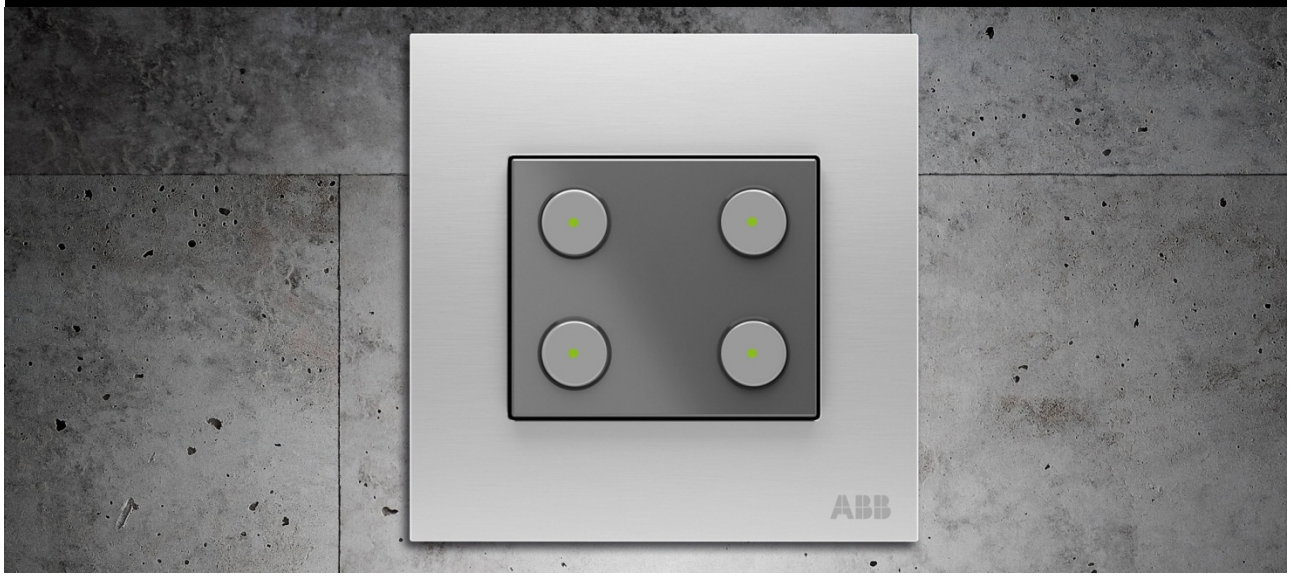
1473-1-7799 | Rev. 01 | 12.2012

KNX Technical Reference Manual
ABB-i-Bus®-KNX Millenium



Control element with multi-function incl. BAU

1/2gang
- 6125/20-981-500
- AMD72053-AN

2/4gang
- 6126/20-981-500
- AMD74053-AN

3/6gang
- 6129/20-981-500
- AMD76053-AN

3/6gang with IR
- 6129/21-981-500
- AMD76153-AN

Power and productivity
for a better world™

1 Information on the manual

1.1 General information

Please read this manual through carefully and adhere to the information listed. This will ensure reliable operation and long service life of your product.
For reasons of clarity this manual does not contain all the detailed information on all the models of the product, nor can it take into consideration all conceivable circumstances related to installation, operation and maintenance. If additional information is required or problems arise that are not dealt with in this manual, the necessary information can be requested from the manufacturer.
The product 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. To maintain this state for the period of its operation the specifications of this manual must be observed and adhered to. Modifications and repairs to the product must only be undertaken if the manual expressly permits this.
It is only the adherence to the safety instructions and all safety and warning symbols in this manual that will ensure the optimum protection of the user and the environment as well as the safe and trouble-free operation of the product.

1.2 Structure of the manual

- This manual provides you with the detailed technical information on the device, its installation and programming. The use of the device is explained by means of examples.
- The chapters "Information on the manual", "Safety" and "Overview of functions" contain general specifications and basic information as well as a description of functions.
- Chapters "Setup and function", "Technical data" and "Dimensional drawings and circuit diagrams" explain the device instrumentation.
- Chapter "Mounting and electrical connection" describes the installation, mounting and the electrical connections.
- Chapters "Commissioning" and "Operation" contain instructions on commissioning and how to operate the device.
- One or several chapters "Application ..." contain general information on the individual applications of the device, the setting options of all device parameters and a list of all objects.

1.3 Symbols in the manual

Danger - danger to life

This symbol in connection with the signal word "Danger" indicates dangerous situations which could lead to immediate death or to serious injury.

Warning - danger to life

This symbol in connection with the signal word "Warning" indicates a dangerous situation which could lead to immediate death or to serious injury.

Caution - risk of injury

This symbol in connection with the signal word "Caution" indicates a possibly dangerous situation which could lead to slight or moderately serious injury.

Attention - damage to property

This symbol indicates a possibly harmful situation. Non-observance of the safety instructions can lead to damage or destruction of the product.

Note ...

This symbol indicates information or references to additional useful topics. This is not a signal word for a dangerous situation.

This symbol refers to integrated videos with additional information on the respective chapter. An Acrobat Reader from Version 9.0 is required to view the videos.

This symbol indicates information on the protection of the environment.

Examples on application, installation and programming are displayed with a grey background.

2 Safety

Warning

Electric voltage!
Risk of death and fire due to electrical voltage of 230 V.
– Work on the 230V supply system may only be performed by authorised electricians!
– Disconnect the mains power supply prior to installation and/or disassembly!

Caution

Risk of damaging the device due to external factors!
Moisture and contamination can damage the device.
That is why the device must be protected against humidity, dirt and damage during transport, storage and operation!

2.1 Intended use

The device must only be operated within the specified technical data!
Extensive functions are available for the control elements. The scope of applications is contained in chapter "Application ... " (only in languages of the countries DE, EN, ES, FR, IT and NL). The integrated bus coupler makes possible the connection to a KNX bus line.

Note

They may only be installed in dry interior rooms in flush-mounted sockets according to BS 4662:2006+A1:2009.

2.2 Improper use

The device represents a danger if it is improperly used. Each non-intended use is deemed improper use. The manufacturer is not liable for damages resulting from such improper use. The associated risk is borne by the user/operator.
The device must never be used outdoors or in bathroom areas. Do not push objects through the openings in the device. The device has an integrated bus coupler. The use of an additional bus coupler is therefore not admissible.

2.3 Target groups and qualifications

Installation, commissioning and maintenance of the product must only be carried out by trained and properly qualified electrical installers. The electrical installers must have read and understood the manual and follow the instructions provided. The operator must adhere to the valid national regulations in his country governing the installation, functional test, repair and maintenance of electrical products.

2.4 Liability and warranty

Improper use, non-observance of this manual, the use of inadequately qualified personnel, as well as unauthorized modification excludes the liability of the manufacturer for the damages caused. It voids the warranty of the manufacturer.

2.5 Environment

Consider the protection of the environment!

