2CKA001473B9347 | 15.08.2017

KNX Technical Reference Manual

Control element, 6gang with universal input, 5gang

6108/60-500

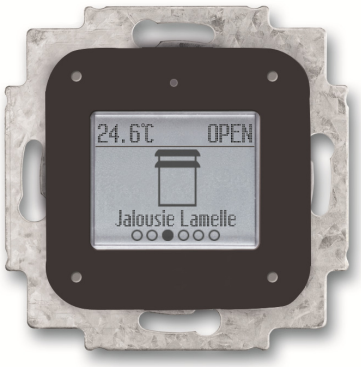

Table of contents

1 Notes on the instruction manual

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

Please keep this manual in a safe place.

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

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

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

www.BUSCH-JAEGER.com

2 Safety

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

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

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

2.1 Information and symbols used

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

Danger

Risk of death / serious damage to health

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

Warning

Serious damage to health

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

Caution

Damage to health

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

2.2 Intended use

The device is a control element with a room temperature controller extension unit (slave) and 5gang universal inputs.

The device is intended for the following:

- use as control element,
- controlling the room temperature,
- determining/measuring the following values:
  - Temperature
- operation according to the listed technical data,
- the installation in dry interior rooms,
- the use with the connecting options available on the device.

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

Note

- The integrated bus coupler enables connection to a KNX bus line.
- Extensive functions are available for the device. For the range of applications, see chapter 10 “Description of application and parameters“ on page 34.

2.3 Improper use

Each use not listed in Chapter 2.2 “Intended use“ on page 14 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
- The control of the device serves for monitoring and regulating the quality of the air. It must not be used for safety-related tasks.

2.4 Target group / Qualifications of personnel

2.4.1 Operation

No special qualifications are needed to operate the device.

2.4.2 Installation, commissioning and maintenance

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

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! - 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

4.1 Functions

The device is a control element consisting of up to 6 functions with a room temperature controller extension unit. Aside from room control, the device also offers the option of connecting various devices/sensors via the 5 universal inputs.

The device measures the following values:

- Temperature

The device has an internal temperature sensor for measuring the current actual temperature.

4.2 Sources of interference

The measured results of the device can be influenced negatively by external sources. The following contains possible sources of interference:

- Draught and movement of air.
  - E.g. from windows, doors, convection, heating or persons.
- Heating up or cooling down.
  - E.g. solar irradiation or mounting on an outside wall.
- Heat sources
  - In the direct vicinity of installed electric loads, e.g. dimmers
- Shocks or impacts the device was or is being subjected to.
- Contamination from paint, wallpaper adhesive, dust, etc.
  - E.g. during renovation work
- Organic solutions or their vapours.
  - E.g. cleaning agents.
- Softening agents from stick-on labels and packaging.
  - E.g. air-cushion foil or polystyrene

5 Technical data

Designation	Value
Power supply:	24 V DC (via bus line)
KNX connection:	Bus connecting terminal, screwless
Bus subscribers:	1 (≤12 mA)
Temperature range:	-5°C to +45°C
Storage temperature:	-10°C to +60°C
Protection type:	IP 20
Protection class:	III
Display size:	3.8 cm (1.5")
Dimensions of flush-mounted insert:	44 x 44 x 32 mm The screws for the flush-mounted box are used for installation.
Parameter setting:	Parameters are set using the ETS Tool Software.
Inputs:	
a) 4 binary inputs + 1 analogue input	
– Activation of sensors with external power supply – The external temperature sensor at E4/5 does not require an external power supply. When connecting an analogue external sensor, the 0 to 10 V or the 1 to 10 V must be supplied from the sensor. – Binary input power supply: supplied by the device.	1 to 10 V / 0 to 10 V
b) 2 binary inputs + 1 analogue input + external temperature sensor	
– Activation of sensors with external power supply – The external temperature sensor at E4/5 does not require an external power supply. When connecting an analogue external sensor, the 0 to 10 V or the 1 to 10 V must be supplied from the sensor. – Binary input power supply: supplied by the device.	1 to 10 V / 0 to 10 V + external temperature sensor DP4-T-1 (alternative PT1000)
c) 5 binary inputs	
Display values ▪ Temperature:	0°C to 35°C

Nominal current:	< 9 mA
Mode of operation (DIN EN 60730-1)	See operating instructions
Degree of contamination (DIN EN 60730-1)	See operating instructions
Rated surge voltage (DIN EN 60730-1)	See operating instructions

Table 1: Technical data

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.

6.1 Installation site

For proper commissioning please observe the following points:

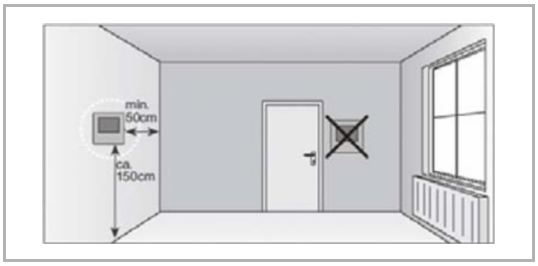

Fig. 1: Installation site - Distance

- The device should be installed at a height of approximately 150 cm from the floor and 50 cm from a door frame.

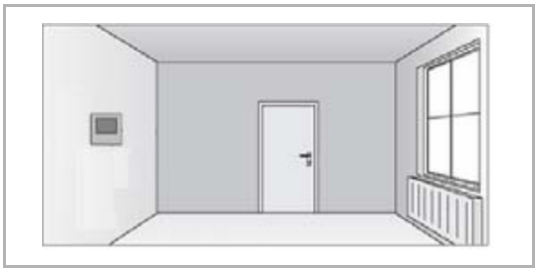

Fig. 2: Installation site – Position of radiator

- The device should be installed on a wall opposite a radiator.

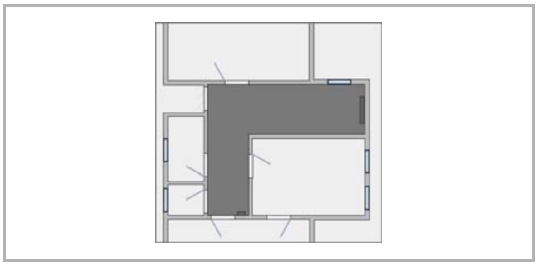

Fig. 3: Installation site - Room architecture

- The angles of the room architecture should not separate a radiator and the device from each other.

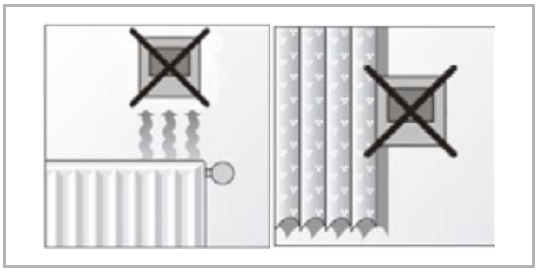

Fig. 4: Installation site – Position of RTC

- Installing a device close to a radiator or behind curtains is not practical.

Fig. 5: Installation site - Exterior wall

- This also applies to installation on an exterior wall.
  - Low outside temperatures have an effect on temperature regulation.

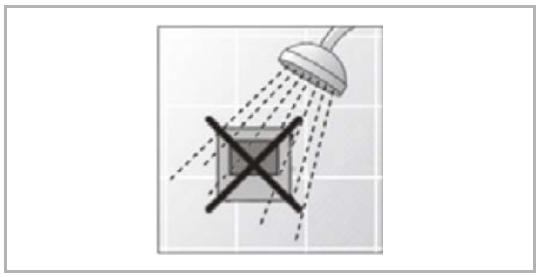

Fig. 6: Installation site – Wetting with fluids

- Wetting the room temperature controller with fluids is to be avoided.

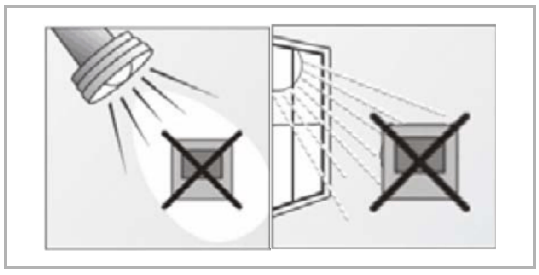

Fig. 7: Installation site – Direct sunlight

- Just as heat radiated from electric loads can impair the temperature regulation, so can direct sunlight on the device.

6.2 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.

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

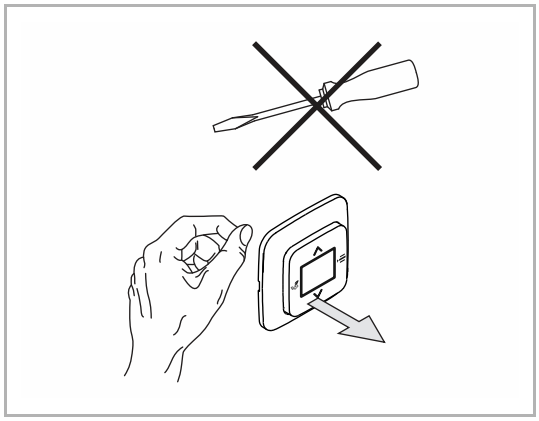

Fig. 8: Wall mounting: pulling off the attachment

– If the device is already mounted or assembled, pull the attachment off the flush-mounted insert with the aid of the cover frame.

To install the device, perform the following steps:

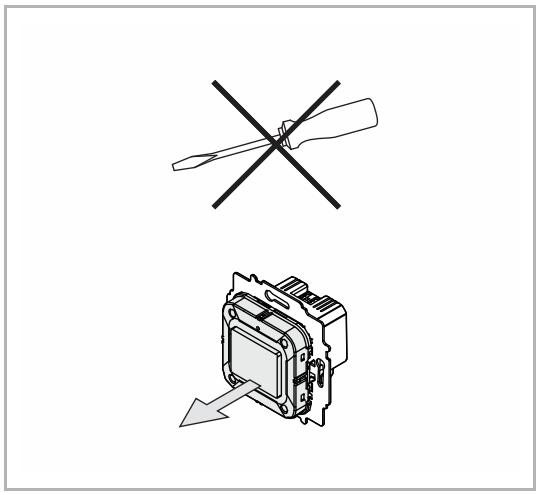

Fig. 9: Device in as-delivered state: pulling off the attachment

– If the device is in its as-delivered state, pull the attachment off the flush-mounted insert with your hands.
– Pull the attachment off only with your hands!
– Do not lever parts off with screwdrivers or similar hard objects. This will damage the device.
– When pulling off, first the resistance of the spring clamps must be overcome.

