, blind or scene) can be firmly set via parameter "Colour of function illumination".

11.5.18.2 Object type for status object

Options:	1 bit
	1 byte 0 - 100%

- 1 bit:
 - The value is sent as 1-bit switching commands (On/Off) and the LED lights up in the colour for On or Off.
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value (percent) and the LED lights up in the colour for the associated zone (1 - 5).

The parameter is used to set the size of communication objects for the colour of the LED.

For selection "1 bit", the 1-bit object "Sx: status LED" is available. If an On telegram is received via the object, the LED lights up in the colour that is stored in the "Colour for On" parameter. If an OFF telegram is received via the object, the LED lights up in the colour that is stored in the "Colour for Off" parameter. The LED can also be switched off.

For selection "1 byte 0-100%", the 1-byte object "Sx: status LED" is available. If a value telegram is received via the object, the LED lights up in the colour that is set in the "Colour for zone" parameter. The LED can also be switched off for each zone.

The five adjustable zones have the following behaviour:

- Zone 1: 0%
- Zone 2: $1\% \leq \text{value} < S1$
- Zone 3: $S1 \leq \text{value} < S2$
- Zone 4: $S2 \leq \text{value} \leq 99\%$
- Zone 5: 100%

The threshold value for S1 is set via the parameter "Threshold between Zone 2 and 3" (%).

The threshold value for S2 is set via the parameter "Threshold between Zone 3 and 4" (%).

**Note**

The parameter is only adjustable if the "Operating mode" parameter is set on "Status illumination".

11.5.18.3 Brightness of the colours

Options:	Dark
	Bright

- Dark:
 - The LED lights up with minimal brightness.
- Bright:
 - The LED lights up with high brightness.

The parameter is used to specify whether the LED lights up continuously dark or bright. No distinction is made between day or night.

**Note**

The parameter is only adjustable if the "Day/night mode" parameter is set on "deactivated".

11.5.18.4 Colour for Off

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

- Off:
 - The button LEDs are switched off.
- Yellow - white:
 - The button LEDs light up in the fixed colour at switching signal "Off".

The parameter is used to specify the colour the button LED lights up in when the device receives an Off telegram via the 1-bit communication object "Lx: status LED". The default setting is "green".

**Note**

The parameter can only be set if the "Operating mode" parameter and is set on "Status illumination" and the "Object type for status object" parameter is set on "1 bit".

11.5.18.5 Colour for On

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

- Off:
 - The LED is switched off.
- Yellow - white:
 - The LED lights up in the fixed colour at switching signal "On".

The parameter is used to specify the colour the button LED lights up in when the device receives an On telegram via the 1-bit communication object "Lx: status LED". The default setting is "red".

**Note**

The parameter can only be set if the "Operating mode" parameter and is set on "Status illumination" and the "Object type for status object" parameter is set on "1 bit".

11.5.18.6 Colour for Zone 1 (corresponds to 0%)

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

- Off:
 - The LED is switched off.
- Yellow - white:
 - The LED lights up in the fixed colour at value telegrams for zone 1.

The parameter is used to specify the colour the LED lights up in when a telegram with value "0%" is received via the 1-byte communication object "Lx: status LED". The default setting is "green".

**Note**

The parameter can only be set if the "Operating mode" parameter and is set on "Status illumination" and the "Object type for status object" parameter is set on "1 byte 0-100%".

11.5.18.7 Colour for Zone 2 (starting at 1%)

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

- Off:
 - The LED is switched off.
- Yellow - white:
 - The LED lights up in the fixed colour at value telegrams for zone 2.

The parameter is used to specify the colour the LED lights up in when a telegram with a value is received via the 1-byte communication object "Lx: status LED", which meets the following conditions:

- Value is $\geq 1\%$ and
- Value is $< S1$.

The default setting is "yellow".

The threshold value S1 is set via the parameter "Threshold between Zone 2 and 3" (%).

**Note**

The parameter can only be set if the "Operating mode" parameter and is set on "Status illumination" and the "Object type for status object" parameter is set on "1 byte 0-100%".

11.5.18.8 Threshold between Zone 2 and 3 (%)

Options:	Setting option from 1 to 98
----------	-----------------------------

The parameter is used to set the threshold value (S1) between Zone 2 and 3.

If the value received is $< S1$ and $\geq 1\%$, the LED lights up in the colour for zone 2.

If the value received is $\geq S1$ and $< S2$, the LED lights up in the colour for zone 3.

**Note**

The parameter can only be set if the "Operating mode" parameter and is set on "Status illumination" and the "Object type for status object" parameter is set on "1 byte 0-100%".

11.5.18.9 Colour for Zone 3

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

- Off:
 - The LED is switched off.
- Yellow - white:
 - The LED lights up in the fixed colour at value telegrams for zone 3.

The parameter is used to specify the colour the LED lights up in when a telegram with a value is received via the 1-byte communication object "Lx: status LED", which meets the following conditions:

- Value is $\geq S1$ and
- Value is $< S2$.

The default setting is "white".

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

**Note**

The parameter can only be set if the "Operating mode" parameter and is set on "Status illumination" and the "Object type for status object" parameter is set on "1 byte 0-100%".

11.5.18.10 Threshold between Zone 3 and 4 (%)

Options:	Setting option from 2 to 99
----------	-----------------------------

The parameter is used to set the threshold value (S2) between Zone 3 and 4.

If the value received is $\geq S1$ and $< S2$, the LED lights up in the colour for zone 3.

If the value received is $\geq S2$ and $\leq 99\%$, the LED lights up in the colour for zone 4.

**Note**

The parameter can only be set if the "Operating mode" parameter and is set on "Status illumination" and the "Object type for status object" parameter is set on "1 byte 0-100%".

11.5.18.11 Colour for Zone 4 (up to 99%)

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

- Off:
 - The LED is switched off.
- Yellow - white:
 - The LED lights up in the fixed colour at value telegrams for zone 4.

The parameter is used to specify the colour the LED lights up in when a telegram with a value is received via the 1-byte communication object "Lx: status LED", which meets the following conditions:

- Value is $\geq S2$ and
- Value is $\leq 99\%$.

The default setting is "red-orange".

The threshold value S2 is set via the parameter "Threshold between Zone 3 and 4" (%).

**Note**

The parameter can only be set if the "Operating mode" parameter and is set on "Status illumination" and the "Object type for status object" parameter is set on "1 byte 0-100%".

11.5.18.12 Colour for Zone 5 (corresponds to 100%)

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

- Off:
 - The LED is switched off.
- Yellow - white:
 - The LED lights up in the fixed colour at value telegrams for zone 5.