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

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

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

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

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

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

3 Setup and function

3.1 Features of function and equipment

The 1-2gang, 2-4gang, 3-6gang and 3-6gang (with IR receiver) control elements are part of the "Millenium" KNX sensor program. They are monoblock application modules which are suitable for installation in flush-mounted boxes according to BS 4662:2006+A1:2009. The devices are equipped with an integrated bus coupler.
The control elements can send switching, dimming or blind control commands to KNX actuators. They can also be used for storing and/or sending light scenes.

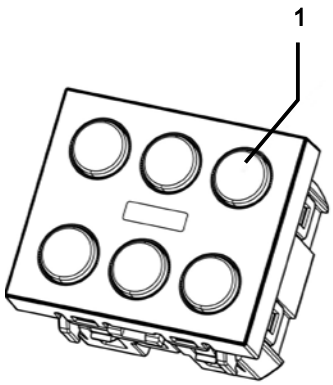
The following table lists the options for use:

Special features	Function	General functions
• Function illumination • Orientation illumination • Freely programmable • LED colour concept • Day / night switchover of the LEDs • Replaceable icon button • General functions • Comprehensive application program	• Switching • Dimming • Blind • Value sender • Light scene extension unit • Multiple operation • Step switch • Short/long operation • Logic functions (separate logic and value objects) • among others	• Light scene actuator • Sequence • Logic • Delay • Staircase lighting • Preset • Cyclic telegram • Flashing • Gate • Min/max value transducer • Threshold value / hysteresis • PWM inverter • Priority

3.2 Overview of devices

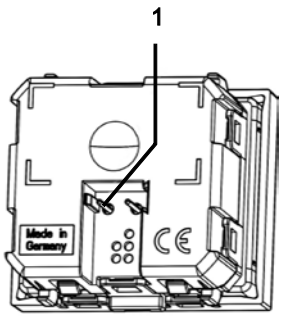
3.2.1 Front

Position	Function
1	Icon buttons



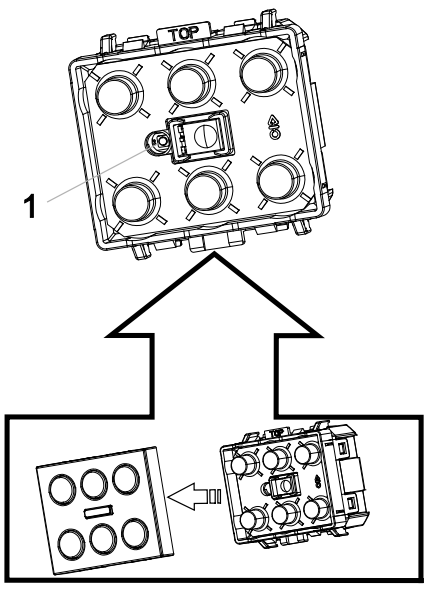
3.2.2 Rear

Position	Function
1	KNX connection



3.2.3 Front without control element cover

Position	Function
1	Programming button with LED



Note

Observe the special mounting instructions in paragraphs "Electrical connection" and "Mounting".

3.3 Cover frame and support ring

Note

A cover frame and a support ring from the "Millenium" program are additionally required (see the following illustration). These must be ordered separately.

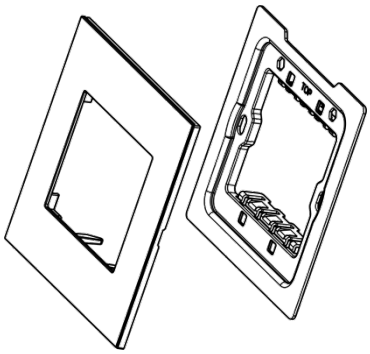


Fig. 1: Cover frame and support ring

4 Technical data

Designation	Value
Power supply (via KNX bus line)	24 V DC
Bus subscribers	1 (12 mA)
KNX connection	Bus connecting terminal, screwless
Protection type	IP20 according to DIN EN 60529
Ambient temperature range	-5 … 45°C
Storage temperature range	-20 … 70°C
Dimensions (H x W x D)	51.5 x 43.6 x 7.8 mm

5 Circuit diagrams and dimensional drawings

5.1 Circuit diagram

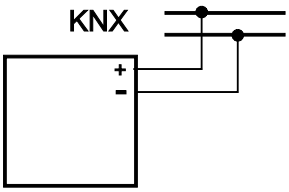


Fig. 2: Circuit diagram

5.2 Dimensional drawing

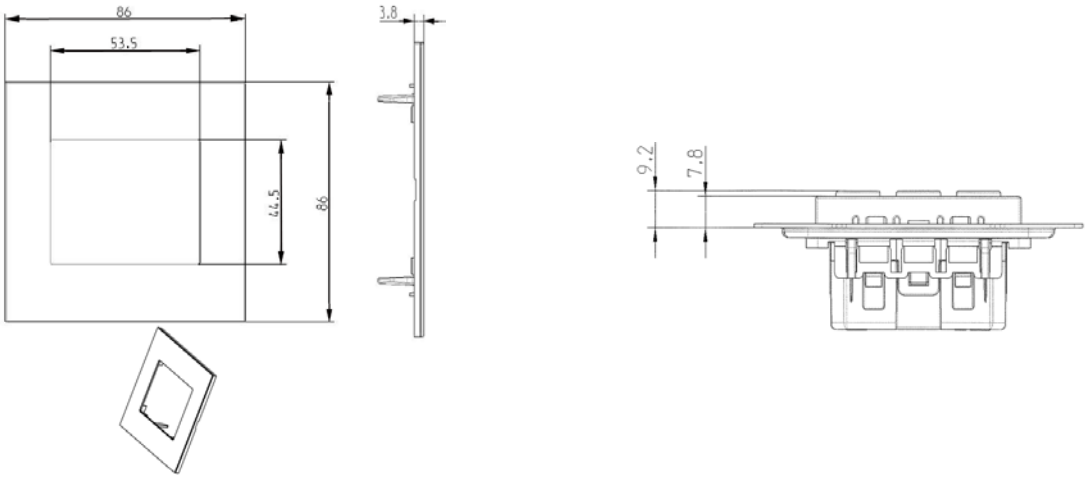


Fig. 3: Dimensional drawing

Note

The sensors listed in this manual all have the same dimensions.

6 Installation and electrical connection

Warning

Electric voltage!

Risk of death due to electrical voltage of 230 V during short-circuit in the low-voltage line.

– Low-voltage and 230 V lines must not be installed together in a flush-mounted socket!

6.1 Requirements for the electrician

Warning

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 from power;
  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 supply network type (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).

6.2 Mounting

6.2.1 Installing the unit

The devices with integrated bus coupler have been prepared for installing in flush-mounted boxes according to BS 4662:2006+A1:2009 in connection with the corresponding support ring and cover frame (see also paragraph "Cover frame and support ring", on page 10).

1. The side of the support ring with the marking "TOP" must be aligned toward the top. Now insert the device into the support ring in such a way that both sides with the marking "TOP" (on the device and the support ring) are aligned parallel to each other.