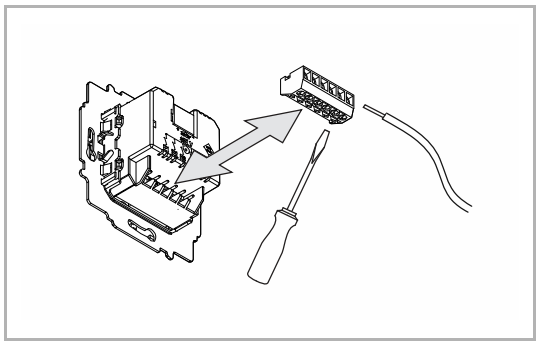

Fig. 10: Connecting the cables

1. Connect the cables to the flush-mounted insert.
   - The device clamp block can be pulled off the device to make it easier to establish the electrical connection.
   - For the connection assignment, see chapter 6.3 “Electrical connection“ on page 26.

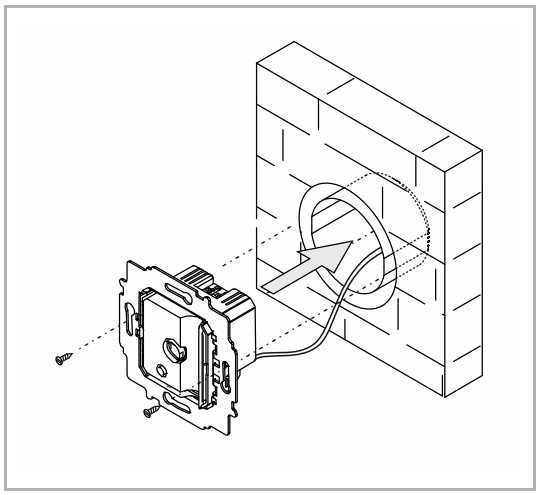

Fig. 11: Mounting the flush-mounted insert

2. Mount the flush-mounted insert.

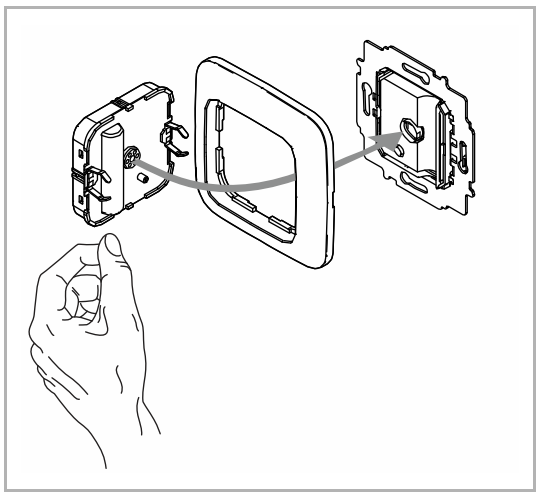

Fig. 12: Mounting the attachment

3. Plug the attachment together with the cover frame onto the flush-mounted insert.
   - Ensure that the plug-in connection on the rear side does not get jammed.
   - If mounting is difficult, check whether a burr has formed at the lock-in openings of the flush-mounted insert and remove it.

The device is now mounted.

6.3 Electrical connection

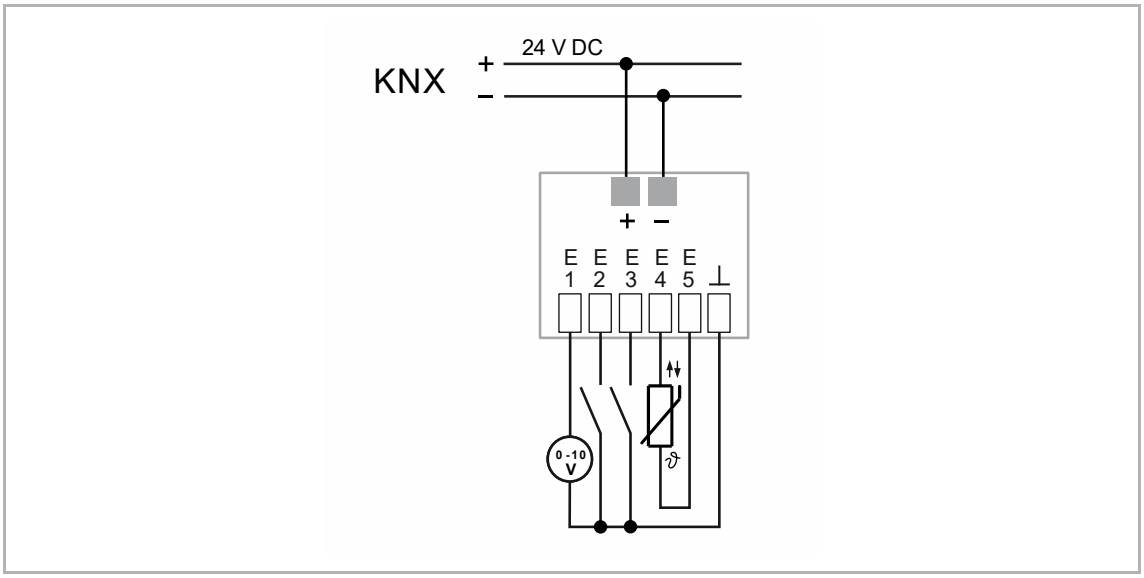

Fig. 13: Electrical connection

Terminal	Binary	Temperature sensor	0 to 10 V	1 to 10 V
E1	X	—	X	X
E2	X	—	—	—
E3	X	—	—	—
E4	X	X	—	—
E5	X		—	—
E6 (GND)	—	—	—	—

Tab.2: Possible functions of the universal inputs

7 Commissioning

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 / the commissioning adapter 6149/21-500).
   – The current Engineering Tool Software must be installed on the PC (ETS 4.2 or higher).
2. Switch on the bus voltage.

7.1.2 Assigning a physical address

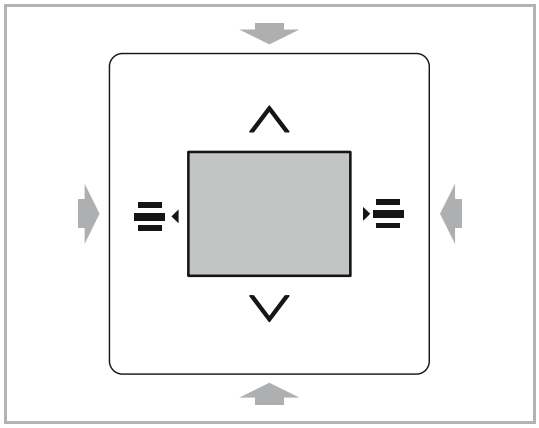

Fig. 14: Assigning a physical address

Use the following steps to switch to programming mode:

1. Press all buttons simultaneously for at least 5 seconds.
   – The red display illumination becomes active.
   – Display: physical address input

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 10 “Description of application and parameters“ on page 34.

8 Operation

The control of the up to 7 parameterizable functions is carried out via the concept of the floating rocker. The seventh function can only be configured as room temperature controller extension unit (slave).

The selected function is displayed via the display with the corresponding icon. The device is operated using the button elements of the cover plate.

The precise function is fixed via the device application and its parameter settings.

An extensive range of parameters is available in one application. For information on how to make parameter settings, see Chapter 10 “Description of application and parameters“ on page 34.

8.1 Primary function

The first function can be activated as primary function. This has priority in the device after operation. The jump-back to the primary function from another function takes place after a parameterized time.

8.2 Control elements

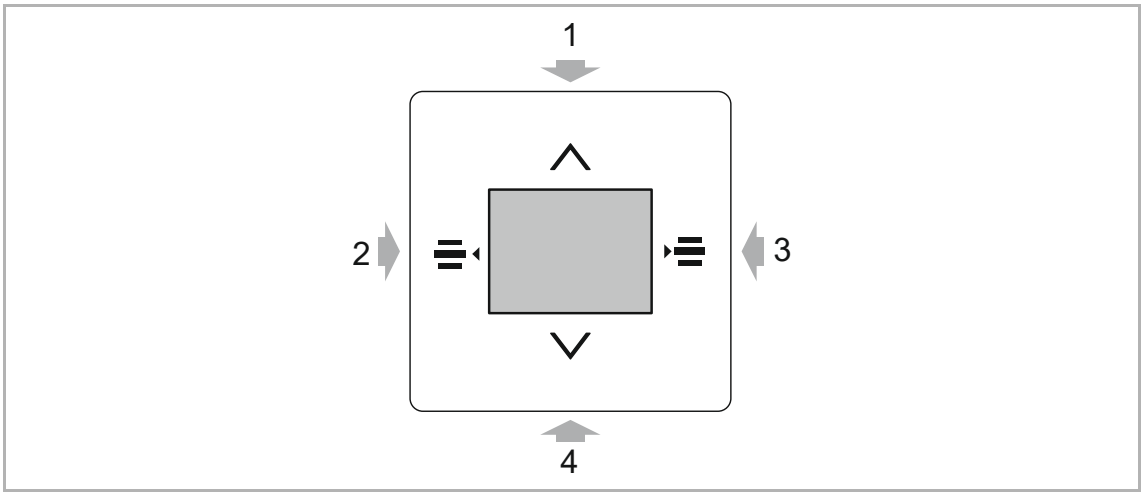

Fig. 15: Control elements

No.	Button	Function	Example of parameterization
1	Button UP	Executing the selected parameterized function.	– Top = ON; bottom = OFF – Top = dimming brighter; bottom = dimming darker – Top = blind UP; Bottom =blind DOWN
4	Button DOWN	Executing the selected parameterized function.	
2	Button left	Scroll to the left in the list of the parameterized functions.	
3	Button right	Scroll to the right in the list of the parameterized functions.	

Note

- The standard display is the parameterized primary function.
- The scope of supply only contains the flush-mounted insert and the flush-mounted control element. It is necessary to order the matching cover plate and a cover frame separately. Additional information about the switch ranges is available in the electronic catalogue (www.busch-jaeger-catalogue.com).