The parameter is used to specify the colour the LED lights up in when a telegram with value "100%" is received via the 1-byte communication object "Lx: status LED". The default setting is "red".

**Note**

The parameter can only be set if the "Operating mode" parameter and is set on "Status illumination" and the "Object type for status object" parameter is set on "1 byte 0-100%".

11.5.18.13 Colour of function illumination

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

- Off:
 - The LED is switched off.
- Yellow - white:
 - The LED lights up in the selected colour.

The parameter is used to specify the colour the associated function icon of the device lights up in.

The LED additionally serves for orientation, this means that the buttons can be recognized in the dark. Alternatively, the LED can also be switched off, such as when the device is in a sleeping area.

**Note**

The parameter is only adjustable if the "Operating mode" parameter is set on "Function illumination".

11.5.18.14 Day/Night mode

Options:	Deactivated
	Activated

- Deactivated:
 - Communication object "Lx: day/night mode" is not enabled.
- Activated:
 - Communication object "Lx: day/night mode" is enabled.
 - If a telegram with value "1" is received via the object, the LED lights up brightly. If a telegram with value "0" is received, the LED lights up dark.

The LED of the button can light up with two different brightness levels. The parameter is used to specify whether the LED can be switched over between bright and dark.

Additional function: If the "Operating mode" parameter is set on "Status illumination", the "Lx: day/night mode" communication object can also be used for the status display.

Example: The button is assigned with the application "1-button switching" and connected with a switching actuator that switches a lamp group. The LED of the button is set on "Status illumination" and a colour. If the "Lx: day/night mode" object is additionally connected with the status response object of the switching actuator via a group address or action and the light is switched on, the LED lights up bright. When the light is switched off, the LED lights up dark.

**Note**

The parameter is available via the following settings:

- The parameter is set on "Status illumination" and
- Parameter "Object type for status object" is set on "1 bit" and
- Parameter "Colour for Off" is set on a colour and not on "Off" or
- Parameter "Colour for On" is set on a colour and not on "Off".

The parameter is available also via the following settings:

- The parameter is set on "Status illumination" and
- Parameter "Object type for status object" is set on "1 byte 0-100%" and
- At least one parameter "Colour for zone x" is set on a colour and not on "Off".

The parameter is available also via the following settings:

- The "Operating mode" parameter is set on "Function illumination" and
- Parameter "Colour for function illumination" is set on a colour and not on "Off".

11.5.18.15 Light scene memory function

Options:	Deactivated
	Activated

- Deactivated:
 - Communication object "Lx: scene storage" is not enabled.
- Activated:
 - Communication object "Lx: scene storage" is enabled.

The 1-byte communication object "Lx: scene storage" can be enabled with this parameter. And it is specified whether the LED of the button flashes for three seconds and lights continuously when a telegram for scene storage is received via the enabled object.

The LED flashes in the colour that is set for the status or function illumination. If object "Lx: Day/night mode" is enabled, the LED flashes either bright or dark.

**Note**

The parameter is available via the following settings:

- The parameter is set on "Status illumination" and
- Parameter "Object type for status object" is set on "1 bit" and
- Parameter "Colour for Off" is set on a colour and not on "Off" and
- Parameter "Colour for On" is set on a colour and not on "Off".

The parameter is available also via the following settings:

- The parameter is set on "Status illumination" and
- Parameter "Object type for status object" is set on "1 byte 0-100%" and
- All parameters "Colour for zone x" are set on a colour and not on "Off".

The parameter is available also via the following settings:

- The "Operating mode" parameter is set on "Function illumination" and
- Parameter "Colour for function illumination" is set on a colour and not on "Off".

11.5.18.16 Alarm function

Options:	Deactivated
	Activated

- Deactivated:
 - Communication object "Lx: alarm" is not enabled.
- Activated:
 - Communication object "Lx: alarm" is enabled.

The 1-byte communication object "Lx: alarm" can be enabled with this parameter. If an On telegram is received via the object, the LED of the button flashes. If an Off telegram is received via the object, the LED lights up continuously.

The LED flashes in the colour that is set for the status or function illumination. If object "Lx: Day/night mode" is enabled, the LED flashes either bright or dark.

The alarm function can, for example, display a wind alarm or an open door, when the user wants to lower a blind or a roller blind.

**Note**

The parameter is available via the following settings:

- The parameter is set on "Status illumination" and
- Parameter "Object type for status object" is set on "1 bit" and
- Parameter "Colour for Off" is set on a colour and not on "Off" and
- Parameter "Colour for On" is set on a colour and not on "Off".

The parameter is available also via the following settings:

- The parameter is set on "Status illumination" and
- Parameter "Object type for status object" is set on "1 byte 0-100%" and
- All parameters "Colour for zone x" are set on a colour and not on "Off".

The parameter is available also via the following settings:

- The "Operating mode" parameter is set on "Function illumination" and
- Parameter "Colour for function illumination" is set on a colour and not on "Off".

11.6 Application "Temperature"

Temperature - Application

Options:	Inactive
	Temperature sensor

- Inactive:
 - Application is not active.
- Temperature sensor:
 - Application is active.

The application enables the temperature sensor of the device and fixes the conditions for sending the measured value.

The following communication objects are available:

- "TS: actual temperature"
- "TS: actual temperature adjustment"

The temperature sensor can be used for a room temperature controller (RTC). Here the temperature sensor is the slave device and the RTC the master device. Slave devices must be linked with the master device via the appropriately labelled communication objects. The slave device operates the RTC functions of the master device.



Note

The following parameters can only be adjusted when the function "Temperature" is set on "Temperature sensor".

The parameters for "Temperature" can be called up via **general parameters**.

11.6.1.1 Send measured values

Options:	Only cyclical
	Cyclic and during change

- Only cyclical:
 - The actual temperature (room temperature) is sent at fixed time intervals. The interval is set via parameter "Cycle time for sending the actual temperature".
- Cyclic and at a value change:
 - The actual temperature is sent at fixed intervals and at each change of the room temperature.

11.6.1.2 Cycle time for sending of the actual temperature

Options:	Setting option from 00:00:25 to 01:30:00 (hh:mm:ss)
----------	---

The actual temperature (room temperature) is sent on the bus cyclically.

The parameter is used to fix the time interval with which the measured room temperature is sent to the linked RTC.

11.6.1.3 Temperature difference for sending within the cycle time *0.1 K

Options:	Setting option from 1 to 255
----------	------------------------------

If the temperature increases rapidly within the set cycle time or falls, an additional sending of the actual temperature can make sense.

The parameter can be used to set the change value from which the actual temperature is sent during the cycle time (setting value x 0.1 Kelvin = ΔT).

**Note**

The cycle time for sending the actual temperature starts anew after the actual temperature has been sent due to an exceeding of the set temperature difference.