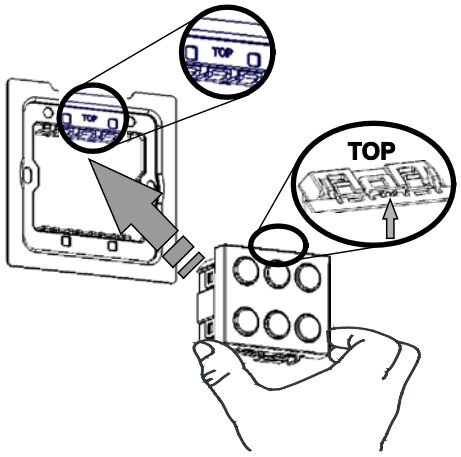


Fig. 4: Inserting the device into the support ring

2. The connection to the KNX bus line is made with the enclosed bus connection terminal (see also chapter "Commissioning", section "Software" on page 18). Now install the support ring with the inserted device in the flush-mounted box ("TOP" toward the top) and screw it on securely.

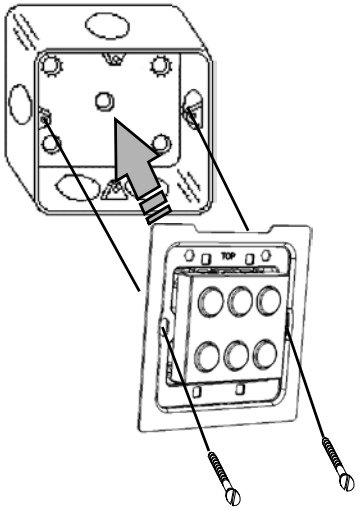


Fig. 5: Inserting into the flush-mounted box

3. Then plug the cover frame onto the support ring.
   – Separate order, see also chapter "Cover frame and support ring", on page 10.

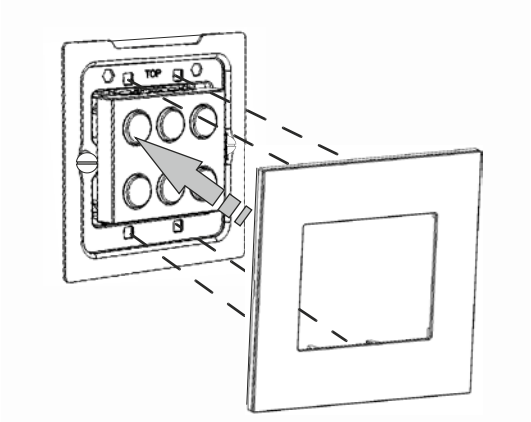
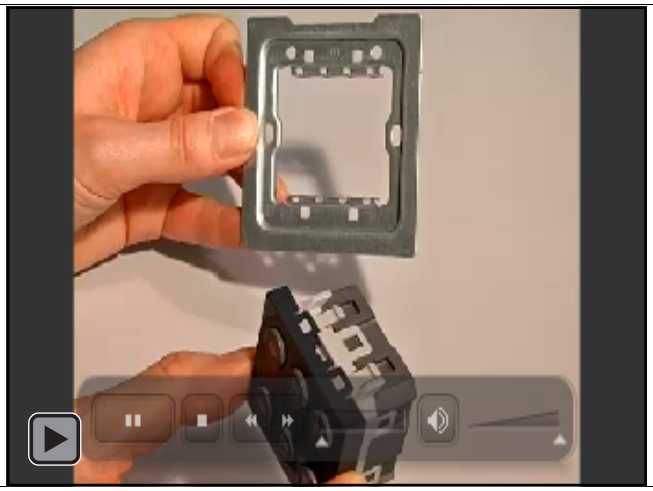


Fig. 6: Attaching the cover frame

Video for mounting and connecting the device (using the "Millenium" control element as example).



6.3 Replacing the control buttons

The control buttons can be exchanged against buttons with different icons. The following icon buttons are available (the control button with the "dot" is included in the scope of delivery).

Note
The icon buttons must be ordered separately.

1. Remove the control element cover.
   – Insert a screwdriver between the lock-in lugs below the cover (1). The cover is removed (3) by turning (2) the screwdriver. This procedure must be carried out on both sides.

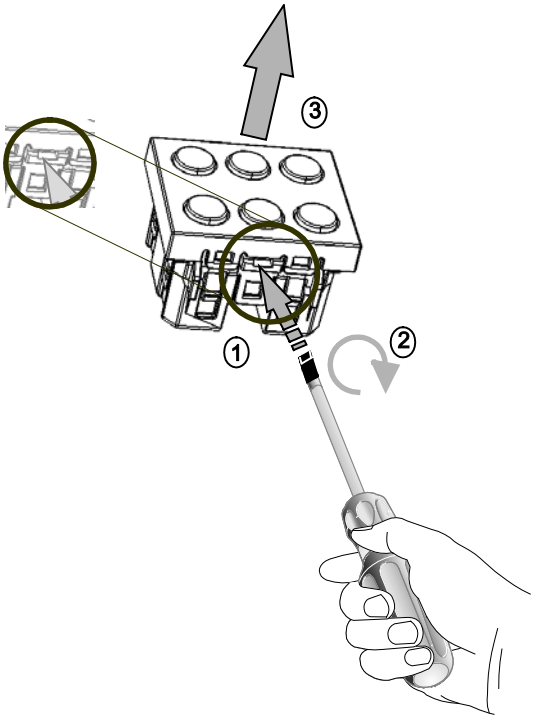


Fig. 7: Removing the control element cover.

Note
The control buttons are secured against falling out!

2. Use your index finger to press the control button downward out of the control element cover.

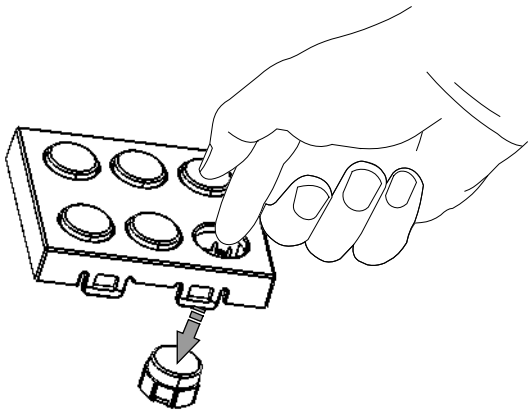


Fig. 8: Pressing out the control button

3. Press the new control button into the control element cover from below.
   – Ensure that the guide of the control button is inserted accurately into the guide rails. Ensure also that the icon is seated straight. The push-buttons are equipped with a twist safety for this reason.

4. Then carefully attach the control element cover onto the device.
   – The lock-in lugs must lock into position.

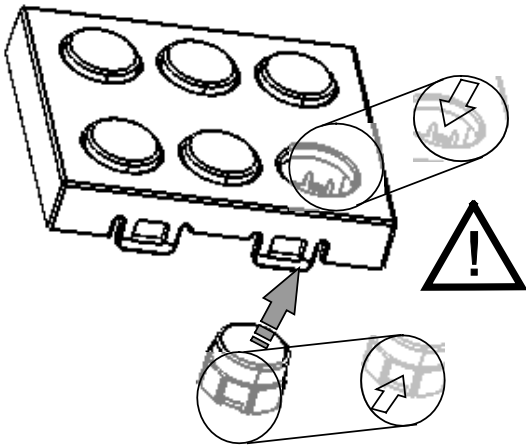


Fig. 9: Inserting the control button

Video for the replacement of the control buttons

6.4 Electrical connection

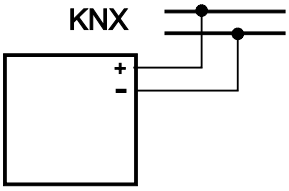


Fig. 10: Circuit diagram

7 Commissioning

7.1 Software

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.