8.3 Displays / messages

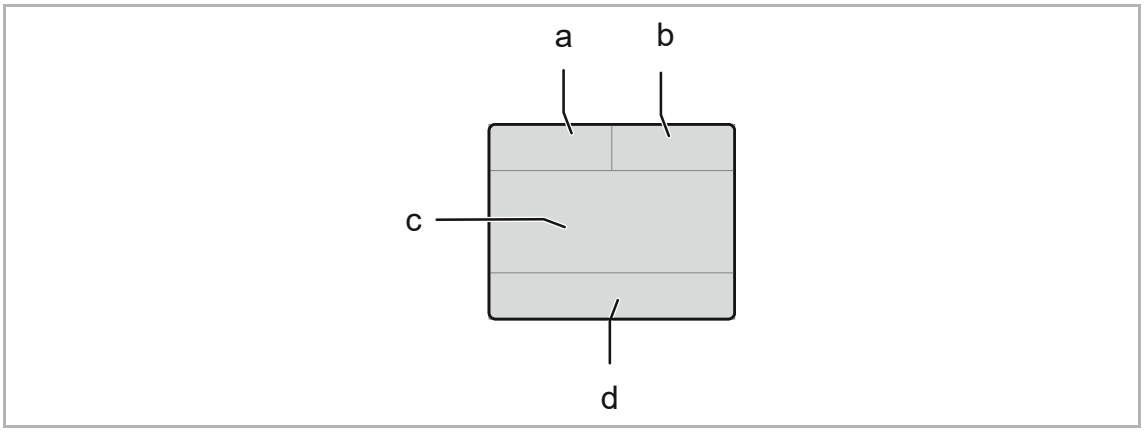

Fig. 16: Primary function display

[a] Actual temperature

[b] Value display

[c] Display of the selected function with parameterized icon and text

[d] Orientation display for selected operating function

The display serves for the visualization of the parameterized functions. Here the function is displayed via an icon [c] displayed in the centre of the display. The icon shows either the function or the status of the function.

In the top left part of the display the actual temperature [a] is shown. In the top right part of the display any value/status [b] can be displayed. If this is not parameterized, the field remains empty.

In the bottom area in the centre above dots the page status that is called up is displayed/illustrated. The number of dots indicates the number of parameterized pages (max. 7). The primary function is active in the central position.

Note
Some of the functions shown here are only displayed if the parameters for them have been set beforehand using the ETS Tool Software.

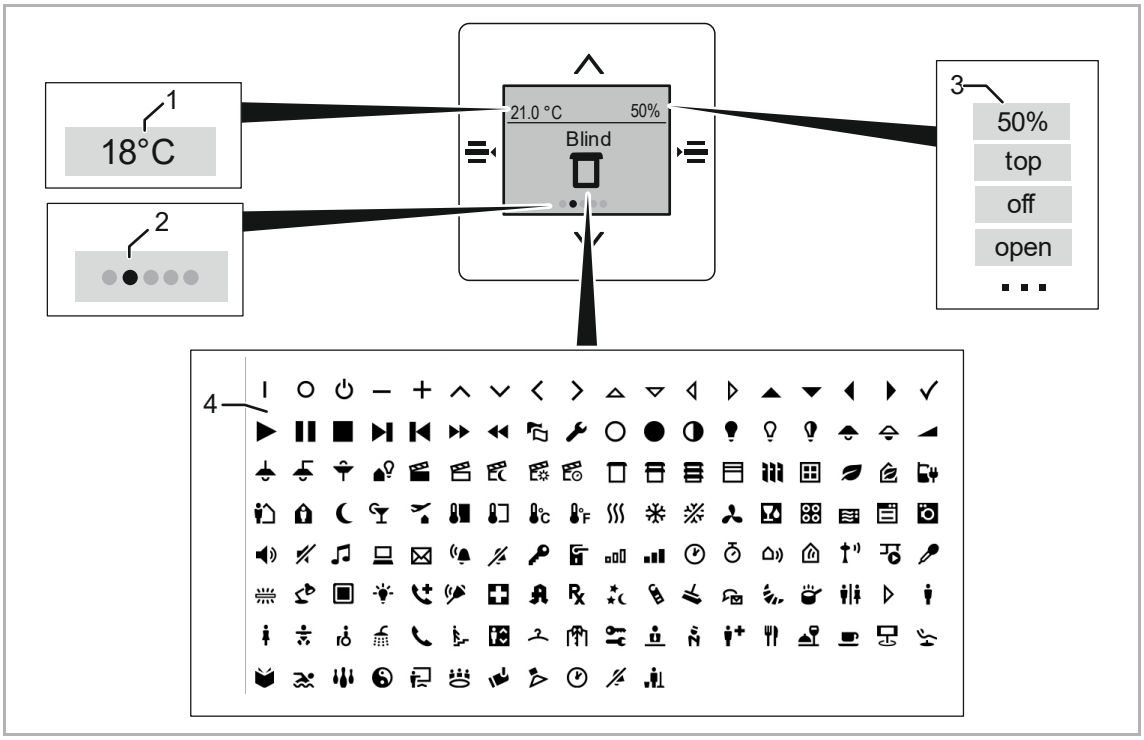

Fig. 17: Icons displayed

No.	Meaning	Function
[1]	Display	Actual temperature
[2]	Display	Orientation display for selected operating function (pages status)
[3]	Parameterized value display	Dependent on the selected / parameterized function
[4]	Display of the selected function with parameterized icon and text	Dependent on the selected / parameterized function. The illustrated ICONS must be selected via the parameters of the application.

9 Maintenance

9.1 Cleaning

Caution! - Risk of damaging the device!

- When spraying on cleaning agents, these can enter the device through crevices.
  - Do not spray cleaning agents directly onto the device.
- Aggressive cleaning agents can damage the surface of the device.
  - Never use caustic agents, abrasive agents or solvents.

Clean dirty devices with a soft dry cloth.

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

10 Description of application and parameters

10.1 Application program

The following application program is available:

Application program
6108/60-500: Control element, 6gang with universal input, 5gang

The application program for the room temperature controller contains the applications listed below:

KNX application
Operating functions
RTC
Inputs

Depending on which device and application are selected, the "ETS" Engineering Tool Software shows different parameters and communication objects.

10.2 "Operating functions" application

The device can be parameterized with up to 6 operating functions and one room temperature controller extension unit.

If more than on operating function is activated, the first function can be parameterized as primary function.

The individual functions are operated via the cover plate. The top and bottom rocker serves for triggering/operating the function shown in the display. The rockers on the right and left serve for selecting the maximum of 6 operating functions as well as the RTC extension unit.

10.2.1 General

10.2.2 General — Jump-back time to the primary function

Options:	Inactive
	5 s
	10 s
	20 s
	30 s
	1 min.
	2 min.
	4 min.

10.2.3 General — Blocking object for operating function 2 up to RTC extension unit

Options:	Inactive
	Active

10.2.4 Operating function 1/primary

The primary function is the basic operation of the device. The function guarantees the triggering of the function when a user enters the room.

If a jump-back from one of the other functions to the primary function is desired, the "Jump-back time to primary function" parameter must be set on inactive. The operation then remains on the function called up last.

10.2.5 Operating function 1/primary — Designation

Designation:	

The function can be designated in field Designation. The designation is then displayed in the function window of the operating function after the download.

10.2.6 Operating function 1/primary — Operating function

Function:	Switching
	Dimming
	Blind
	Dimming value
	Step switch
	Extension unit scene

This parameter is used to set the operating function.

10.2.7 Operating function 1/primary — Display of status line

Options:	None
	RTC
	Function

The parameter is used to activate the status display. The status line is located in the upper area of the display. The parameter can be used to parameterize the "RTC" or "Function" display. In the default setting the display is deactivated in the status line.

– RTC = If the RTC extension unit is parameterized, the operating modes, set-point temperature and fan coil step are displayed.
– Function = The status of the respective function is displayed in the status line.

10.2.8 Operating function 1/primary — Working mode of rocker

Options:	Top ON, bottom OFF
	Top OFF, bottom ON
	Alternating ON/OFF

The parameter is used to parameterize the function of the rocker.

10.2.9 Operating function 1/primary — ICON group

Options:	All
	Switching
	Light
	Blind
	Temperatur regulation
	Scenes
	Safety
	Music
	Message
	Other

On ICON per function can be selected for showing in the display.

Numerous function ICONS are available for selection. To make selecting a function easier, the ICONs split up in the function group are located under this parameter. If a grouping is not desired, the entire ICON library is available via the "ALL" parameter.

The suitable ICON for showing in the display for the respective parameterized function can then be selected from the ICON group in the "ICON for ..." parameters.

10.2.10 Dimming

10.2.11 Dimming — Duration of long operation

Options:	0.3
	0.4
	0.5
	0.6
	0.8
	1
	1.2
	1.5
	2
	3
	4
	5
	6
	7
	8
	9
	10

For operation, the function differentiates between a short press of the button (switching) and a long press of the button (dimming). The time necessary for the differentiation can be individually adjusted, if the user so desires.

10.2.12 Dimming — Manner of dimming

Options:	Start/stop
	Steps

Two types of dimming are available:

– Start/Stop: The button must be kept pressed until the desired brightness value has been reached on the lamp. When the user releases the button, a stop command is then sent to the dimming actuator via a telegram to stop the dimming process.

– Steps: After a long actuation the control element sends the dimming steps that have been parameterized step size to the dimming actuator.

Note
The dimming actuator must support the "Stepwise dimming" function.

10.2.13 Dimming — Dimming function

Options:	Switch briefly, dim long
	Dim briefly, switch long

Note
This parameter is only available if the "Manner of dimming" parameter has been set on "Steps".

10.2.14 Dimming — Step size

Options:	1.56%
	3.13%
	6.25%
	12.50%
	25%
	50%
	100%

This parameter is used to define the change in values when the values are sent out.

For example:

At a step size of 3.13% a change in values of 3.13% is made during each dimming command until the maximum value (100%) or minimum value (0%) is reached.

Note
This parameter is only available if the "Manner of dimming" parameter has been set on "Steps".

10.2.15 Dimming — Sending start/stop telegram

Options:	Yes
	No

The telegram ensures that the dimming process is started after actuation and stopped after releasing.

Note
This parameter is only available if the "Manner of dimming" parameter has been set on "Steps".

10.2.16 Dimming — Sending dimming telegram cyclic

Options:	Yes
	No

Note
This parameter is only available if the "Manner of dimming" parameter has been set on "Steps".

10.2.17 Dimming — Cycle time

Options:	0.3
	0.4
	0.5
	0.6
	0.8
	1
	1.2
	1.5
	2
	3
	4
	5
	6
	7
	8
	9
	10

10.2.18 Dimming — Working mode of the rocker for switching

Options:	Top ON, bottom OFF
	Top OFF, bottom ON
	Alternating ON/OFF

10.2.19 Dimming — Working mode of the rocker for dimming

Options:	Top brighter, bottom darker
	Top darker, bottom brighter

10.2.20 Blind

10.2.21 Blind — Duration of long operation

Options:	0.3
	0.4
	0.5
	0.6
	0.8
	1
	1.2
	1.5
	2
	3
	4
	5
	6
	7
	8
	9
	10

For operation, the function differentiates between a short press of the button (stop/slats) and a long press of the button (moving). The time necessary for the differentiation can be individually adjusted, if the user so desires.