**Note**

The parameter is only adjustable if the "Send measured value" parameter is set on "Cyclic and at value change".

11.6.1.4 Offset of the temperature sensor (x 0.1°C)

Options:	Setting option from -127 to 127
----------	---------------------------------

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 parameter is used to set the compensation value. The mounting location of the temperature sensor and the suitable selection of the parameter settings are decisive for a good temperature reading.

11.6.1.5 Overwriting internal object

Options:	No
	Yes

- No:
 - The offset adjusted via parameter "Offset of the temperature sensor (x 0.1°C)" is not overwritten.
- Yes:
 - The set offset is overwritten with communication object "TS: actual temperature for temperature compensation".

With selection "Yes" an actual temperature value can be sent to the device, without opening the ETS application, which overwrites the parameterised offset.

11.7 Application "General functions"

Up to five channels can be activated for the use of the applications described in this section.

11.7.1 Channel x - Application

Options:	Inactive
	Cyclic telegrams
	Priority
	Logic gate
	Gate
	Staircase lighting
	Delay
	Min/max value transducer
	Light scene actuator

- Inactive:
 - The application is not active. No parameters are available.
- Cyclic telegrams:
 - After the receipt of a telegram on object "GFx: input", a telegram with the same content is sent cyclic via object "GFx: output". Additional information, See "Application - Cyclic telegrams" on page 146.
- Priority:
 - The telegrams received via communication object "GFx: switch input" are transferred to object "GFx: output" depending on the state of the "GFx: input priority" object. Additional information, See "Application - Priority" on page 151.
- Logic gate:
 - The application is used to specify the logic gate the communication objects "GFx: input 1", "GFx: input 2" and "GFx: output" are to be linked with. Additional information, See "Application - Logic gate" on page 152.
- Gate:
 - The application can be used to filter certain signals and to block the flow of signals temporarily. Additional information, See "Application - Gate" on page 158.
- Staircase lighting:
 - The application can be used to supply switching telegrams or value telegrams with a switch-off delay. Additional information, See "Application - Staircase lighting" on page 164.
- Delay:
 - Telegrams can be received via the "GFx: input" object with the application. Additional information, See "Application - Delay" on page 168.

- Min/max value transducer:
 - Up to eight input values can be compared with each other with the application.
Additional information, See "Application - Min/max value transducer" on page 174.
- Light scene actuator:
 - With the application it is possible to call up scenes that are stored in the device via the receipt of a scene number on the 1-byte communication object "GFx: scene call-up".
Additional information, See "Application - Light scene actuator" on page 177.

**Note**

The following parameters can only be adjusted when the corresponding application (see above) is selected.

11.7.2 Application - Cyclic telegrams

The application can be used to send telegrams cyclic on the bus under fixed conditions.

The following communication objects are available:

- "GFx: input"
- "GFx: output"
- "GFx: enable" (1-bit object)

The objects "GFx: input" and "GFx: output" can take on different sizes (1 bit - 4 byte, depending on the object type selected). The bit sizes of objects "GFx: input" and "GFx: output" can be collectively adjusted for the different applications.

After the receipt of a telegram on object "GFx: input", a telegram with the same content is sent cyclic via the application on the bus via object "GFx: output". The object types for "GFx: input" and "GFx: output" can be collectively parameterised for the different applications. The times for cyclic sending via "GFx: output" object are adjustable.

An additional "GFx: enable" object provides the option of temporarily blocking the function.



Note

The parameters for application "Cyclic telegrams" can be called up via **general parameters** and **extended parameters**.



Note

The number of the object (GF1 - GFx) depends on the channel used.

11.7.2.1 Channel name

Entry:	<Name>
--------	--------

The parameter can be used to name the selected channel. The preset name "Channel" can be replaced with any arbitrary name. The length of the name is limited to 30 characters.

11.7.2.2 Object type

Options:	1-bit switching
	1-bit alarm
	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

- 1-bit switching:
 - The value is sent as 1-bit switching commands (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1-bit alarm:
 - The value is sent as 1-bit switching commands (0 or 1), alarm functions On/Off.
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
 - The value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
 - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
 - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
 - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.
- 4-byte float:
 - The value is sent as 4-byte floating point value, physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
 - The value is sent as 4-byte value with a sign (-2147483648 - 2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
 - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.

The set option fixes the bit size of the input and output object.

11.7.2.3 Cycle time

Options:	Setting option from 00:00:55 to 01:30:00 (hh:mm:ss)
----------	---

The telegrams of the object during operation are sent cyclic on the bus.

The parameter specifies the time interval from which a new sending of the telegrams occurs.

11.7.2.4 Enable object

Options:	Deactivated
	Activated

- Deactivated:
 - Object "GFx: enable" is not enabled.
- Activated:
 - Object "GFx: enable" is enabled. The function "Cyclic telegram" can be temporarily blocked via the object.

The 1-bit communication object "GFx: enable" can be enabled with this parameter.

**Note**

If the "Enable object" parameter is activated, the following parameters can be set:

- "Object value enable object"
- "Enable object after return of voltage"

11.7.2.5 Object value enable object

Options:	Normal
	Inverse

- Normal:
 - If an Off telegram is received via the object "GFx: enable", the function "Cyclic telegram" is blocked. An On telegram deactivates the blockage.
- Inverse:
 - If an On telegram is received via the object "GFx: enable", the function "Cyclic telegram" is blocked. An Off telegram deactivates the blockage.

The parameter is used to specify whether function "Cyclic telegram" is blocked temporarily at the receipt of an On or Off telegram.

**Note**

This parameter can only be set if the "Enable object" parameter is set on "activated".

11.7.2.6 Enable object after return of voltage

Options:	Blocked
	Enabled

- Blocked:
 - Object "GFx: enable" is not activated at bus voltage recovery. The blocking function is deactivated.
- Enabled:
 - If object "GFx: enable" was activated prior to bus voltage recovery, it will also be activated after bus voltage recovery.

The parameter serves to ensure that a defined value is present on communication object "GFx: enable" after a return of bus voltage.

**Note**

This parameter can only be set if the "Enable object" parameter is set on "activated".

11.7.2.7 Cyclic sending

Options:	Always activated
	Activated at a specified value
	Activated except at a specified value

- Always activated:
 - Telegrams that are received on object "GFx: input" are transferred directly to object "GFx: output" and there sent cyclic.
- Activated at a specified value:
 - This value is sent cyclic via object "GFx: output" only at the receipt of a specific, set value. If a different value is received on "GFx: input", no telegram is sent via object "GFx: output".
- Activated except at a specified value:
 - This deviating value is sent cyclic via object "GFx: output" only at the receipt of a value that deviates from the set value.