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 (from version ETS 3.0 f). Use the appropriate commissioning tool (Power-Tool) for the parameter settings.

7.1.1 Preparatory steps

1. Connect a PC via the KNX interface, e.g. the commissioning interface / adapter 6149/21-500, to the KNX bus line. The Engineering Tool Software ETS (from version ETS 3.0 f) must have been installed on the PC.

2. Switch on the bus voltage.

7.1.2 Assigning a physical address

1. Remove the control element cover to gain access to the programming button.
   – Insert a screwdriver between the lock-in lugs below the cover (1). The cover is removed (3) by turning (2) the screwdriver. This procedure must be carried out on both sides.

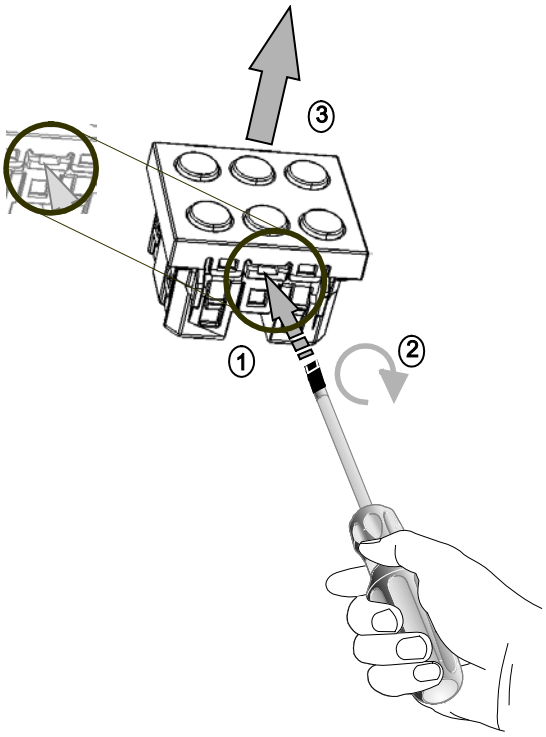


Fig. 11: Removing the control element cover.

2. Press the programming button (1) on the device with a narrow screwdriver.
   – The red LED (1) next to the programming button lights up.
   – After the physical address has been programmed, the red LED goes out.

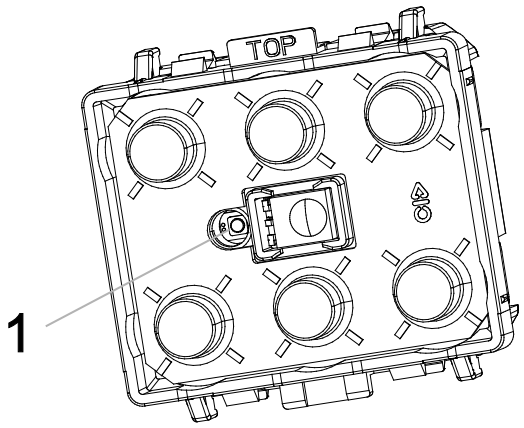


Fig. 12: Uncovering the programming button.

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 software application (ETS / Power-Tool) (detailed descriptions of parameters are contained as Help text in Power-Tool or in chapter "Application ..." (only in languages of the countries DE, EN, ES, FR, IT and NL).

8 Operation

8.1 Control buttons

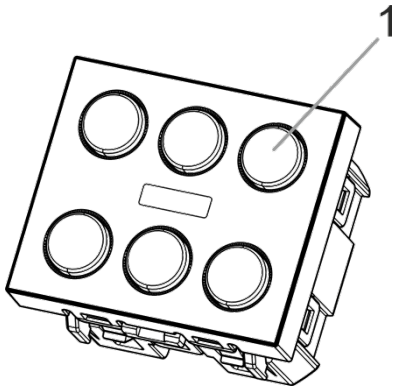


Fig. 13: Arrangement of control buttons

Position	Control element
1	Replaceable control buttons

Note

- Pleas note that the icon buttons must be ordered separately!
- A detailed explanation on replacing the buttons is contained in chapter "Installation and electrical connection".

Operation is carried out by pressing the individual buttons (1). The function is fixed via the assigned application / function and their parameter settings. Extensive functions are available for the control buttons. The scope of applications is contained in chapter "Application ..." (only in languages of the countries DE, EN, ES, FR, IT and NL).
The operation of the control button is described in chapter "Commissioning".

8.2 LED colour concept

The KNX functions are supported by an innovative LED colour concept.

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

Note

The standard illumination can also be selected in "Red / green".

8.3 3-6gang control element with infrared receiver

Also remote control is possible since the infrared receiver can receive the signals of an infrared remote control.

Note

The description of the operation of the IR remote control used (e.g. 6010-25-500) is contained in the accompanying operating manual, which can be downloaded at www.Busch-Jaeger.com.

9 Cleaning

Dirty units can be cleaned with a dry cloth. If this is not sufficient, a cloth slightly moistened with a soap solution can be used. Caustic cleaning agents or solvents must not be used.

10 Maintenance

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

11 Description of applications / objects

11.1 Overview of applications

The application program for the control element with multifunction contains the applications listed in the following:

Depending on which device and application are selected, the Power-Tool software shows different parameters and communication objects. This allows the control element to be set accordingly with multi functions.

Note

A detailed description of parameters is available in the Help texts of the "Power-Tool" software.

11.2 Application "2-button switching"

When the 1st or 2nd button is actuated a switching telegram is sent out. A differentiation is made between whether the 1st or 2nd button is actuated.

Parameters

General parameter	Settings	Comments
Working mode of the buttons	• 1st button off, 2nd button on • 1st button on, 2nd button off • alternating on/off	-

Objects

No.	Object name	Data type	Flags
0	Switching	1 Bit EIS1 / DPT 1.001	C, W ,T ,U

11.3 Application "2-button dimming"

The push-buttons have two communication objects for switching and dimming. A distinction is made between a short (switching) and long (dimming) press of the button. A differentiation is made between whether the 1st or 2nd button is actuated. The parameter "Working mode of the buttons for ..." is used to set whether the 1st button or 2nd button switches on or off or whether it is dimmed brighter or darker.