10.2.22 Blind — Object type

Options:	1 bit
	1 bytes

The actuator can be changed via the 1-bit or 1-byte telegram. For the "1 byte" parameterization the actuator must support the object type.

10.2.23 Blind — Long actuation position / moving

Options:	Top up, bottom down
	Top down, bottom up

The working mode of the rocker can be parameterized via the function.

10.2.24 Blind — Brief actuation slats position / stop adjustment

Options:	Slats up, slats down
	Slats down, slats up

The working mode of the rocker for brief actuation can be parameterized via the function.

10.2.25 Blind — Value for position up (%)

Options:	0 - 100

The blind is moved to the defined UP-movement value.

Note
This parameter is only available if the "Object type" parameter has been set on "1 byte".

10.2.26 Blind — Value for position down (%)

Options:	0 - 100

The blind is moved to the defined DOWN-movement value.

Note
This parameter is only available if the "Object type" parameter has been set on "1 byte".

10.2.27 Blind — Value for slats position up (%)

Options:	0 - 100

The slats ar moved to the defined UP-movement value.

Note
This parameter is only available if the "Object type" parameter has been set on "1 byte".

10.2.28 Blind — Value for slats position down (%)

Options:	0 - 100

The slats ar moved to the defined DOWN-movement value.

Note
This parameter is only available if the "Object type" parameter has been set on "1 byte".

10.2.29 Switching

10.2.30 Switching — Object type

Options:	1-bit switching
	2-bit priority
	1-byte signed
	1-byte unsigned
	2-byte signed
	2-byte unsigned
	2-byte float
	4-byte signed
	4-byte unsigned

The object type is used to define the function that is to be sent out when the rocker is actuated.

10.2.31 Switching — Working mode of the rocker

Options:	Top value 1, bottom value 2
	Top value 2, bottom value 1
	Alternating value 1/value 2

The parameter can be used to define the status / value that is to be sent when the top and bottom rocker are actuated.

10.2.32 Switching — Value 1 for switching

Options:	One
	Off

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.33 Switching — Value 2 for switching

Options:	Off
	One

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.34 Switching — Value 1 for priority

Options:	Priority, on
	Priority, off

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.35 Switching — Value 2 for priority

Options:	Priority, off
	Priority, on

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.36 Switching — Value 1 for 1 byte signed

Options:	-127 - 0 - 127

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.37 Switching — Value 2 for 1 byte signed

Options:	-127 - 1 - 127

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.38 Switching — Value 1 for 1 byte unsigned

Options:	0 - 255

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.39 Switching — Value 2 for 1 byte unsigned

Options:	1 - 255

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.40 Switching — Value 1 for 2 byte signed

Options:	-32768 - 0 - 32768

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.41 Switching — Value 2 for 2 byte signed

Options:	-32768 - 1 - 32768

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.42 Switching — Value 1 for 2 byte unsigned

Options:	0 - 65535

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.43 Switching — Value 2 for 2 byte unsigned

Options:	1 - 65535

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.44 Switching — Value 1 for 2 byte unsigned

Options:	-670760.64 - 0 - 670433.28

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.45 Switching — Value 2 for 2 byte unsigned

Options:	--670760.64 - 1 - 670433.28

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.46 Switching — Value 1 for 4 byte signed

Options:	-2147483648 - 0 - 2147483647

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.47 Switching — Value 2 for 4 byte signed

Options:	-2147483648 - 1 - 2147483647

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.48 Switching — Value 1 for 4 byte unsigned

Options:	0 - 4294967295

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.49 Switching — Value 2 for 4 byte unsigned

Options:	1 - 4294967295

Definition of the value / status that is to be sent when one rocker half is actuated.

10.2.50 Step switch

10.2.51 Step switch — Evaluation period

Options:	0.3
	0.4
	0.5
	0.6
	0.8
	1
	1.2
	1.5
	2
	3
	4
	5
	6
	7
	8
	9
	10

The application "Step switch" facilitates step-type switching. To be able send a telegram after each actuation, the rocker requires a defined time period (evaluation period) to decide whether the telegram is to be sent.

For example:

The rocker is pressed three times. If no further actuation is made within 0.4 seconds, for example, the value for step 3 is sent.

10.2.52 Step switch — Working mode of the rocker for dimming

Options:	Increase at top, reduce at bottom
	Reduce at top, increase at bottom

The parameter is used to define how the steps are to be switched.

10.2.53 Step switch — Number of objects

Options:	2 - 5

The parameter is used to define how the steps are to be switched.

10.2.54 Step switch — Object value

Options:	Normal
	Inverse

The object value to be sent can be be inverted with this function. This, for example, means that at an actuation a value 1 is inverted to a value 0.

10.2.55 Step switch — Sending of objects

Options:	Actuation
	Change

10.2.56 Step switch — Bit pattern of the object values

Options:	x of n
	1 of n

Object values for the bit pattern "x off n"

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

Object values for the bit pattern "1 off n"

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

10.2.57 Extension unit scene

10.2.58 Extension unit scene — Evaluation period

Options:	0.3
	0.4
	0.5
	0.6
	0.8
	1
	1.2
	1.5
	2
	3
	4
	5
	6
	7
	8
	9
	10

The "Light scene extension unit" application makes it possible to start several scenes consecutively with a multiple actuation. To be able send a telegram after each actuation, the rocker requires a defined time period (evaluation period) to decide whether the telegram is to be sent.

For example:

The rocker is pressed three times. If no further actuation is made within 0.4 seconds, for example, the light scene value for the 3rd actuation is sent.

10.2.59 Extension unit scene — Number of scenes

Options:	2 - 5

The number of additional scenes to be sent can be defined by parameterizing the number of objects.

10.2.60 Extension unit scene — Working mode of the rocker for dimming

Options:	Increase at top, reduce at bottom
	Reduce at top, increase at bottom

The parameter is used to define how the individual scene values are to be operatd.

10.2.61 Dimming value

10.2.62 Dimming value — Object type

Options:	0 – 255
	0 – 100%

The object type is used to define the function that is to be sent out when the rocker is actuated.

10.2.63 Dimming value — Working mode of the rocker for dimming

Options:	Top brighter, bottom darker
	Top darker, bottom brighter

The parameter can be used to define the status / value that is to be sent when the top and bottom rocker are actuated.

10.2.64 Dimming value — Step size

Options:	1 - 128

The step size determines the intervals at which the dimming values are sent to the actuator.

10.3 Application "RTC"

10.3.1 General — Device function

Options:	Single device
	Master device
	Temperature transmitter

– *Single device*: The device is used individually in a room for temperature control with fixed temperature values.

– *Master device*: There are at least two temperature controllers in a room. One device is to be programmed as master device and additional ones as slave devices/temperature sensors. The master device is to be linked with the slave devices via the correspondingly marked communication objects. The master device performs the temperature control.

– *Temperature transmitter (slave device)*: The device only sends the measured temperature to the KNX bus.

10.3.2 General — Additional functions

Options:	No
	Yes

– This parameter enables additional functions and communication objects.

10.3.3 General — Delay time for read telegrams after reset [s]

Options:	Setting option from 1 - 255 seconds

– This parameter can be used to receive telegrams via the "Input" object. The received telegrams are sent with the set delay time to the "Output" object after a reset.

Note
This parameter is only available if the "Additional function" parameter is set to "Yes".

10.3.4 Fan coil settings for heating — Fan coil control during heating mode

Options:	Yes
	No

10.3.5 Fan coil settings for cooling — Fan coil control during cooling mode

Options:	Yes
	No

10.3.6 Combined heating and cooling modes — Switchover of heating/cooling

Options:	Yes
	No

10.3.7 Temperature reading RTC— Inputs of temperature reading

Options:	Internal measurement
	External measurement

10.3.8 Temperature reading RTC — Cyclic sending of the current actual temperature (min)

Options:	Setting option between 5 - 240

The current actual temperature used by the device can be cyclically transmitted to the bus.

Note
This parameter is only available when the "Inputs of temperature reading" parameter is set on "Internal measurement".

10.3.9 Temperature reading RTC — Difference of value for sending the actual temperature (x 0.1°C)

Options:	Setting option between 1 - 100

If the change in temperature exceeds the parameterised difference between the measured actual temperature and the previous actual temperature that was sent, the changed value will be transmitted.

Note
This parameter is only available when the "Inputs of temperature reading" parameter is set on "Internal measurement".

10.3.10 Temperature reading RTC — Adjustment value for internal temperature measurement (x 0.1°C)

Options:	Setting option between 1 - 100

Every installation location has different physical conditions (interior or exterior wall, lightweight or solid wall, etc.). In order to use the actual temperature at the installation location as a measured value for the device, a temperature measurement must be performed by an external equalised and / or calibrated thermometer at the installation location. The difference between the actual temperature displayed on the device and the actual temperature determined by the external measurement device must be entered in the parameter field as an "Adjustment value".

Note

- The calibration measurement should not be carried out immediately after the device has been installed. The device should first adjust to the ambient temperature before calibration is carried out. The calibration measurement should be repeated shortly before or after the room is occupied.
- This parameter is only available when the "Inputs of temperature reading" parameter is set on "Internal measurement".

10.4 Application "Inputs"

10.4.1 Switching_alarm

10.4.2 Switching_alarm — E1-E5 — enable communication object "Disable" 1 bit

Options:	Inactive
	Active

– Active: The 1-bit communication object "Disable" is being enabled. The input can be disabled or enabled.

Note

If the input is disabled and the option "Active" is selected in the "Cyclic sending" parameter, the last status is sent cyclically despite the disable.

Using the "Disable" communication object, the physical input and "Event 0/1" communication object can be disabled; internally, sending continues; i.e., the input terminals are physically separate from the application program.

The "Disable" communication object has no influence on manual operation.

10.4.3 Switching_alarm — E1-E5 — enable communication object "Start event 0/1" 1 bit

Options:	Inactive
	Active

– Active: The 1-bit communication object "Start event 0/1" is being enabled. With this object, it is possible to trigger the same events as the buttons/switches connected to the binary input by receiving a telegram at the "Start event 0/1" communication object. This application does not take into account any minimum signal duration that is set or any distinction between a short and long pressing duration; in other words, the event is executed immediately.

Note

If the input is disabled and the option "Active" is selected in the "Cyclic sending" parameter, the last status is sent cyclically despite the disable.

Using the "Disable" communication object, the physical input and "Event 0/1" communication object can be disabled; internally, sending continues; i.e., the input terminals are physically separate from the application program.

The "Disable" communication object has no influence on manual operation.