11.7.2.8 Value for cyclic sending

The possible options and setting limits depend on parameter "Object type".

Options for selection "1 bit switching" and "1-bit alarm":

Options:	Off
	One

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

Options for selection "1 byte 0-255":

Options:	Setting option from 0 to 255
----------	------------------------------

Options for selection "2-byte float":

Options:	Setting option from -671088.64 to 670760.96
----------	---

Options for selection "2-byte signed":

Options:	Setting option from -32768 to +32767
----------	--------------------------------------

Options for selection "2-byte unsigned":

Options:	Setting option from 0 to 65535
----------	--------------------------------

Options for selection "2-byte temperature":

Options:	Setting option from -273 to 500
----------	---------------------------------

Options for selection "4-byte float":

Options:	Setting option from -4000000 to 4000000
----------	---

Options for selection "4-byte signed":

Options:	Setting option from -2147483648 to 2147483647
----------	---

Options for selection "4-byte unsigned":

Options:	Setting option from 0 to 4294967295
----------	-------------------------------------

The parameter is used to fix the value that must be received on object "GFx: input" to ensure that the same value is sent cyclic via object "GFx: output". The bit size depends on parameter "Object type".

**Note**

The parameter can only be set if the "Cyclic sending" parameter is set on "activated at a specified value" or on "activated except at a specified value."

11.7.3 Application - Priority

The application can be used to activate a forced guidance (priority) for switching outputs.

The following communication objects are available:

- "GFx: switch input" (1-bit object)
- "GFx: priority input" (2-bit object)
- "GFx: output" (1-bit object)

The telegrams received on "GFx: switch input" are transferred to object "GFx: output" depending on the state of the "GFx: priority input" object.

The 2-bit object "GFx: priority input" can receive and differentiate between four different values (0, 1, 2 and 3). Here, the "GFx: output" object is positively driven. Three different states are differentiated:

- "GFx: priority input" has the value "3". The value that is present on "GFx: switch input" has no meaning. The "GFx: output" object is switched on positively driven and has the value "1".
- "GFx: priority input" has the value "2". The value that is present on "GFx: switch input" has no meaning. The "GFx: output" object is switched off positively driven and has the value "0".
- "GFx: priority input" has the value "1" or "0". The "GFx: output" object is not positively driven. The "GFx: switch input" is linked to the status bit of the priority object OR and transferred to the "GFx: output" object.

During a positive drive, changes of the "GFx: switch input" object are saved, even if the current state on the "GFx: output" object does not immediately change through this. If the positive drive is terminated, the "GFx: output" object sends a telegram corresponding to the current value of the "GFx: switch input" object.

**Note**

The parameters for application "Priority" can be called up via **general parameters**.

**Note**

The number of the object (GF1 - GFx) depends on the channel used.

11.7.3.1 Channel name

Entry:	<Name>
--------	--------

The parameter can be used to name the selected channel. The preset name "Channel" can be replaced with any arbitrary name. The length of the name is limited to 30 characters.

11.7.4 Application - Logic gate

Up to ten input values can be linked with each other via the application.

The following communication objects are available:

- "GFx: output"
- "GFx: input x"

All input objects and the output object can take on size 1 bit or 1 byte independent from each other.

The application is used to specify the logic gate the enabled input objects are linked with. At the receipt of new telegrams at the inputs, they are switched according to the selected function. The inputs can also be individually inverted.

The result determined from the inputs is sent via the output object. The default value that is to be sent at a positive result can be adjusted.



Note

The parameters for application "Logic gate" can be called via **general parameters, parameter input x** and **output parameters**.



Note

The number of the object (GF1 - GFx) depends on the channel used.

11.7.4.1 Channel name

Entry:	<Name>
--------	--------

The parameter can be used to name the selected channel. The preset name "Channel" can be replaced with any arbitrary name. The length of the name is limited to 30 characters.

11.7.4.2 Logical function

Options:	AND
	OR
	XOR
	XNOR
	NAND
	NOR

- AND - NOR:
 - Logic gates, with which communication objects can be linked.

The parameter is used to specify the logic gate the communication objects are to be linked with.

11.7.4.3 Number of input objects

Options:	Setting option from 1 to 10
----------	-----------------------------

The parameter is used to set the number of input objects that are to be linked in the logic function.

**Note**

If the parameter is set on "1", the "logic function" parameter is specified on "NOT".

11.7.4.4 Object type input x

Options:	1 bit
	1 byte

- 1 bit:
 - The input object can take on value "0" or "1".
- 1 byte:
 - The input object can take on value 0 to 255.

The parameter is used to specify the bit size for the input object.

11.7.4.5 Initial value input x

Options:	Initialised with 0
	Initialised with 1

- Initialised with 0:
 - After initial commissioning and after the return of voltage the input has the logical value "0".
- Initialised with 1:
 - After initial commissioning and after the return of voltage the input has the logical value "1".

The parameter is used to specify the value the input is to have after initial commissioning and after the return of voltage. Thus, no undefined states can arise.

11.7.4.6 Logic input x

Options:	Normal
	Inverse

- Normal:
 - The input signal of the channel is not inverted.
- Inverse:
 - The input signal of the channel is inverted.

The parameter is used to invert the input signal of the channel.

**Note**

For a 1-byte size input object, the "inverse" setting means that only upon receipt of the value "0" will a logical "1" be present on the input. All other values (1 to 255) cause a logical "0" on the input.

11.7.4.7 Object type output

Options:	1 bit
	1 byte

- 1 bit:
 - Object "GFx: output" consists of a 1-bit value (0/1).
- 1 byte:
 - Object "GFx: output" consists of a 1-byte value (0 - 255).

Each logic function has an output object. The result determined from the inputs is sent on the bus via the output object.

The parameter is used to specify the bit size for the output object.

11.7.4.8 Send output object

Options:	With each input telegram
	With a change of the output object

- With each input telegram:
 - When a telegram is received via the input object, the communication object always sends the value of the output object on the bus. This also happens if the value of the output object has not changed.
- With a change of the output object:
 - The communication object only sends a telegram when the value of the output object has changed.

The parameter is used to specify whether a telegram is sent via communication object "GFx: output" at each receipt of a telegram or only at a change of the output object.

11.7.4.9 Value of the output object for logic true

Options:	Output is set to 1
	Defined via output default value true

- Output is set on 1:
 - As soon as the logic function is fulfilled, a logical "1" is present on the output. This equally applies when the "Object type output" parameter is set on "1byte".
- Defined via output default value true:
 - The value that is present on the output when the logic has been met, can be set via parameter "Output default value true".

The parameter is used to specify the value of the output object in the logic status "True".