Parameters

General parameter	Settings	Comments
Duration of long operation (s)	Time input from 0.3 to 3.0 seconds	–
Manner of dimming	• Start-Stop dimming • Step-wise dimming	–
Step size for step-wise dimming (%)	• 1,56 % • 3,13 % • 6,25 % • 12,5 % • 5 % • 50 %	The following additional parameters are available for step-wise dimming:

Additional parameters for "Start-Stop dimming"	Settings	Comments
Working mode of the buttons for switching	• 1st button off, 2nd button on • 1st button on, 2nd button off • alternating on/off	–
Working mode of the buttons for dimming	• 1st button darker, 2nd button brighter • 1st button brighter, 2nd button darker	–

Additional parameters for "Step-wise dimming"	Settings	Comments
Dimming functionality	• Short operation dimming, long operation switching • Short operation switching, long operation dimming	–
Working mode of the buttons for switching	• 1st button off, 2nd button on • 1st button on, 2nd button off • alternating on/off	–
Working mode of the buttons for dimming	• 1st button darker, 2nd button brighter • 1st button brighter, 2nd button darker	–

Objects

No.	Object name	Data type	Flags
0	Switching	1 Bit EIS2 / DPT 1.001	C, W ,T ,U
1	relative dimming	4 Bit EIS2 / DPT 3.007	C, T

11.4 Application "1-button switching"

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

Parameters

General parameter	Settings	Comments
Reaction on rising edge	• On • Off • alternating on/off • no reaction	–
Reaction on falling edge	• On • Off • alternating on/off • no reaction	–

Objects

No.	Object name	Data type	Flags
0	Switching	1 Bit EIS1 / DPT 1.001	C, W ,T ,U

11.5 Application "1-button dimming"

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

Parameters

General parameter	Settings	Comments
Duration of long operation (s)	Time input from 0.3 to 3.0 seconds	General
Working mode of the buttons for switching	• deactivated • Off • On • alternating on/off	Extended
Working mode of the buttons for dimming	• alternating brighter/darker • darker • brighter	

Objects

No.	Object name	Data type	Flags
0	Switching	1 Bit EIS2 / DPT 1.001	C, W ,T ,U
1	relative dimming	4 Bit EIS2 / DPT 3.007	C, T

11.6 Application "2-button blind"

The buttons differentiate between a short press (stop / slat adjustment) and a long press (moving). For control, the button that is assigned with the "2-button blind" application always remembers the last action performed.

Example:
If a blind was lowered and halted at half height via a short button press, then a renewed long button press will raise the blind.

Parameters

General parameter	Settings	Comments
Duration of long operation (s)	Time input from 0.3 to 3.0 seconds	General
Object type	• 1 bit • 1-byte 0..100%	

Additional parameters for "1 bit"	Settings	Comments
Working mode of the buttons	• 1st button Up, 2nd button Down • 1st button down. 2nd button up	–

Additional parameters for "1-byte 0..100%"	Settings	Comments
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 up (%)	0 … 100 %	–

Objects

No.	Object name	Data type	Flags
0	Travel (1 Bit)	1 Bit EIS7 / DPT 1.007	C, T
0	Position (1 Byte)	1 Byte EIS6 / DPT 5.001	C, T
1	Adjust (1 Bit)	1 Bit EIS7 / DPT 1.008	C, T
1	Slats position (1 Byte)	1 Byte EIS6 / DPT 5.001	C, T

11.7 Application "1-button blind"

The buttons differentiate between a short press (stop / slat adjustment) and a long press (moving) for roller shutter operation and between a short press (moving) and a long long press (stop / slat adjustment) for blind operation. For control, the button that is assigned with the "1-button blind" application always remembers the last action performed.

Example:
If a blind was lowered and halted at half height via a long button press, then a renewed short button press will raise the blind.

Parameters

General parameter	Settings	Comments
Duration of long operation (s)	Time input from 0.3 to 3.0 seconds	General
Object type	• 1 bit • 1-byte 0..100%	Only available for function switchover "Shutter".

Additional parameters for "1 bit"	Settings	Comments
Function switchover blinds/roller shutters	• Shutter • Roller blind	Extended for 1 bit

Additional parameters for "1-byte 0..100%"	Settings	Comments
Cycle time of the telegram repetition (s)	Time input from 0.1 to 5.0 seconds	–
Function switchover blinds/roller shutters	• Shutter • Roller blind	Extended for 1 byte 0 ... 100%

Additional parameters for "Function switchover blinds/roller shutters"	Settings	Comments
Value for position down (%)	0 … 100 %	–
Value for position up (%)	0 … 100 %	
Value for slats position down (%)	0 … 100 %	
Value for slats position up (%)	0 … 100 %	

Objects for "Function switchover blinds/roller shutters"

No.	Object name	Data type	Flags
0	Travel (1 Bit)	1 Bit EIS7 / DPT 1.007	C, W ,T ,U
0	Position (1 Byte)	1 Byte EIS6 / DPT 5.001	C, W ,T ,U
1	Adjust (1 Bit)	1 Bit EIS7 / DPT 1.008	C, W ,T ,U
1	Slats position (1 Byte)	1 Byte EIS6 / DPT 5.001	C, W ,T ,U

Objects for "Function switchover roller shutters"

No.	Object name	Data type	Flags
0	Travel (1 Bit)	1 Bit EIS7 / DPT 1.007	C, W ,T ,U
1	Stop (1 Bit)	1 Bit EIS7 / DPT 1.008	C, W ,T ,U

11.8 Application "1-button short-long operation"

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

Parameters

General parameter	Settings	Comments
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	General
Reaction on short operation	• no reaction • Value 1 • Value 2 • alternating value1/value2	
Reaction on long operation	• no reaction • Value 1 • Value 2 • alternating value1/value2	
Duration of long operation (s)	• Time input from 0.3 to 3.0 seconds	Extended

Objects

No.	Object name	Data type	Flags
0	Value switching for short operation	4 Byte EIS14 / DPT 12.001	C, W ,T ,U
1	Value switching for long operation	4 Byte EIS14 / DPT 12.001	C, W ,T ,U

11.9 Application "2-button value transmitter"

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

Parameters

General parameter	Settings	Comments
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/value2	
Value 1	For 1 bit	• On • Off
	For 1-byte 0..100%	0 … 100 %
	For 1-byte 0..255	0..255
	For 2-byte float	-671088,6 … +670760,9
	For 2-byte signed	-32768 … +32767
	For 2-byte unsigned	0 … 65535
	For 4-byte float	-4000000 … +4000000
	For 4-byte signed	2147483648 … 2147483647
	For 4-byte unsigned	0 … 4294967295
Value 2	For 1 bit	• On • Off
	For 1-byte 0..100%	0 … 100 %
	For 1-byte 0..255	0..255
	For 2-byte float	-671088,6 … +670760,9
	For 2-byte signed	-32768 … +32767
	For 2-byte unsigned	0 … 65535
	For 4-byte float	-4000000 … +4000000
	For 4-byte signed	2147483648 … 2147483647
	For 4-byte unsigned	0 … 4294967295

Objects

No.	Object name	Data type	Flags
0	Value switching (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W ,T ,U
	Value switching (1 Byte 0 … 100 %)	1 Byte EIS6 / DPT 5.001	C, W ,T ,U
	Value switching (1 Byte 0 … 255)	1 Byte EIS14 / DPT 5.010	C, W ,T ,U
	Value switching (2 Byte Float)	2 Byte EIS5 / DPT 9.xxx	C, W ,T ,U
	Value switching (2 Byte Signed)	2 Byte EIS10 / DPT 7.001	C, W ,T ,U
	Value switching (2 Byte Unsigned)	2 Byte EIS10 / DPT 8.001	C, W ,T ,U
	Value switching (4 Byte Float)	4 Byte EIS9 / DPT 14.xxx	C, W ,T ,U
	Value switching (4 Byte Signed)	4 Byte EIS11 / DPT 13.001	C, W ,T ,U
	Value switching (4 Byte Unsigned)	4 Byte EIS11 / DPT 12.001	C, W ,T ,U

11.10 Application "1-button value transmitter"

With an actuation of the 1st or 2nd button a telegram with a predefined value is sent out.
The application differentiates here between whether the 1st or 2nd button is actuated. In each case, the application makes a separate set of parameters and communication objects available for the 1st and the 2nd button. The application makes a switching function possible via one button side while the other button side can be assigned with a further "button-oriented" function.