10.4.4 Switching_alarm — E1-E5 — capacitive interference suppression

Options:	Up to 10 nF (standard)
	Up to 20 nF
	Up to 30 nF
	Up to 40 nF

This parameter determines the degree of capacitive interference suppression.

In case of longer line lengths, transmission errors may occur; e.g., if two wires are used to conduct the signal line and one wire is used to switch a load in a 5x1.5 mm² line, it may occur that they will influence each other mutually. If this is the case in a system, the sensitivity of the input can be increased here. It must be taken into consideration that the signal evaluation slows in the process.

10.4.5 Switching_alarm — E1-E5 — debouncing time … in ms

Options:	10/20/30/50/70/100/150 ms

Debouncing prevents unwanted, multiple actuation of the input, e.g., by bouncing the contact.

10.4.6 Switching_alarm — E1-E5 — differentiate between short and long actuation

Options:	Inactive
	Active

This parameter defines whether the input differentiates between short and long actuation.

– Active: After the contact is opened/closed, the system first waits to see if a long and/or short actuation is present. A possible reaction is not triggered until after this wait.

10.4.7 Switching_alarm — E1-E5 — activate minimum signal duration

Options:	Inactive
	Active

10.4.8 Switching_alarm — E1-E5 — in value x 0.1 s [0…65535] when the contact closes

Note
The parameter is available only if the "Activate minimum signal duration" parameter has been set to "Active".

Options:	1…10…65535

10.4.9 Switching_alarm — E1-E5 — in value x 0.1 s [0…65535] when the contact opens

Note
The parameter is available only if the "Activate minimum signal duration" parameter has been set to "Active".

Options:	1…10…65535

10.4.10 Switching_alarm — E1-E5 — query input after download, ETS reset and bus voltage recovery

Options:	Inactive
	Active

10.4.11 Switching_alarm — E1-E5 — Inactive waiting time after bus voltage recovery in s [0…30000]

Options:	0…30000

– Active: The value of the communication object is queried after download, ETS reset and bus voltage recovery.
– Inactive: The value of the communication object is not queried after download, ETS reset and bus voltage recovery.

10.4.12 Switching_alarm — E1-E5 — Communication object "Switching 1" (cyclic sending possible)

Options:	Inactive
	Active

The behaviour of the communication object is defined here. If the option "Active" was selected for the "Differentiate between short and long actuation" parameter, the reaction takes place after a short or long actuation. In the case of the "Inactive" option, it takes place at each edge change.

10.4.13 Switching_alarm — E1-E5 — reaction in case of event 0

Note
This parameter is only available if the "Switching 1 (cyclic sending possible)" parameter has been set to "Active".

Options:	ON/no alarm
	OFF/alarm
	SWITCHOVER
	Inactive
	Cycle off

The behaviour of the communication object is defined here. If the option "Active" was selected for the "Differentiate between short and long actuation" parameter, the reaction takes place after a short or long actuation. In the case of the "Inactive" option, it takes place at each edge change.

Note
If the "End cyclic sending" option is set, it must be noted that this option becomes effective only if the "Active" option has been selected in the "Cyclic sending" parameter.

10.4.14 Switching_alarm — E1-E5 — reaction in case of event 1

Note
This parameter is only available if the "Switching 1 (cyclic sending possible)" parameter has been set to "Active".

Options:	ON/no alarm
	OFF/alarm
	SWITCHOVER
	Inactive
	Cycle off

The behaviour of the communication object is defined here. If the option "Active" was selected for the "Differentiate between short and long actuation" parameter, the reaction takes place after a short or long actuation. In the case of the "Inactive" option, it takes place at each edge change.

Note
If the "End cyclic sending" option is set, it must be noted that this option becomes effective only if the "Active" option has been selected in the "Cyclic sending" parameter.

10.4.15 Switching_alarm — E1-E5 — cyclic sending

Options:	Inactive
	Active

10.4.16 Switching_alarm — E1-E5 — telegram repeated every ... in s [1…65535]

Note
This parameter is only available if the "Cyclic sending" parameter has been set to "Active".

Options:	1…**60**…65,535

10.4.17 Switching_alarm — E1-E5 — for object value

Options:	OFF
	ON
	OFF/ON

10.4.18 Switching_alarm — E1-E5 — input is being actuated

Options:	Closed
	Opened

10.4.19 Switch_alarm — E1-E5 — long actuation from … s

Options:	0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

Here, a time duration is defined from which an actuation is considered to be "long".

10.4.20 Dimming

10.4.21 Dimming — E1-E5 — enable communication object "Disable" 1 bit

Options:	Inactive
	Active

10.4.22 Dimming — E1-E5 — capacitive interference suppression

Options:	Up to 10 nF (standard)
	Up to 20 nF
	Up to 30 nF
	Up to 40 nF

This parameter determines the degree of capacitive interference suppression.

In case of longer line lengths, transmission errors may occur; e.g., if two wires are used to conduct the signal line and one wire is used to switch a load in a 5x1.5 mm² line, it may occur that they will influence each other mutually. If this is the case in a system, the sensitivity of the input can be increased here. It must be taken into consideration that the signal evaluation slows in the process.

10.4.23 Dimming — E1-E5 — debouncing time … in ms

Options:	10/20/30/50/70/100/150 ms

Debouncing prevents unwanted, multiple actuation of the input, e.g., by bouncing the contact.

10.4.24 Dimming — E1-E5 — input is being actuated

Options:	Closed
	Opened

– Closed: The input is closed at actuation.
– Opened: The input is opened at actuation.

10.4.25 Dimming — E1-E5 — dimming function

Options:	Dimming/switching
	Dimming only

This parameter defines whether the lighting is dimmed (dimming only) or whether it should be both switched and dimmed (dimming and switching). In this case, dimming is performed with a long actuation, switching with a short actuation.

10.4.26 Dimming — E1-E5 — long actuation from … s

Options:	0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

Here, a time duration is defined from which an actuation is considered to be "long".

10.4.27 Dimming — E1-E5 — at short actuation: switching

Options:	ON
	OFF
	SWITCHOVER
	INACTIVE

10.4.28 Dimming — E1-E5 — at long actuation: dimming direction

Options:	BRIGHTER
	DARKER
	Switchover
	Switchover after activation = BRIGHTER
	Switchover after activation = DARKER

This parameter defines what the communication object "Dimming" should send to the bus at long actuation.

A long actuation changes the value of the communication object "Telegram dimming".

For single-button dimming, the parameter should be set to "Alternating" here. In this case, the dimming telegram is sent contrary to the last dimming telegram.

10.4.29 Dimming — E1-E5 — brightness change for each telegram sent

Options:	100/50/25/12.5/6.25/3.13/1.56 %

10.4.30 Dimming — E1-E5 — telegram repeated every … in s

Options:	0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

10.4.31 Blind

10.4.32 Blind — E1-E5 — enable communication object "Disable" 1 bit

Options:	Active
	Inactive

10.4.33 Blind — E1-E5 — capacitive interference suppression

Options:	Up to 10 nF (standard)
	Up to 20 nF
	Up to 30 nF
	Up to 40 nF

This parameter determines the degree of capacitive interference suppression.

In case of longer line lengths, transmission errors may occur; e.g., if two wires are used to conduct the signal line and one wire is used to switch a load in a 5x1.5 mm² line, it may occur that they will influence each other mutually. If this is the case in a system, the sensitivity of the input can be increased here. It must be taken into consideration that the signal evaluation slows in the process.

10.4.34 Blind — E1-E5 — debouncing time

Options:	10/20/30/50/70/100/150 ms

Debouncing prevents unwanted, multiple actuation of the input, e.g., by bouncing the contact.

10.4.35 Blind — E1-E5 — input is being actuated

Options:	Closed
	Opened

– Closed: The input is closed at actuation.
– Opened: The input is opened at actuation.

10.4.36 Blind — E1-E5 — blind operating function

Options:	Single-button (short = slat, long = move)
	Single-button (short = move, long = slat)
	Single-button (move only - STOP)
	Single-switch (move only)
	2-button
	2-switch (move only, roller blind)
	2-button (move only, roller blind)
	2-button (slat only)

10.4.37 Blind — E1-E5 — long actuation from … in s

Options:	0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

Here, a time duration is defined from which an actuation is considered to be "long".

10.4.38 Blind — E1-E5 — "Slat" telegram repeated every ... s

Options:	0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

10.4.39 Blind — E1-E5 — reaction at short actuation

Options:	STOP/slat OPEN
	STOP/slat CLOSED

10.4.40 Blind — E1-E5 — reaction at long actuation

Options:	Up
	Down

10.4.41 Blind — E1-E5 — reaction at actuation

Options:	Up
	Down

10.4.42 Forced operation value

10.4.43 Forced_operation_value — E1-E5 — enable communication object "Disable" 1 bit

Options:	Inactive
	Active

10.4.44 Forced_operation_value — E1-E5 — capacitive interference suppression

Options:	Up to 10 nF (standard)
	Up to 20 nF
	Up to 30 nF
	Up to 40 nF

This parameter determines the degree of capacitive interference suppression.

In case of longer line lengths, transmission errors may occur; e.g., if two wires are used to conduct the signal line and one wire is used to switch a load in a 5x1.5 mm² line, it may occur that they will influence each other mutually. If this is the case in a system, the sensitivity of the input can be increased here. It must be taken into consideration that the signal evaluation slows in the process.

10.4.45 Forced_operation_value — E1-E5 — debouncing time … ms

Options:	10/20/30/50/70/100/150 ms

Debouncing prevents unwanted, multiple actuation of the input, e.g., by bouncing the contact.

10.4.46 Forced_operation_value — E1-E5 — differentiate between short and long actuation

Options:	Inactive
	Active

This parameter defines whether the input differentiates between short and long actuation.

– Active: After the contact is opened/closed, the system first waits to see if a long and/or short actuation is present. A possible reaction is not triggered until after this wait.

10.4.47 Forced_operation_value — E1-E5 — activate minimum signal duration

Options:	Inactive
	Active

Contrary to the debouncing time, a telegram is not sent until the minimum signal duration has expired.

If an edge is detected at the input, the minimum signal duration begins. At this point in time, no telegram is sent to the bus. The signal is observed at the input within the minimum signal duration. If an additional edge appears at the input during the minimum signal duration, it will be interpreted as a new actuation and the minimum signal duration restarts.

If no additional signal change occurs after the start of the minimum signal duration, a telegram is sent to the bus after the minimum signal duration has expired.

10.4.48 Forced_operation_value — E1-E5 — in value x 0.1 s [0…65535] when the contact closes

Note
The parameter is available only if the "Activate minimum signal duration" parameter has been set to "Active".