11.7.4.10 Output default value true

Options:	True = 0
	True = 1

- True = 0:
 - When a logic has been met, value "0" is present at communication object "GFx: output".
- True = 1:
 - When a logic has been met, value "1" is present at communication object "GFx: output".

The parameter is used to specify the value that is sent via the 1-bit communication object "GFx: output" when a condition (true) has been met.

**Note**

The parameter can only be set if the "Object type output" parameter is set on "1 bit" and parameter "Value of the output object for logic true" is set on "Defined via output default value true".

11.7.4.11 Output default value true

Options:	Setting option from 0 to 255
----------	------------------------------

The parameter is used to set the value that is sent via the 1-byte communication object "GFx: output" when a condition (true) has been met.

**Note**

The parameter can only be set if the "Object type output" parameter is set on "1 byte" and parameter "Value of the output object for logic true" is set on "Defined via output default value true".

11.7.4.12 Value of the output object for logic untrue

Options:	Output is set to 0
	Defined via output default value untrue

- Output is set on 0:
 - As soon as the logic function is fulfilled, a logical "0" is present on the output. This equally applies when the "Object type output" parameter is set on "1 byte".
- Defined via output default value untrue:
 - The value that is present on the output when the logic has been met, can be set via parameter "Output default value untrue".

The parameter is used to specify the value that is sent via object "GFx: output" when a condition (untrue) has not been met.

11.7.4.13 Output default value untrue

Options:	Untrue = 0
	Untrue = 1

- Untrue = 0
 - When a logic has not been met, value "0" is present at communication object "GFx: output".
- Untrue = 1
 - When a logic has not been met, value "1" is present at communication object "GFx: output".

The parameter is used to specify the value that is sent via the 1-bit communication object "GFx: output" when a condition (untrue) has been not been met.

**Note**

The parameter can only be set if the "Object type output" parameter is set on "1 bit" and parameter "Value of the output object for logic untrue" is set on "Defined via output default value untrue".

11.7.4.14 Output default value untrue

Options:	Setting option from 0 to 255
----------	------------------------------

The parameter is used to set the value that is sent via the 1-byte communication object "GFx: output" when a condition (untrue) has been not been met.

**Note**

The parameter can only be set if the "Object type output" parameter is set on "1 byte" and parameter "Value of the output object for logic untrue" is set on "Defined via output default value untrue".

11.7.5 Application - Gate

The application allows specific signals to be filtered and the signal flow to be temporarily blocked.

The following communication objects are available:

- "GFx: input"
- "GFx: output"
- "GFx: control input" (1-bit object)

The objects "GFx: input" and "GFx: output" can take on different sizes (1 bit - 4 byte, depending on the object type selected).

The bit sizes of objects "GFx: input" and "GFx: output" can be collectively adjusted for the different applications.

The bit size can be freely assigned with the "Not assigned" setting of the "Object type" parameter. This means that the first internal or external group address or action that is assigned and already connected to an other communication object will specify the size.

The control can occur from "Input to output" or also from "Output to input," provided the control input allows this. Enabling via the control input can take place via an On telegram or an Off telegram.

If, for example, the "Control input" setting is set on "ON telegram," only telegrams from the input are transmitted to the output. The condition is that the control input has received an On telegram.

It is also possible to block signals via the "Filter function" setting. Either "nothing is filtered out" or the signal "on is filtered out" or the signal "off is filtered out". This function is always necessary, for example, when only the On telegram is needed for a sensor and the device does not offer any filter function in its application program.



Note

The parameters for application "Gate" can be called up via **general parameters** and **extended parameters**.



Note

The number of the object (GF1 - GFx) depends on the channel used.

11.7.5.1 Channel name

Entry:	<Name>
--------	--------

The parameter can be used to name the selected channel. The preset name "Channel" can be replaced with any arbitrary name. The length of the name is limited to 30 characters.

11.7.5.2 Object type

Options:	1-bit switching
	1-bit travel
	1-bit stop/adjust
	2-bit priority
	4-bit relative dimming
	1 byte 0 - 100%
	1 byte 0 - 255
	2-byte float
	2-byte signed
	2-byte unsigned
	3-byte time of day
	3-byte date
	4-byte float
	4-byte signed
	4-byte unsigned
	Not allocated

- 1-bit switching:
 - The value is sent as 1-bit switching commands (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1-bit travel:
 - The value is sent as 1-bit switching commands, e.g. travel up or down.
- 1-bit stop/adjust:
 - The value is sent as 1-bit switching commands, e.g. travel stop, adjust slats.
- 2-bit priority:
 - The value is sent as 2-bit switching commands with priority.
- 4-bit relative dimming:
 - The value is sent as 4-bit brightness step.
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
 - The value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
 - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
 - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
 - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.

- 3-byte time of day:
 - The value is sent as 3-byte daytime value.
- 3-byte date:
 - The value is sent as 3-byte date value.
- 4-byte float:
 - The value is sent as 4-byte floating point value, physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
 - The value is sent as 4-byte value with a sign (-2147483648 - 2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
 - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.
- Not allocated:
 - The bit size can be freely allocated. This means that the first internal or external group address or action that is assigned and already connected to an other communication object will specify the size.

The set option fixes the bit size of the input and output object.

11.7.5.3 Filter function

Options:	Deactivated
	On filter out
	Off filter out

- Deactivated:
 - No telegrams are filtered out.
- On filter out:
 - On telegrams are filtered out.
- Off filter out:
 - Off telegrams are filtered out.

The parameter can be used to filter On or Off telegrams (1 bit) out. The function is used, for example, when only the On telegram is needed and the sensor does not offer any filter function in its application program.



Note

The parameter can only be set if the "Object type" parameter is set on "1-bit switching".

11.7.5.4 Data flow direction

Options:	Input towards the output
	Output towards the input
	In both directions

- Input towards the output:
 - Telegrams are transferred from object "GFx: input" to object "GFx: output".
- Output towards the input:
 - Telegrams are transferred from object "GFx: output" to object "GFx: input".
- In both directions:
 - Telegrams are transferred in both directions.

The parameter is used to specify the direction in which the signal is to be transferred.

11.7.5.5 Enable object

Options:	Deactivated
	Activated

- Deactivated:
 - Object "GFx: control input" is not enabled.
- Activated:
 - Object "GFx: control input" is enabled. The function can be temporarily blocked via object "Sx: control input".

The 1-bit communication object "GFx: control input" can be enabled with this parameter.