Parameters

General parameter	Settings	Comments
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	–

Additional parameters	Settings	Comments
Reaction on rising edge	• no reaction • Value 1 • Value 2 • alternating value1/value2	–
Reaction on falling edge	• no reaction • Value 1 • Value 2 • alternating value1/value2	–
Value 1	For 1 bit	• On • Off
	For 1-byte 0..100%	0 … 100 %
	For 1-byte 0..255	0 … 255
	For 2-byte float	-671088,6 … +670760,9
	For 2-byte signed	-32768 … +32767
	For 2-byte unsigned	0 … 65535
	For 4-byte float	-4000000 … +4000000
	For 4-byte signed	2147483648 … 2147483647
	For 4-byte unsigned	0 … 4294967295
Value 2	For 1 bit	• On • Off
	For 1-byte 0..100%	0 … 100 %
	For 1-byte 0..255	0 … 255
	For 2-byte float	-671088,6 … +670760,9
	For 2-byte signed	-32768 … +32767
	For 2-byte unsigned	0 … 65535
	For 4-byte float	-4000000 … +4000000
	For 4-byte signed	2147483648 … 2147483647
	For 4-byte unsigned	0 … 4294967295

Objects

No.	Object name	Data type	Flags
0	Value switching (1 Bit)	1 Bit EIS1 / DPT 1.001	C, W ,T ,U
	Value switching (1 Byte 0 … 100 %)	1 Byte EIS6 / DPT 5.001	C, W ,T ,U
	Value switching (1 Byte 0 … 255)	1 Byte EIS14 / DPT 5.010	C, W ,T ,U
	Value switching (2 Byte Float)	2 Byte EIS5 / DPT 9.xxx	C, W ,T ,U
	Value switching (2 Byte Signed)	2 Byte EIS10 / DPT 7.001	C, W ,T ,U
	Value switching (2 Byte Unsigned)	2 Byte EIS10 / DPT 8.001	C, W ,T ,U
	Value switching (4 Byte Float)	4 Byte EIS9 / DPT 14.xxx	C, W ,T ,U
	Value switching (4 Byte Signed)	4 Byte EIS11 / DPT 13.001	C, W ,T ,U
	Value switching (4 Byte Unsigned)	4 Byte EIS11 / DPT 12.001	C, W ,T ,U

11.11 Application "2-button value dimming sensor"

With an actuation of the 1st or 2nd button a telegram with a predefined value is sent out.
The application differentiates here between whether the 1st or 2nd button is actuated. Each actuation of the 1st or 2nd button will increase or reduce a 1-byte value (percent or value from 0 to 255). The 1-byte value can be connected with 1-byte brightness value objects of dimming actuators. This allows a dimming actuator to be dimmed brighter or darker with the buttons via value telegrams.

Parameters

General parameter	Settings	Comments
Object type	• 1-byte 0..100% • 1-byte 0..255	–
Step size (%)	0 … 50 %	Only available when the object type is set on "1-byte 0..100%".
Step size	1 … 128	Only available when the object type is set on "1-byte 0..255".
Working mode of the buttons als Wertdimmsensor	• 1st button darker, 2nd button brighter • 1st button brighter, 2nd button darker	–

Objects

No.	Object name	Data type	Flags
0	Value	1 Byte EIS6 / DPT 5.001	C, W ,T ,U

11.12 Application "LED functionality"

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

Parameters

General parameter	Settings	Comments
Operating mode	• Status illumination • Function illumination	–
Object type for status object	• 1 bit • 1-byte 0..100%	Only available for operating mode "Status illumination".
Brigtness of the colours	• dark • bright	Only available when parameter "Day/Night mode" is set on "activated".
Colour of function illumination	• Off • White (neutral) • yellow (light) • red-orange (heating) • violet (scene) • blue (blind)	Only available when parameter "Proximity function" is set on "activated".
Colour of orientation illumination	• Blue • White	Only available when parameter "Proximity function" is set on "activated".

Additional parameters for object type "1 bit".	Settings	Comments
Colour for off	• Off • red • green	Only available for operating mode "Status illumination".
Colour for on	• Off • red • green	

Additional parameters for object type "1 bit"	Settings	Comments
Colour for Zone 1 (corresponds to 0%)	• Off • red • green	Only available for operating mode "Status illumination".
Colour for Zone 2 (starting at 1%)	• Off • yellow • red-orange • red • green	
Threshold between Zone 2 and Zone 3 (%)	1 … 98 %	
Colour for Zone 3	• Off • yellow • red-orange • White	
Threshold between Zone 3 and Zone 4 (%)	2 … 99 %	
Colour for Zone 4 (up to 99%)	• Off • yellow • red-orange • red • green	
Colour for Zone 5 (corresponds to 100%)	• Off • red • green	

Additional parameters	Settings	Comments
Day/Night mode	• deactivated • activated	–
Proximity function	• deactivated • activated	
Logic of the proximity function	• Normal • inverse	Only available when parameter "Proximity function" is set on "activated".
Storage function light scenes	• deactivated • activated	Only available when parameter "Colour for Off / On" or "Colour for area x" (when a colour for "Colour of orientation illumination" has been selected) is set on "activated", or for operating mode "Function illumination" (when a colour is selected for "Colour of function illumination").
Alarm function	• deactivated • activated	

Objects

No.	Object name	Data type	Flags
–	–	–	–

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

When actuating and/or releasing the buttons, two telegrams with predefined values are sent from two different communication objects. In each case, the application makes a separate set of parameters and communication objects available for the 1st and the 2nd button. The application makes it possible, for example, to send out a switching function and a floating point value when actuating one side of the button and to assign an additional "button-oriented" function to the other side of the button.