Options:	1…10…65535

10.4.49 Forced_operation_value — E1-E5 — in value x 0.1 s [0…65535] when the contact opens

Note
The parameter is available only if the "Activate minimum signal duration" parameter has been set to "Active".

Options:	1…10…65535

10.4.50 Forced_operation_value — E1-E5 — query input after download, ETS reset and bus voltage recovery

Options:	Inactive
	Active

10.4.51 Forced_operation_value — E1-E5 — Inactive waiting time after bus voltage recovery in s [0…30000]

Options:	0…30000

– Active: The value of the communication object is queried after download, ETS reset and bus voltage recovery.
– Inactive: The value of the communication object is not queried after download, ETS reset and bus voltage recovery.

10.4.52 Forced_operation_value — E1-E5 — value 1 (reaction in case of event 0)

Options:	Inactive
	Switch
	Priority
	1-byte value [-128…127]
	1-byte value [0…255]
	Scene
	2-byte value [-32768…32767]
	2-byte value [0…65565]
	2-byte floating point
	4-byte value [-2147483648…2147483647]
	4-byte value [0…4294967295]

10.4.53 Forced_operation_value — E1-E5 — sent value [X]

Options:	ON/OFF/SWITCHOVER
	0/1
	-128…0…127
	0…255
	-32. 768…0…32. 767
	-670760...0...670433
	-100…20…100
	-2147483648…0…2147483647
	0…4294967295

10.4.54 Forced_operation_value — E1-E5 — sent value

Options:	ON, activate forced operation
	OFF, activate forced operation

The forced operation function is explained in the following table:

Bit 1	Bit 0	Access	Description
0	0	Free	The switching output is enabled through the "Forced operation of actuator" communication object. In this way, the actuator can be switched directly through the "Switching" communication object.
0	1	Free	
1	0	OFF	The switching output is switched off through the "Forced operation of actuator" communication object. It is now no longer possible to switch the actuator directly through the "Switching" communication object.
1	1	ON	The switching output is switched on through the "Forced operation of actuator" communication object. It is now no longer possible to switch the actuator directly through the "Switching" communication object.

10.4.55 Forced_operation_value — E1-E5 — 8-bit scene

Options:	1…64

10.4.56 Forced_operation_value — E1-E5 — call/save scene

Options:	Call
	Save

10.4.57 Forced_operation_value — E1-E5 — hour [0…23]

Options:	0…23

10.4.58 Forced_operation_value — E1-E5 — minute [0…59]

Options:	0…59

10.4.59 Forced_operation_value — E1-E5 — second [0…59]

Options:	0…59

10.4.60 Forced_operation_value — E1-E5 — weekday [1 = Mo, 2…6, 7 = Su]

Options:	0 = no day
	1 = Monday
	2 = Tuesday
	3 = Wednesday
	4 = Thursday
	5 = Friday
	6 = Saturday
	7 = Sunday

10.4.61 Forced_operation_value — E1-E5 — input is being actuated

Options:	Closed
	Opened

10.4.62 Forced_operation_value — E1-E5 — long actuation from …

Options:	0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

Here, a time duration is defined from which an actuation is considered to be "long".

10.4.63 Scenes

10.4.64 Scenes — E1-E5 — enable communication object "Disable" 1 bit

Options:	Inactive
	Active

10.4.65 Scenes — E1-E5 — capacitive interference suppression

Options:	Up to 10 nF (standard)
	Up to 20 nF
	Up to 30 nF
	Up to 40 nF

This parameter determines the degree of capacitive interference suppression.

In case of longer line lengths, transmission errors may occur; e.g., if two wires are used to conduct the signal line and one wire is used to switch a load in a 5x1.5 mm² line, it may occur that they will influence each other mutually. If this is the case in a system, the sensitivity of the input can be increased here. It must be taken into consideration that the signal evaluation slows in the process.

10.4.66 Scenes — E1-E5 — debouncing time in ms

Options:	10/20/30/50/70/100/150 ms

Debouncing prevents unwanted, multiple actuation of the input, e.g., by bouncing the contact.

10.4.67 Scenes — E1-E5 — save scene

Options:	No
	At long actuation
	With object value = 1
	At long actuation and object value = 1

This parameter determines in which manner the saving of the current scene is triggered and which function the communication object "Save scene" has. This depends on the control of the scene.

– At long actuation: As soon as a long actuation is detected, the saving procedure is activated.
– With object value = 1: If the communication object "Save scene" receives a value of 1, the saving procedure is activated.
– At long actuation and object value = 1: As soon as a long actuation is detected and the communication object "Enable saving" has a value of 1, the saving procedure is activated.

10.4.68 Scenes — E1-E5 — long actuation from … s

Options:	0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

Here, a time duration is defined from which an actuation is considered to be "long".

10.4.69 Scenes — E1-E5 — actuator group A: type

Options:	1-bit value [ON/OFF]
	1-byte value [0…100%]
	1-byte value [0…255]
	2-byte value [temperature]

10.4.70 Scenes — E1-E5 — actuator group A: type

Options:	Yes
	No

10.4.71 Switching sequences

10.4.72 Switching sequences — E1-E5 — enable communication object "Disable" 1 bit

Options:	Inactive
	Active

10.4.73 Switching sequences — E1-E5 — capacitive interference suppression

Options:	Up to 10 nF (standard)
	Up to 20 nF
	Up to 30 nF
	Up to 40 nF

This parameter determines the degree of capacitive interference suppression.

In case of longer line lengths, transmission errors may occur; e.g., if two wires are used to conduct the signal line and one wire is used to switch a load in a 5x1.5 mm² line, it may occur that they will influence each other mutually. If this is the case in a system, the sensitivity of the input can be increased here. It must be taken into consideration that the signal evaluation slows in the process.

10.4.74 Switching sequences — E1-E5 — debouncing time ... in ms

Options:	10/20/30/50/70/100/150 ms

Debouncing prevents unwanted, multiple actuation of the input, e.g., by bouncing the contact.

10.4.75 Switching sequences — E1-E5 — activate minimum signal duration

Options:	Active
	Inactive

Contrary to the debouncing time, a telegram is not sent until the minimum signal duration has expired.

If an edge is detected at the input, the minimum signal duration begins. At this point in time, no telegram is sent to the bus. The signal is observed at the input within the minimum signal duration. If an additional edge appears at the input during the minimum signal duration, it will be interpreted as a new actuation and the minimum signal duration restarts.

If no additional signal change occurs after the start of the minimum signal duration, a telegram is sent to the bus after the minimum signal duration has expired.

10.4.76 Switching sequences — E1-E5 — in value x 0.1 s [1…65535] for rising edge

Note
The parameter is available only if the "Activate minimum signal duration" parameter has been set to "Active".

Options:	1…**10**…65535

10.4.77 Switching sequences — E1-E5 — in value x 0.1 s [1…65535] for falling edge

Note
The parameter is available only if the "Activate minimum signal duration" parameter has been set to "Active".

Options:	1…**10**…65535

10.4.78 Switching sequences — E1-E5 — number of steps

Options:	2/**3**/4/5

10.4.79 Switching sequences — E1-E5 — type of switching sequence on example of 3 steps

Options:	Activate/deactivate (single button)
	Activate/deactivate (several buttons)
	All possibilities ("Gray Code")

Here, the type of switching sequence can be selected. Each sequence has different communication objects for each switching step.

The switching sequence permits the activation and/or deactivation of up to five communication objects
(1 bit) in a defined sequence. On step further in the sequence is activated at each actuation.

Switching sequence => 000-001-011-111 (sequence 1)

During this switching sequence, an additional group address is sent through a communication object (value x) after each actuation. If all group addresses have been sent through the communication objects (value x) in one direction, further actuations are ignored. Two binary inputs of which one switches upwards and the other downwards are therefore required.

Note

The group addresses should be different for separate upward and downward switching.

Synchronisation of the upward and downward switching sequences takes place through the actuation of the switching sequences. Here, the same group address must be used.

Actuation number	Switching sequence	Value of the communication objects		
		Switching 3	Switching 2	Switching 1
0	000	OFF	OFF	OFF
1	001	OFF	OFF	ON
2	011	OFF	ON	ON
3	111	ON	ON	ON
…	…	…	…	…

Switching sequence "Gray Code" (Sequence 2)

In this switching sequence, all combinations of the communication objects are run through, one after the other. Between two switching steps, only the value of one communication object is changed. A clear application of this switching sequence is the switching of two lamp groups in the sequence 00 – 01 – 11 – 10 – 00 …

Switching sequence <=000-001-011-111-011-001=> (Sequence 3)

This switching sequence activates a further communication object one after the other at each actuation. Once all communication objects are switched on, they will be switched off one after the other again, starting with the last communication object activated.

Actuation number	Switching sequence	Value of the communication objects		
		Switching 3	Switching 2	Switching 1
0	000	OFF	OFF	OFF
1	001	OFF	OFF	ON
2	011	OFF	ON	ON
3	111	ON	ON	ON
4	011	OFF	ON	ON
5	001	OFF	OFF	ON
…	…	…	…	…

Switching sequence <=000-001-011-111-000=> (Sequence 4)

This switching sequence activates a further communication object one after the other at each actuation. Once all communication objects are switched on, they will be switched off again all at once.

Actuation number	Switching sequence	Value of the communication objects		
		Switching 3	Switching 2	Switching 1
0	000	OFF	OFF	OFF
1	001	OFF	OFF	ON
2	011	OFF	ON	ON
3	111	ON	ON	ON
…	…	…	…	…

Switching sequence <=000-001-000-010-000-100-000=> (Sequence 5)

At actuation, this switching sequence switches a communication on and off again. After that further communication objects are switched on and/or off.

Actuation number	Switching sequence	Value of the communication objects		
		Switching 3	Switching 2	Switching 1
0	000	OFF	OFF	OFF
1	001	OFF	OFF	ON
2	011	OFF	ON	ON
3	111	ON	ON	ON
4	011	OFF	ON	ON
5	001	OFF	OFF	ON
…	…	…	…	…

10.4.80 Switching sequences — E1-E5 — direction at actuation

Options:	Switch up
	Switch down

Additional possibilities:

Except for the actuation of the binary input, the switching sequence can also be changed using the communication object "Switch step up/down". This is used, for example, to switch up or down with two or more binary inputs.

10.4.81 Multiple operation

10.4.82 Multiple operation — E1-E5 — enable communication object "Disable" 1 bit

Options:	Inactive
	Active

10.4.83 Multiple operation — E1-E5 — capacitive interference suppression

Options:	Up to 10 nF (standard)
	Up to 20 nF
	Up to 30 nF
	Up to 40 nF

10.4.84 Multiple operation — E1-E5 — debouncing time

Options:	10/20/30/50/70/100/150 ms

Debouncing prevents unwanted, multiple actuation of the input, e.g., by bouncing the contact.