**Note**

If the "Enable object" parameter is activated, the following parameters can be set:

- "Object value enable object"
- "Enable object after return of voltage"
- "Save input signal"

11.7.5.6 Object value enable object

Options:	Normal
	Inverse

- Normal:
 - If an Off telegram is received via the object "GFx: control input", the function "Gate" is blocked. An On telegram deactivates the blockage.
- Inverse:
 - If an On telegram is received via the object "GFx: control input", the function "Gate" is blocked. An Off telegram deactivates the blockage.

The parameter is used to specify whether function "Gate" is blocked temporarily at the receipt of an On or Off telegram.

**Note**

This parameter can only be set if the "Enable object" parameter is set on "activated".

11.7.5.7 Enable object after return of voltage

Options:	Blocked
	Enabled

- Blocked:
 - The enable object is not activated after bus voltage recovery. The blocking function is deactivated.
- Enabled:
 - If the enable object was activated prior to bus voltage recovery, it will also be activated after bus voltage recovery.

The parameter serves to ensure that a defined value is present on communication object "GFx: control input" after a return of bus voltage.

**Note**

This parameter can only be set if the "Enable object" parameter is set on "activated".

11.7.5.8 Save input signal

Options:	Deactivated
	Activated

- Deactivated:
 - Input telegrams are not saved during the blocking phase.
- Activated:
 - Input telegrams are saved during the blocking phase.

The parameter is used to specify whether input signals are saved during the blocking phase. The further behaviour depends on the setting of the "Data flow direction" parameter.

For example:

Data flow direction: Input towards the output.

If the setting "activated" has been selected, the output sends its value after the blocking phase if a telegram has been received on the input during the blocking phase.

**Note**

This parameter can only be set if the "Enable object" parameter is set on "activated".

11.7.6 Application - Staircase lighting

With the application, switching telegrams and value telegrams can be provided with a switch-off delay.

The application has the following communication objects:

- "GFx: input"
- "GFx: input" (1-bit object)
- "GFx: switch-off delay" (2-byte object)
- "GFx: switch-off prewarning time" (2-byte object)
- "GFx: output"

The objects "GFx: input" and "GFx: output" can take on size 1 bit or 1 byte, depending on the object type selected.



Note

The parameters for application "staircase lighting" can be called up via **general parameters** and **extended parameters**.



Note

The number of the object (GF1 - GFx) depends on the channel used.

11.7.6.1 Channel name

Entry:	<Name>
--------	--------

The parameter can be used to name the selected channel. The preset name "Channel" can be replaced with any arbitrary name. The length of the name is limited to 30 characters.

11.7.6.2 Object type/number

Options:	A 1-bit object for input and output
	Two 1-bit objects for input and output
	Two 1-byte objects for input and output

- A 1-bit object for input and output:
 - When an On telegram is received via the "GFx: input_output" object, an adjustable switch-off delay is started. After expiration of the switch-off delay, the "GFx: input_output" object sends an Off telegram (1 bit).
- Two 1-bit objects for input and output:
 - When a switching telegram (On or Off) is received via the "GFx: input" object, an adjustable switch-off delay is started. At the same time, a telegram with the same value of the telegram received on the input (On or Off) is sent via object "GFx: output". After expiration of the switch-off delay, the "GFx: output" object sends an Off telegram (1 bit).
- Two 1-byte objects for input and output:
 - When a value telegram is received via the "GFx: input" object, an adjustable switch-off delay is started. At the same time, a telegram with the same value of the telegram (1 byte) received on the input is sent via object "GFx: output". After expiration of the switch-off delay, the "GFx: output" object sends a telegram with value "0" (1 byte).

The parameter is used to fix the size and number of the communication objects for the "Staircase lighting" application.

The switch-off delay of the staircase lighting is set via the "Switch-off delay" parameter.

11.7.6.3 Switch-off delay

Options:	Setting option from 00:00:10 to 01:30:00 (hh:mm:ss)
----------	---

The parameter is used to set the switch-off delay of the staircase lighting. The switch-off delay can be set in steps of one second.

The start of the switch-off delay is dependent on the setting of the "Object type/number" parameter. The parameter "Object type/number" also specifies whether an Off telegram (1 bit) or a telegram with value "0" (1 byte) is sent after the expiry of the switch-off delay.

11.7.6.4 Retriggering

Options:	Deactivated
	Activated

- Deactivated:
 - The set switch-off delay always runs to its end, so that a telegram is always sent via object "GFx: output" after the delay time has expired.
- Activated:
 - The switch-off delay is always restarted when a telegram is received via the "GFx: input" object.

The parameter is used to specify whether the switch-off delay is restarted when a further telegram is received via object "GFx: input". This behaviour is called retriggering.

For example, a retriggering makes sense for a switch-off delay for movement detectors. This always resets the switch-off delay as long as movement is detected.

If telegrams with different values are received during the retriggering phase, only the last value received is always sent via the "GFx: output" object after expiration of the delay time.

11.7.6.5 Switch-off pre-warning

Options:	Deactivated
	Activated

- Deactivated:
 - The staircase lighting goes out without flickering at the end of the switch-off delay.
- Activated:
 - The staircase flickers before the expiry of the switch-off delay.

Before the staircase lighting switches itself off, the end of the illumination period is signalled by means of brief flickering or dimming darker. The user can then keep the light on in time.

The parameter is used to specify whether an additional value is sent via the output object just before the switch-off delay expires.

11.7.6.6 Time for switch-off pre-warning (s)

Options:	Setting option from 1 to 5400
----------	-------------------------------

The parameter is used to specify when the staircase lighting by means of flickering or dimming darker is to warn of the end of the switch-off delay. The warning is carried out according to the set time before the expiry of the switch-off delay.

**Note**

This parameter can only be set if the "switch-off prewarning" parameter is set on "activated".

11.7.6.7 Value for switch-off prewarning (%)

Options:	Setting option from 1 to 100 (%)
----------	----------------------------------

The parameter is used to set the value that is sent via object "GFx: output". The value is sent at the time set via parameter "Time for switch-off prewarning".

The set percentage value is sent once and then replaced by the original output value after approximately one second.

**Note**

This parameter can only be set if the "Object type/number" parameter is set on "Two 1-byte objects for input and output" and parameter "Switch-off prewarning" is set on "activated".

11.7.6.8 Overwrite switch-off delay and switch-off prewarning time during download

Options:	Deactivated
	Activated

- Deactivated:
 - The switch-off delay and switch-off prewarning time will not be overwritten when the device is reprogrammed.
- Activated:
 - The switch-off delay and switch-off prewarning time will be overwritten when the device is reprogrammed.

Telegrams with new times can be received via communication objects "GFx: switch-off delay" and "GFx: switch-off prewarning". The received 2-byte values are written to the memory of the device and are retained even after a power failure.

The parameter is used to specify whether the received storage values are to be retained for a reprogramming of the device or replaced by the values specified in the parameterising software.