Parameters

General parameter	Settings	Comments
Objcet 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	–
Objcet 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	–

Additional parameters	Settings	Comments
Reaction on rising edge	• no reaction • Value 1 • Value 2 • alternating value1/value2	–
Reaction on falling edge	• no reaction • Value 1 • Value 2 • alternating value1/value2	–
Value 1 / 2 for a rising edge	–	Only available when parameter "Reaction to rising edge" is set on "Alternating value 1 / value 2".
	für 1 bit	• On • Off
	für 1-byte 0..100%	0 … 100 %
	für 1-byte 0..255	0..255
	für 2-byte float	-671088,6 … +670760,9
	für 2-byte signed	-32768 … +32767
	für 2-byte unsigned	0 … 65535
	für 4-byte float	-4000000 … +4000000
	für 4-byte signed	2147483648 … 2147483647
	für 4-byte unsigned	0 … 4294967295
Value 1 / 2 for falling edge	–	Only available when parameter "Reaction to falling edge" is set on "Alternating value 1 / value 2".
	für 1 bit	• On • Off
	für 1-byte 0..100%	0 … 100 %
	für 1-byte 0..255	0 … 255
	für 2-byte float	-671088,6 … +670760,9
	für 2-byte signed	-32768 … +32767
	für 2-byte unsigned	0 … 65535
	für 4-byte float	-4000000 … +4000000
	für 4-byte signed	2147483648 … 2147483647
	für 4-byte unsigned	0 … 4294967295

Objects

No.	Object name	Data type	Flags
0	Switching (rising edge) (1 bit)	1 Bit EIS1 / DPT 1.001	C, W ,T ,U
	Switching (rising edge) (1-byte 0..100%)	1 Byte EIS6 / DPT 5.001	C, W ,T ,U
	Switching (rising edge) (1-byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W ,T ,U
	Switching (rising edge) (2-byte float)	2 Byte EIS5 / DPT 9.xxx	C, W ,T ,U
	Switching (rising edge) (2-byte signed)	2 Byte EIS10 / DPT 7.001	C, W ,T ,U
	Switching (rising edge) (2-byte unsigned)	2 Byte EIS10 / DPT 8.001	C, W ,T ,U
	Switching (rising edge) (4-byte float)	4 Byte EIS9 / DPT 14.xxx	C, W ,T ,U
	Switching (rising edge) (4-byte signed)	4 Byte EIS11 / DPT 13.001	C, W ,T ,U
	Switching (rising edge) (4-byte unsigned)	4 Byte EIS11 / DPT 12.001	C, W ,T ,U
1	Switching (falling edge) (1 bit)	1 Bit EIS1 / DPT 1.001	C, W ,T ,U
	Switching (falling edge) (1-byte 0..100%)	1 Byte EIS6 / DPT 5.001	C, W ,T ,U
	Switching (falling edge) (1-byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W ,T ,U
	Switching (falling edge) (2-byte float)	2 Byte EIS5 / DPT 9.xxx	C, W ,T ,U
	Switching (falling edge) (2-byte signed)	2 Byte EIS10 / DPT 7.001	C, W ,T ,U
	Switching (falling edge) (2-byte unsigned)	2 Byte EIS10 / DPT 8.001	C, W ,T ,U
	Switching (falling edge) (4-byte float)	4 Byte EIS9 / DPT 14.xxx	C, W ,T ,U
	Switching (falling edge) (4-byte signed)	4 Byte EIS11 / DPT 13.001	C, W ,T ,U
	Switching (falling edge) (4-byte unsigned)	4 Byte EIS11 / DPT 12.001	C, W ,T ,U

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

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

Parameters

General parameter	Settings	Comments
Duration of long operation (s)	Time input from 0.3 to 10.0 seconds	Only available when parameter "Storage function light scenes" is set on "activated".
Storage function light scenes	• deactivated • activated	–
Number of light scene	1 … 64	–

Objects

No.	Object name	Data type	Flags
0	Number of light scene	1 Byte EIS6 / DPT 18.001	C, T

11.15 Application "1-button step switch"

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

Example:

- The first actuation (2nd button) switches lamp 1 on.
- The second actuation (2nd button) switches lamp 1 off and lamp 2 on.
- The third actuation (2nd button) switches lamp 2 off and lamp 3 on.
- The fourth actuation (1st button) switches lamp 3 off and lamp 2 on.
- The fifth actuation (1st button) switches lamp 2 off and lamp 1 on.
- etc.

Up to five switching levels can be activated.

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

Parameters

General parameter	Settings	Comments
Number of objects	1 … 5	–
Evaluation period (s)	1,0 … 5,0	–

Additional parameters	Settings	Comments
Working mode of the buttons	• 1st button Up, 2nd button Down • 1st button down. 2nd button up	–
Sending of objects	• for operation • for change of value	–
Object values	• Normal • inverse	–
Bit pattern of the object values	• 1 of n • x of n	–

Objects

No.	Object name	Data type	Flags
0	Switching stage 1	1 Bit EIS1 / DPT 1.001	C, W, T
1	Switching stage 2	1 Bit EIS1 / DPT 1.001	C, W, T
2	Switching stage 3	1 Bit EIS1 / DPT 1.001	C, W, T
3	Switching stage 4	1 Bit EIS1 / DPT 1.001	C, W, T
4	Switching stage 5	1 Bit EIS1 / DPT 1.001	C, W, T

11.16 Application "2-button step switch"

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

Example:
- The first actuation switches lamp 1 on.
- The second actuation switches lamp 1 off and lamp 2 on.
- The third actuation switches lamp 2 off and lamp 3 on.
- The fourth actuation switches lamp 3 off and lamp 1 on.
- etc.

Up to five switching levels can be activated.

In each case, the application makes a separate set of parameters and communication objects available for the 1st and the 2nd button. The other side of the button can be assigned a further "button-oriented" function.

Parameters

General parameter	Settings	Comments
Number of objects	1 … 5	–
Evaluation period (s)	1,0 … 5,0	–

Additional parameters	Settings	Comments
Duration of long operation (s)	0,3 … 2,5	–
Sending of objects	• for operation • for change of value	–
Object values	• Normal • inverse	–
Bit pattern of the object values	• 1 of n • x of n	–

Objects

No.	Object name	Data type	Flags
0	Switching stage 1	1 Bit EIS1 / DPT 1.001	C, W, T
1	Switching stage 2	1 Bit EIS1 / DPT 1.001	C, W, T
2	Switching stage 3	1 Bit EIS1 / DPT 1.001	C, W, T
3	Switching stage 4	1 Bit EIS1 / DPT 1.001	C, W, T
4	Switching stage 5	1 Bit EIS1 / DPT 1.001	C, W, T

11.17 Application "1-button multiple operation"

A differentiation can be made between a single, double, triple, quadruple or quintuple actuation of the button. For each actuation, single, double, triple, quadruple, or quintuple, different values can be sent out.
In each case, the application "1-button multiple operation" makes a separate set of parameters and communication objects available for the 1st and the 2nd button. This makes multiple operation possible via one side of the button and assigning a further "button-oriented" function to the other side of the button.

Parameters

General parameter	Settings	Comments
Number of objects or operations	1 … 5	–
Evaluation period (s)	1,0 … 5,0	–

Additional parameters	Settings	Comments
Object type for object 0-4	• 1 bit • 1-byte 0..100% • 1-byte 0..255 • 2-byte float • 2-byte signed • 2-byte unsigned • 4-byte float • 4-byte signed • 4-byte unsigned	–
Value for object 0-4 (x)	For 1 bit	• On • Off
	For 1-byte 0..100%	0 … 100 %
	For 1-byte 0..255	0 … 255
	For 2-byte float	-671088,6 … +670760,9
	For 2-byte signed	-32768 … +32767
	For 2-byte unsigned	0 … 65535
	For 4-byte float	-4000000 … +4000000
	For 4-byte signed	2147483648 … 2147483647
	For 4-byte unsigned	0 … 4294967295
Function for object type 1-bit for object 0-4	• Transmit value • alternating on/off	Only available when parameter "Number of objects or operations" is larger than 1.