10.4.85 Multiple operation — E1-E5 — input is being actuated

Options:	Closed
	Opened

Debouncing prevents unwanted, multiple actuation of the input, e.g., by bouncing the contact.

– Closed: The input is closed at actuation.
– Opened: The input is opened at actuation.

10.4.86 Multiple operation — E1-E5 — additional communication object for long actuation

Options:	Active
	Inactive

10.4.87 Multiple operation — E1-E5 — long actuation from … s

Options:	0.3/0.4/0.5/0.6/0.8/1/1.2/1.5 s
	2/3/4/5/6/7/8/9/10 s

Note
This parameter is available only if the "Additional communication object for long actuation" parameter has been selected and set to "Active".

Here, a time duration is defined from which an actuation is considered to be "long".

In case of a long actuation of the input, an additional function is run using the communication object "Long actuation". If a long actuation is performed after one or more short actuations within the maximum time, the short actuations are ignored.

10.4.88 Multiple operation — E1-E5 — sent value (communication object "x-fold actuation")

Options:	ON
	OFF
	SWITCHOVER

This parameter defines how many actuations are possible at maximum. This number is the same number of communication objects "x-fold actuation (x = 1…4)". If the button is pressed more frequently than the maximum value set here, the binary input reacts according to the set maximum value.

10.4.89 Multiple operation — E1-E5 — sent value (communication object "x-fold actuation")

Options:	Yes
	No

– Yes: At each actuation. the respective value of the communication object is updated and sent.

10.4.90 Multiple operation — E1-E5 — maximum time between two actuations … s

Options:	0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

10.4.91 Multiple operation — E1-E5 — sent value (communication object "Long actuation")

Options:	ON
	OFF
	SWITCHOVER

10.4.92 Pulse counter

The "Pulse counter" function is used to count input pulses. Here, an absolute main counter is available in the "Pulse counter" parameter window. To record differential values you can also enable an intermediate counter here (comparable with a trip odometer). The starting point of the intermediate counter is freely parameterisable. You can make the settings for the intermediate counter in the additional parameter window.

10.4.93 Pulse counter — E1-E5 — enable communication object "Disable" 1 bit

Options:	Inactive
	Active

10.4.94 Pulse counter — E1-E5 — capacitive interference suppression

Options:	Weak
	Medium
	Strong

10.4.95 Pulse counter — E1-E5 — debouncing time

Options:	10/20/30/50/70/100/150 ms

Debouncing prevents unwanted, multiple actuation of the input, e.g., by bouncing the contact.

10.4.96 Pulse counter — E1-E5 — Enable intermediate counter

Options:	Inactive
	Active

10.4.97 Pulse counter — E1-E5 — activate minimum signal duration

Options:	Inactive
	Active

10.4.98 Pulse counter — E1-E5 — in value x 0.1 s [0…65535] when the contact closes

Note
The parameter is available only if the "Activate minimum signal duration" parameter has been set to "Active".

Options:	1…10…65535

10.4.99 Pulse counter — E1-E5 — in value x 0.1 s [0…65535] when the contact opens

Note
The parameter is available only if the "Activate minimum signal duration" parameter has been set to "Active".

Options:	1…10…65535

10.4.100 Pulse counter — E1-E5 — data type (main counter)

Options:	1-byte value [-128…127]
	1-byte value [0…255]
	2-byte value [-32768…32767]
	2-byte value [0…65535]
	4-byte value [-2147485648…2147483647]

This parameter defines the data type of the main counter.

The two following parameters depend on the "Data type" parameter. Different limit values are preset according to the data type that is selected. The input fields can be freely edited.

Note
- The first counting pulse that exceeds or undershoots the limit value sets the counter reading to the opposite limit value.
- With the next counting pulse, counting continues in the parameterised counting direction as of the new counter reading (set according to the corresponding limit value).
- It must be observed that different values are set for the two limit values. When the same limit values are entered, the behaviour of the counter is undefined.
- Any limit value can be set; i.e. limit value 1 can be larger or smaller than limit value 2. The application looks for the largest of the two set limit values, for example, and starts to count upward or downward depending on the counting direction.

10.4.101 Pulse counter — E1-E5 — limit value 1 [0]

Options:	- 0 [-128…127]
	- 0 [0…255]
	- 0 [-32768…32767]
	- 0 [0…65535]
	- 0 [-2147400000…2147400000]

10.4.102 Pulse counter — E1-E5 — limit value 2 [X]

Options:	127	[-128…127]
	255	[0…255]
	32,767	[-32768…32767]
	65,565	[0…65535]
	2147400000	[-2147400000…2147400000]

10.4.103 Pulse counter — E1-E5 — counting method

Options:	Only in case of rising edge
	Only in case of falling edge
	In case of both edges

10.4.104 Pulse counter — E1-E5 — number of input pulses for one counting pulse [1…10000]

Options:	1…10000

10.4.105 Pulse counter — E1-E5 — counter reading change for each counting pulse [-10000…10000]

Options:	-10000…1…10000

10.4.106 Pulse counter — E1-E5 — send counter reading at download, ETS reset and bus voltage recovery

Options:	Active
	Inactive

10.4.107 Pulse counter — E1-E5 — send counter reading at change

Options:	Active
	Inactive

10.4.108 Pulse counter — E1-E5 — send counter reading cyclically

Options:	Active
	Inactive

10.4.109 Pulse counter — E1-E5 — save counter reading

Options:	Active
	Inactive

10.4.110 External temperature sensor — temperature-dependent resistance

10.4.111 External temperature sensor — E4-E5 — temperature-dependent resistance — enable communication object "Disable" 1 bit

Options:	Inactive
	Active

10.4.112 External temperature sensor — E4-E5 — temperature-dependent resistance — temperature offset [- 5.0...0...+5.0]

Options:	- 5.0...0...+5.0

10.4.113 External temperature sensor — E4-E5 — temperature-dependent resistance — filter

Options:	Inactive
	Low (mean of 4 measurements)
	Medium (mean of 16 measurements)
	High (mean of 64 measurements)

This parameter is used to set a filter (floating mean filter). The output value can therefore be set as the mean using three different options.

Note

When a filter is used, the output value is "smoothed" using the mean and is available for further processing. The filter thus has direct effects on the threshold values and calculation values. The higher the degree of filtration, the higher the smoothing. This means that the changes of the output value become slower.

Example: In case of a rapid change in the sensor signal with the "Medium" setting, 16 seconds pass until the output value is run in.

10.4.114 External temperature sensor — E4-E5 — temperature-dependent resistance — send output value

Options:	Upon request
	In case of change
	Cyclic
	In case of change and cyclic

10.4.115 External temperature sensor — E4-E5 — temperature-dependent resistance — output value is sent every

Options:	5 seconds
	10 seconds
	30 seconds
	1 minute
	5 minutes
	10 minutes
	30 minutes
	1 hour
	6 hours
	12 hours
	24 hours

10.4.116 External temperature sensor — line fault

10.4.117 External temperature sensor — E4-E5 — line fault — line fault compensation

Options:	None
	Length
	Resistance

10.4.118 External temperature sensor — E4-E5 — line fault — enable threshold value 1

Options:	Inactive
	Active

– Inactive: The parameter window remains disabled and invisible.

– Active: The "Threshold value (1 or 2)" parameter window appears.

The "Threshold value" parameter window is enabled together with the "Threshold value" function. In this window, additional settings can be made, such as the setting of the hysteresis and thresholds. In the case of the "Active" selection, the communication object "Threshold value - input a threshold value" appears.

10.4.119 External temperature sensor — E4-E5 — line fault — enable threshold value 2 function

Options:	Inactive
	Active

– Inactive: The parameter window remains disabled and invisible.

– Active: The "Threshold value (1 or 2)" parameter window appears.

The "Threshold value" parameter window is enabled together with the "Threshold value" function. In this window, additional settings can be made, such as the setting of the hysteresis and thresholds. In the case of the "Active" selection, the communication object "Threshold value - input a threshold value" appears.

10.4.120 External temperature sensor — line fault compensation through line length

Note
The parameters are only available if the "Line fault compensation" parameter is set to "Line fault compensation through line length".

10.4.121 External temperature sensor — E4-E5 — line fault compensation through line length — line length, single section [1...30 m]

Options:	1...10...30

10.4.122 External temperature sensor — E4-E5 — line fault compensation through line length — cross section of busbar value * 0.01 mm2 [1...150]

Options:	1...100...150

10.4.123 External temperature sensor — E4-E5 — line fault compensation through line length — enable threshold value 2 function

Options:	Inactive
	Active

10.4.124 External temperature sensor — line fault compensation through resistance

Options:	None
	Length
	Resistance

Note
This parameter is only available if the "Line fault compensation" parameter has been set to "Line fault compensation through resistance".

10.4.125 External temperature sensor — E4-E5 — line fault compensation through resistance — line resistance in milliohm [sum of feed and return conductor]

Options:	0...500...10,000

10.4.126 External temperature sensor — threshold value 1

10.4.127 External temperature sensor — E4-E5 — threshold value 1 — tolerance band lower limit input in 0.1°C

Options:	**-500**…1500

10.4.128 External temperature sensor — E4-E5 — threshold value 1 — tolerance band upper limit input in 0.1°C

Options:	-500…**1500**

10.4.129 External temperature sensor — E4-E5 — threshold value 1 — threshold value object data type

Options:	**2 byte [0...65535]**
	2 byte [-500...1500]

10.4.130 External temperature sensor — E4-E5 — threshold value 1 — send if threshold value undershot

Options:	Do not send telegram
	Send ON telegram
	Send OFF telegram

Note
The parameter is available only if the "Threshold value object data type" parameter has been set to "1 bit".

10.4.131 External temperature sensor — E4-E5 — threshold value 1 — send if the threshold value is exceeded

Options:	Do not send telegram
	Send ON telegram
	Send OFF telegram

Note
The parameter is available only if the "Threshold value object data type" parameter has been set to "1 bit".

10.4.132 External temperature sensor — E4-E5 — threshold value 1 — send if the threshold value is exceeded

Options:	**0**...255

Note
The parameter is available only if the "Threshold value object data type" parameter has been set to "1 byte".

10.4.133 External temperature sensor — E4-E5 — threshold value 1 — send if threshold value undershot

Options:	**0**...255

Note
The parameter is available only if the "Threshold value object data type" parameter has been set to "1 byte".