11.7.7 Application - Delay

The application can be used to receive telegrams via the "Input" object. The telegrams received are sent out via the "Output" object with a set delay time.

The application has the following communication objects:

- "GFx: input"
- "GFx: output"
- "GFx: delay time" ((2 byte object)

The objects "GFx: input" and "GFx: output" can take on different sizes (1 bit - 4 byte, depending on the object type selected).

The bit sizes of objects "GFx: input" and "GFx: output" can be collectively adjusted for the different applications.



Note

The parameters for application "Delay" can be called up via **general parameters** and **extended parameters**.



Note

The number of the object (GF1 - GFx) depends on the channel used.

11.7.7.1 Channel name

Entry:	<Name>
--------	--------

The parameter can be used to name the selected channel. The preset name "Channel" can be replaced with any arbitrary name. The length of the name is limited to 30 characters.

11.7.7.2 Object type

Options:	1-bit switching
	1-bit travel
	1-bit stop/adjust
	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

- 1-bit switching:
 - The value is sent as 1-bit switching commands (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1-bit travel:
 - The value is sent as 1-bit switching commands, e.g. travel up or down.
- 1-bit stop/adjust:
 - The value is sent as 1-bit switching commands, e.g. travel stop, adjust slats.
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
 - The value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
 - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
 - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
 - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.
- 4-byte float:
 - The value is sent as 4-byte floating point value (-4000000 to 4000000), physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
 - The value is sent as 4-byte value with a sign (-2147483648 - 2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
 - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.

The set option fixes the bit size of the input and output object.

11.7.7.3 Delay time

Options:	Setting option from 00:00:01.000 to 01:00:00:000 (hh:mm:ss)
----------	---

The parameter is used to set the delay with which the telegrams received via object "GFx: input" are sent via object "GFx: output".

The delay time can be set in steps of one millisecond.

11.7.7.4 Retriggering

Options:	Deactivated
	Activated

- Deactivated:
 - The set switch-off delay always runs to its end, so that a telegram is always sent via object "GFx: output" after the delay time has expired.
- Activated:
 - The switch-off delay is always restarted when a telegram is received via the "GFx: input" object.

The parameter is used to specify whether the switch-off delay is restarted when a further telegram is received via object "GFx: input". This behaviour is called retriggering.

For example, a retriggering makes sense for a switch-off delay for movement detectors. This always resets the switch-off delay as long as movement is detected.

If telegrams with different values are received during the retriggering phase, only the last value received is always sent via the "GFx: output" object after expiration of the delay time.

11.7.7.5 Filter active

Options:	Deactivated
	Activated

- Deactivated:
 - Filter is not active.
- Activated:
 - Filter is active. Filter function and filter value can be set.

The parameter is used to specify whether a filter is used for the delay of telegrams.

11.7.7.6 Filter function

Options:	Filter value is delayed, other values are sent directly
	Filter value is delayed, other values are suppressed
	Filter value is sent directly, other values are delayed
	Filter value is suppressed, other values are delayed

- Filter value is delayed, other values are sent directly.
 - Only the filter value is sent delayed. All other values are sent directly.
- Filter value is delayed, other values are suppressed.
 - Only the filter value is sent delayed. All other values are blocked.
- Filter value is sent direct, others are sent delayed.
 - Only the filter value is sent direct. All other values are sent delayed.
- Filter value is suppressed, other are delayed.
 - Only the filter value is blocked. All other values are sent delayed.

The parameter can be used to specify a condition for the sending of filter values compared to all other values.

**Note**

The parameter is only adjustable if the "Filter active" parameter is set to "Activated".

11.7.7.7 Filter value

The possible options and setting limits depend on parameter "Object type".

Options for selection "1 bit switching":

Options:	Off
	One

Options for selection "1 bit moving" and "1-bit stop/adjust":

Options:	Up
	Down

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

Options for selection "1 byte 0-255":

Options:	Setting option from 0 to 255
----------	------------------------------

Options for selection "2-byte float":

Options:	Setting option from -671088.64 to 670760.96
----------	---

Options for selection "2-byte signed":

Options:	Setting option from -32768 to +32767
----------	--------------------------------------

Options for selection "2-byte unsigned":

Options:	Setting option from 0 to 65535
----------	--------------------------------

Options for selection "4-byte float":

Options:	Setting option from -4000000 to 4000000
----------	---

Options for selection "4-byte signed":

Options:	Setting option from -2147483648 to 2147483647
----------	---

Options for selection "4-byte unsigned":

Options:	Setting option from 0 to 4294967295
----------	-------------------------------------

The value that is to be specifically observed is specified via the parameter. The bit size depends on parameter "Object type".

The connected "Filter function" parameter fixes a condition for the sending of the filter value.

**Note**

The parameter is only adjustable if the "Filter active" parameter is set to "Activated".

11.7.7.8 Overwrite delay time during download

Options:	Deactivated
	Activated

- Deactivated:
 - The delay time will not be overwritten when the device is reprogrammed.
- Activated:
 - The delay time will be overwritten when the device is reprogrammed.

A telegram with a new delay time (s) can be received via the 2-byte communication object "GFx: delay time". The received 2-byte value is written to the memory of the device and is retained even after a power failure.

The parameter is used to specify whether the received storage value is to be retained for a reprogramming of the device or replaced by the values specified in the parameterising software.

11.7.8 Application - Min/max value transducer

Up to eight input values can be compared with each other via the application.

The following communication objects are available:

- "GFx: output"
- "GFx: input x"

The objects "GFx: input x" and "GFx: output" can take on different sizes (1 byte - 4 byte, depending on the object type selected).

The bit sizes of objects "GFx: input x" and "GFx: output" can be collectively adjusted for the different applications.

The application can send either the largest input value, the smallest input value or the average of all input values via the output object. The values are sent either at each input assignment or when the output object is changed.



Note

The parameters for application "Min/max value transducer" can be called up via **general parameters**.



Note

The number of the object (GF1 - GFx) depends on the channel used.

11.7.8.1 Channel name

Entry:	<Name>
--------	--------

The parameter can be used to name the selected channel. The preset name "Channel" can be replaced with any arbitrary name. The length of the name is limited to 30 characters.

11.7.8.2 Object type

Options:	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

- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
 - The value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
 - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
 - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
 - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.
- 4-byte float:
 - The value is sent as 4-byte floating point value, physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
 - The value is sent as 4-byte value with a sign (-2147483648 - 2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
 - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.

The set option fixes the bit size of the input and output object.

11.7.8.3 Number of input objects

Options:	Setting option from 1 to 8
----------	----------------------------

The parameter is used to set the number of input telegrams to be compared with each other.