Objects

No.	Object name	Data type	Flags
0	Switching 1 actuation (1 bit)	1 Bit EIS1 / DPT 1.001	C, W ,T ,U
	Switching 1 actuation (1-byte 0..100%)	1 Byte EIS6 / DPT 5.001	C, W ,T ,U
	Switching 1 actuation (1-byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W ,T ,U
	Switching 1 actuation (2-byte float)	2 Byte EIS5 / DPT 9.xxx	C, W ,T ,U
	Switching 1 actuation (2-byte signed)	2 Byte EIS10 / DPT 7.001	C, W ,T ,U
	Switching 1 actuation (2-byte unsigned)	2 Byte EIS10 / DPT 8.001	C, W ,T ,U
	Switching 1 actuation (4-byte float)	4 Byte EIS9 / DPT 14.xxx	C, W ,T ,U
	Switching 1 actuation (4-byte signed)	4 Byte EIS11 / DPT 13.001	C, W ,T ,U
	Switching 1 actuation (4-byte unsigned)	4 Byte EIS11 / DPT 12.001	C, W ,T ,U
1	Switching 2 actuations (1 bit)	1 Bit EIS1 / DPT 1.001	C, W ,T ,U
	Switching 2 actuations (1-byte 0..100%)	1 Byte EIS6 / DPT 5.001	C, W ,T ,U
	Switching 2 actuations (1-byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W ,T ,U
	Switching 2 actuations (2-byte float)	2 Byte EIS5 / DPT 9.xxx	C, W ,T ,U
	Switching 2 actuations (2-byte signed)	2 Byte EIS10 / DPT 7.001	C, W ,T ,U
	Switching 2 actuations (2-byte unsigned)	2 Byte EIS10 / DPT 8.001	C, W ,T ,U
	Switching 2 actuations (4-byte float)	4 Byte EIS9 / DPT 14.xxx	C, W ,T ,U
	Switching 2 actuations (4-byte signed)	4 Byte EIS11 / DPT 13.001	C, W ,T ,U
	Switching 2 actuations (4-byte unsigned)	4 Byte EIS11 / DPT 12.001	C, W ,T ,U
2	Switching 3 actuations (1 bit)	1 Bit EIS1 / DPT 1.001	C, W ,T ,U
	Switching 3 actuations (1-byte 0..100%)	1 Byte EIS6 / DPT 5.001	C, W ,T ,U
	Switching 3 actuations (1-byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W ,T ,U
	Switching 3 actuations (2-byte float)	2 Byte EIS5 / DPT 9.xxx	C, W ,T ,U
	Switching 3 actuations (2-byte signed)	2 Byte EIS10 / DPT 7.001	C, W ,T ,U
	Switching 3 actuations (2-byte unsigned)	2 Byte EIS10 / DPT 8.001	C, W ,T ,U
	Switching 3 actuations (4-byte float)	4 Byte EIS9 / DPT 14.xxx	C, W ,T ,U
	Switching 3 actuations (4-byte signed)	4 Byte EIS11 / DPT 13.001	C, W ,T ,U
	Switching 3 actuations (4-byte unsigned)	4 Byte EIS11 / DPT 12.001	C, W ,T ,U
3	Switching 4 actuations (1 bit)	1 Bit EIS1 / DPT 1.001	C, W ,T ,U
	Switching 4 actuations (1-byte 0..100%)	1 Byte EIS6 / DPT 5.001	C, W ,T ,U
	Switching 4 actuations (1-byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W ,T ,U
	Switching 4 actuations (2-byte float)	2 Byte EIS5 / DPT 9.xxx	C, W ,T ,U
	Switching 4 actuations (2-byte signed)	2 Byte EIS10 / DPT 7.001	C, W ,T ,U
	Switching 4 actuations (2-byte unsigned)	2 Byte EIS10 / DPT 8.001	C, W ,T ,U
	Switching 4 actuations (4-byte float)	4 Byte EIS9 / DPT 14.xxx	C, W ,T ,U
	Switching 4 actuations (4-byte signed)	4 Byte EIS11 / DPT 13.001	C, W ,T ,U
	Switching 4 actuations (4-byte unsigned)	4 Byte EIS11 / DPT 12.001	C, W ,T ,U
4	Switching 5 actuations (1 bit)	1 Bit EIS1 / DPT 1.001	C, W ,T ,U
	Switching 5 actuations (1-byte 0..100%)	1 Byte EIS6 / DPT 5.001	C, W ,T ,U
	Switching 5 actuations (1-byte 0..255)	1 Byte EIS14 / DPT 5.010	C, W ,T ,U
	Switching 5 actuations (2-byte float)	2 Byte EIS5 / DPT 9.xxx	C, W ,T ,U
	Switching 5 actuations (2-byte signed)	2 Byte EIS10 / DPT 7.001	C, W ,T ,U
	Switching 5 actuations (2-byte unsigned)	2 Byte EIS10 / DPT 8.001	C, W ,T ,U
	Switching 5 actuations (4-byte float)	4 Byte EIS9 / DPT 14.xxx	C, W ,T ,U
	Switching 5 actuations (4-byte signed)	4 Byte EIS11 / DPT 13.001	C, W ,T ,U
	Switching 5 actuations (4-byte unsigned)	4 Byte EIS11 / DPT 12.001	C, W ,T ,U

11.18 Application "1-button operating mode, "Adjust thermostat settings""

With the actuation of one side of the button an operating mode switchover for connected room temperature controllers can be carried out. In each case, the application makes a separate set of parameters and communication objects available for the 1st and the 2nd button. The other side of the button can be assigned a further "1-button" function.

Parameters

General parameter	Settings	Comments
Object type for output	• 1 bit • 1 byte	–
Operating mode	• Off	Only available when parameter "Object type for output" is set on "1 byte".
	• Comfort • Standby • Night • Frost protection, heat protection	–

Additional parameters	Settings	Comments
Enable object	• activated • deactivated	–
Object value enable object	• Normal • inverse	Only available when parameter "Enable object" is set on "activated".
Enable object after return of voltage	• enabled • blocked	Only available when parameter "Enable object" is set on "activated".
Send comfort object	• activated • deactivated	Only available when parameter "Object type for output" is set on "1 bit", and for operating modes "Comfort", "Standby" and "Night".
Transmit frost object	• activated • deactivated	
Sending night object	• activated • deactivated	Only available when parameter "Object type for output" is set on "1 bit", and for operating modes "Standby", and "Night".

Objects

No.	Object name	Data type	Flags
0	Enable	1 Bit EIS1 / DPT 1.001	C, W, U
1	Comfort operating mode	1 Bit EIS1 / DPT 1.001	C, T
2	Night operating mode	1 Bit EIS1 / DPT 1.001	C, T
3	Frost operating mode	1 Bit EIS1 / DPT 1.001	C, T

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1473-1-7799 | Rev. 01 | 12.2012