11.7.8.4 Output sends

Options:	For every assignment of the inputs
	With a change of the output object

- For every assignment of the inputs:
 - When a telegram is received on one of the input objects, a telegram is always sent via the output object.
- With a change of the output object:
 - An output telegram is only sent when the value of the output object changes.

The parameter is used to specify the conditions under which a telegram is sent.

For the setting "For every assignment of inputs" an output telegram is sent at every receipt of a telegram on one of the inputs. In this case, also an output telegram is sent if the value of the output does not change.

11.7.8.5 Output object

Options:	Adopts the largest value of the inputs
	Adopts the smallest value of the inputs
	Adopts the average value of the inputs

- Adopts the largest value of the inputs:
 - The largest value of all input telegrams is sent via the output object.
- Adopts the smallest value of the inputs:
 - The smallest value of all input telegrams is sent via the output object.
- Adopts the average value of the inputs:
 - The average value of the input telegrams is sent via the output object.

The "Min/max value transducer" application compares the values that are present on the input objects.

The parameter is used to specify whether the largest, smallest or average of all input values is sent. If the average value is sent, the application calculates the arithmetic mean of the inputs. Decimal points are rounded up or down.

For example:

- Object type: "2-byte signed", 2 input objects
- Input 1: value "4"
- Input 2: value "5"

(Input 1 + input 2) / 2 = arithmetic mean; (4 + 5) / 2 = 4.5

Sent average value: 5

11.7.9 Application - Light scene actuator

The application is used to create up to eight scenes and eight actuator groups.

The following communication objects are available:

- "GFx: scene call-up"
- "GFx: actuator group x"

The input object "Scene call-up" has the size 1 byte. The output objects can take on different sizes (1 bit - 4 byte, depending on the object type selected).

The application is used to call up scenes stored in the device. This takes place via the receipt of the scene number on object "Scene call-up".

For triggering different actuators, the size of objects "GFx: actuator group x" can be set via parameter "Object type actuator group".

The user has the option of saving the scenes. A corresponding save telegram must be received for this.



Note

The parameters for the "Light scene actuator" application can be called up via **general parameters, configuration of actuator objects** and **configuration of scene x**.



Note

The number of the object (GF1 - GFx) depends on the channel used.

11.7.9.1 Channel name

Entry:	<Name>
--------	--------

The parameter can be used to name the selected channel. The preset name "Channel" can be replaced with any arbitrary name. The length of the name is limited to 30 characters.

11.7.9.2 Number of scenes

Options:	Setting option from 1 to 8
----------	----------------------------

The parameter is used to configure up to eight scenes for the light scene actuator.

11.7.9.3 Number of actuator groups

Options:	Setting option from 1 to 8
----------	----------------------------

The parameter is used to configure up to eight actuator groups for the light scene actuator.

At a call up of a scene, telegrams are sent consecutively via communication object "GFx: actuator group x". If, for example, four lamp groups, a blind and an absolute temperature value are to be sent at the call-up of a scene, the parameter must be set on "6" actuator groups.

The bit size of communication objects "GFx: actuator group x" is set via parameter "Object type actuator group x".

11.7.9.4 Duration of telegram delay

Options:	Setting option from 00.100 to 10.000 (ss.fff)
----------	---

At the call up of a scene, telegrams are sent consecutively via communication objects "GFx: actuator group x". The sequence is strictly specified. First the telegram of actuator group A is sent out, then the telegram of actuator group B, etc.

The parameter is used to set the delay time between the individual telegrams.

11.7.9.5 Overwrite scenes at download

Options:	Deactivated
	Activated

- Deactivated:
 - The scene values saved by the user remain in the device.
- Activated:
 - When reprogramming the device, the values saved by the user are overwritten with the preset values in the parameterisation software.

A scene storage can be triggered with a long press of the button on the device. The communication objects "GFx: actuator groups x" send read requests to the connected actuators. If the L-flag is set for the objects of the connected actuators, the actuators send an answer telegram to the device with their current values.

If the parameter is activated, the current scene values are saved and at the same time overwrite the previous values.

11.7.9.6 Object type actuator group x

Options:	Number of light scene
	1-bit switching
	1-bit blind
	1 byte 0 - 100%
	Temperature

- 1-bit switching:
 - The value is sent as 1-bit switching commands (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1-bit blind:
 - The value is sent as 1-bit switching commands, e.g. travel up or down.
- 1 byte 0 - 100%:
 - The value is sent as 1-byte value without a sign (percentage value).
(0 = 0%, 255 = 100%)
- Temperature:
 - The value is sent as 2-byte floating point value (-671088.6 - 670760.9).

The parameter is used to set the bit size of communication object "GFx: actuator group x" for different applications.

11.7.9.7 Scene number

Options:	Setting option from 1 to 64
----------	-----------------------------

The parameter is used to specify which light scene is to be started.

11.7.9.8 Scene can be saved

Options:	Deactivated
	Activated

- Deactivated:
 - Stored scene values that are sent at a scene call-up via different actuator objects, can not be changed and overwritten by the user.
- Activated:
 - Current scene values of actuator objects can be overwritten and stored in the device by the user.

The parameter is used to specify whether the user can trigger a scene storage. The communication objects "GFx: actuator groups x" in this case send read requests to the connected actuators. Provided that the L-flag is set for the communication objects of the connected actuators, these will send their current values to the device via an answer telegram. The values are stored in the memory and overwrite the previous values. These are also not lost in the event of a power failure.

11.7.9.9 Actuator group x

Options:	Deactivated
	Activated

- Deactivated:
 - The value of actuator group x is not sent at the call-up of the scene.
- Activated:
 - The value of actuator group x is sent at the call-up of the scene.

The parameter is used to specify whether a telegram of actuator group x is sent at the call-up of the light scene.

The possible options and setting limits depend on parameter "Object type actuator group x".

11.7.9.10 Number of light scene

Options:	Setting option from 1 to 64
----------	-----------------------------

Setting option, if parameter "Object type actuator group x" is set on "Light scene number".

11.7.9.11 Value

Options:	Off
	One

Adjustable options, when parameter "Object type actuator group x" is set on "1-bit switching".

11.7.9.12 Value

Options:	Up
	Down

Adjustable options, when parameter "Object type actuator group x" is set on "1-bit blind".

11.7.9.13 Value (%)

Options:	Setting option from 0 to 100 (%)
----------	----------------------------------

Setting option, if parameter "Object type actuator group x" is set on "1 byte 0-100%".

11.7.9.14 Temperature

Options:	Setting option from -33.5 to 93.5
----------	-----------------------------------

Setting option, if parameter "Object type actuator group x" is set on "Temperature".

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