10.4.134 External temperature sensor — E4-E5 — threshold value 1 — minimum duration of undershooting

Options:	5 seconds
	10 seconds
	30 seconds
	1 minute
	5 minutes
	10 minutes
	30 minutes
	1 hour
	6 hours
	12 hours
	24 hours

10.4.135 External temperature sensor — E4-E5 — threshold value 1 — minimum duration of exceeding

Options:	**None**
	5/10/30 s
	1/5/10/30 min
	1/6/12/24 h

Note
The parameter is available only if the "Threshold value object data type" parameter has been set to "1 byte".

10.4.136 External temperature sensor — E4-E5 — threshold value 1 — limits changeable through bus

Options:	**No**

	Yes

10.4.137 External temperature sensor — E4-E5 — threshold value 1 — send threshold value object

Options:	Inactive
	Active

10.4.138 External temperature sensor — E4-E5 — threshold value 1 — send if the threshold value is exceeded every

Options:	None
	5/10/**30** s
	1/5/10/30 min
	1/6/12/24 h

10.4.139 External temperature sensor — E4-E5 — threshold value 1 — send if the threshold value is undershot every

Options:	None
	5/10/**30** s
	1/5/10/30 min
	1/6/12/24 h

10.4.140 External temperature sensor — sensor output KT/KTY [-50 ... +150°C]

10.4.141 External temperature sensor — E4-E5 — sensor output KT/KTY [-50 … +150°C] — manufacturer's designation

Options:	Pt1000
	6226/T

10.4.142 External temperature sensor — E4-E5 — sensor output KT/KTY [-50 … +150°C] — resistance in ohm at -50 … +150°C

Options:	0…1,030…4,280…5,600

10.4.143 External temperature sensor — E4-E5 — sensor output KT/KTY [-50 … +150°C] — release threshold value 2

Options:	Inactive
	Active

10.5 Communication objects — Operating functions

10.5.1 Blocking object

Name	DataType	Flags
blocking object	1 bit DPT 1.003	C, W

All operations, including the RTC extension unit, are blocked via the object with a 1-telegram. They are enabled with 0. The primary function is excluded from the blockage.

10.5.2 Switching

Name	DataType	Flags
Switching	1 bit DPT 1.001	C, W ,T ,U

10.5.3 Relative dimming

Name	DataType	Flags
Relative dimming	3 bit DPT 3007	K,

10.5.4 Moving

Name	DataType	Flags
Moving	1 bit DPT 1.008	C, W ,T ,U

10.5.5 Stop

Name	DataType	Flags
Stop	1 bit DPT 1.008	C, T

10.5.6 Value switching

Name	DataType	Flags
Value switching	1 bit DPT 1.001	C, W ,T ,U

10.5.7 Value priority

Name	DataType	Flags
Value priority	2 bit DPT 2.001	C, W ,T ,U

10.5.8 Value 1-byte signed

Name	DataType	Flags
Value 1-byte signed	8 bit DPT 6010	C, W ,T ,U

10.5.9 Value 1-byte unsigned

Name	DataType	Flags
Value 1-byte unsigned	8 bit DPT 5010	C, W ,T ,U

10.5.10 Value 2-byte signed

Name	DataType	Flags
Value 2-byte signed	2 byte DPT 8001	C, W ,T ,U

10.5.11 Value 2-byte unsigned

Name	DataType	Flags
Value 2-byte unsigned	2 byte DPT 7001	C, W ,T ,U

10.5.12 Value 2-byte float

Name	DataType	Flags
Value 2-byte float	2 byte DPT 9001	C, W ,T ,U

10.5.13 Value 4-byte signed

Name	DataType	Flags
Value 4-byte signed	4 byte DPT 13001	C, W ,T ,U

10.5.14 Value 4-byte unsigned

Name	DataType	Flags
Value 4-byte unsigned	4 byte DPT 12001	C, W ,T ,U

10.5.15 Dimming value

Name	DataType	Flags
Dimming value	8 bit DPT 5,001	C, W ,T ,U
	8 bit DPT 5.010	C, W ,T ,U

10.5.16 Switching step 1

Name	DataType	Flags
Switching step 1	1 bit DPT 1.001	C, W ,T ,U

10.5.17 Switching step 2

Name	DataType	Flags
Switching step 2	1 bit DPT 1.001	C, W ,T ,U

10.5.18 Switching step 3

Name	DataType	Flags
Switching step 3	1 bit DPT 1.001	C, W ,T ,U

10.5.19 Switching step 4

Name	DataType	Flags
Switching step 4	1 bit DPT 1.001	C, W ,T ,U

10.5.20 Switching step 5

Name	DataType	Flags
Switching step 5	1 bit DPT 1.001	C, W ,T ,U

10.5.21 Scene number

Name	DataType	Flags
Scene number	8 bit DPT 17.001	C, W ,T ,U

10.6 Communication objects - RTC

10.6.1 Control On/Off

Number	Name	Object function	Data type
5	1. Control On/Off	Output	Switching
	2. Control On/Off (master)	Output	Switching
	3. Control On/Off (slave)	Output	Switching

If a 0 telegram is received, the controller switches to OFF mode and regulates the temperature to the setpoint value for frost/heat protection. When the controller is switched on again, the remaining operating mode objects are queried in order to determine the new operating mode.

NOTE

About item 2:

During active ON/OFF controller function in master/slave mode the ON/OFF (master) control object is to be linked with this object.

About item 3: During active ON/OFF controller function in master/slave mode the ON/OFF (slave) control object is to be linked with this object.

10.6.2 Actual temperature

Number	Name	Object function	Data type
6	1. Actual temperature	Output	2-byte floating point value
	2. Actual temperature weighted	Output	2-byte floating point value

1. The object outputs the measured (room) temperature, adjusted by the calibration value.
2. The object outputs the temperature value which is calculated from the recording and weighting of internal and up to two external temperatures.

Note

An external temperature measurement for room control may be practical for larger rooms and/or floor heating.

10.6.3 Fault, actual temperature

Number	Name	Object function	Data type
9	1. Fault, actual temperature	Output	Switching
	2. Fault, actual temperature (master)	Output	Switching
	3. Fault, actual temperature (slave)	Output	Switching

If one of the parameterized input temperatures is unavailable to the controller for a period longer than the monitoring time, the controller enters the error mode. The error mode is sent to the bus as the value 1.

Note

About item 2:

This object must be connected to the "Fault, actual temperature (slave)" object in order to indicate the error mode.

About item 3:

This object must be connected to the "Fault, actual temperature (slave)" object in order to indicate the error mode.

10.6.4 Operating mode

Number	Name	Object function	Data type
12	1. Operating mode	Input / output	HVAC mode
	2. Operating mode (master)	Input / output	HVAC mode
	3. Operating mode (slave)	Input / output	HVAC mode

The "Operating mode" object receives, as a 1-byte value, the operating mode that is to be set. Here value 1 means "Comfort", value 2 "Standby", value 3 "Economy" and value 4 "Frost/heat protection".

In addition to manual setpoint adjustment and the adjustment of the basic setpoint value, the setpoint temperature of the controller can also be defined by objects "Superimposed operating mode", "Condensate ware alarm", "Dew alarm", "Window contact", "Control On/Off", "Presence detector" and "Operating mode (listed in decreasing order of priority).

Note

Item 2:

If the master/slave mode is the active operating mode, the Operating mode (slave) object must be connected to this object.

Item 3:

If the master/slave mode is the active operating mode, the operating mode (master) object must be connected to this object.

10.6.5 Superimposed operating mode

Number	Name	Object function	Data type
13	1. Superimposed operating mode	Input	HVAC mode
	2. Superimposed operating mode (master/slave)	Input	HVAC mode

The "Superimposed operating mode" object receives the operating mode that is to be set as 1-byte value. Here value 0 means "Superimposition inactive", value 1 "Comfort", value 2 "Standby", value 3 "Economy" and value 4 "Frost/heat protection".

In addition to manual setpoint adjustment and the adjustment of the basic setpoint value, the setpoint temperature of the controller can also be defined by objects "Superimposed operating mode", "Condensate ware alarm", "Dew alarm", "Window contact", "Control On/Off", "Presence detector" and "Operating mode (listed in decreasing order of priority).

Note

Item 2:

If the master/slave mode is active, the "Superimposed operating mode" object of the master and the slave must be connected to the group address of the transmitter.

10.6.6 Window contact

Number	Name	Object function	Data type
14	1. Window contact	Input	Switching
	2. Window contact (master/slave)	Input	Switching

The object uses the value 1 to signal an open window to the controller. If no other object with a higher priority is present, then the "Window contact" message causes the controller to be set to the setpoint value for frost/heat protection. In addition to manual setpoint adjustment and the adjustment of the basic setpoint value, the setpoint temperature of the controller can also be defined by objects "Superimposed operating mode", "Condensate water alarm", "Dew alarm", "Window contact", "Control On/Off", "Presence detector" and "Operating mode (listed in decreasing order of priority).

Note

Item 2:

If the master/slave mode is active, the "Window contact (master/slave)" object of the master and the slave must be connected to the group address of the transmitter.

10.6.7 Presence detector

Number	Name	Object function	Data type
15	1. Presence detector	Input	Switching
	2. Presence detector (master/slave)	Input	Switching

This object transmits the value 1 to the controller to signal that there are people in the room. If not other object with a higher priority is present, then the "Presence detector" causes the controller to be set to the comfort setpoint value. In addition to manual setpoint adjustment and the adjustment of the basic setpoint value, the setpoint temperature of the controller can also be defined by objects "Superimposed operating mode", "Condensate water alarm", "Dew alarm", "Window contact", "Control On/Off", "Presence detector" and "Operating mode (listed in decreasing order of priority).

Note

Item 2:

If the master/slave mode is active, the "Presence detector (master/slave)" object of the master and the slave must be connected to the group address of the transmitter.

10.6.8 Condensate water alarm

Number	Name	Object function	Data type
29	1. Condensate water alarm	Input	Switching
	2. Condensate water alarm (master/slave)	Input	Switching

This 1-bit communication object is used to place the controller in the condensation alarm mode. This causes the current setpoint value to be set to the heat protection setpoint value in order to keep the structure from being damaged by an overflowing condensation container.

Note

Item 1:

This protective mechanism is only active in the cooling mode. It remains in place until it is cancelled by the value (0). When an alarm is active, manual operation of the controller is blocked. This information is indicated by a corresponding icon on the device.

Item 2:

- This protective mechanism is only active in the cooling mode. It remains in place until it is cancelled by the value (0). When an alarm is active, manual operation of the controller is blocked. This information is indicated by a corresponding icon on the device.
- When the master/slave mode is active, the condensate water alarm (master/slave) objects must be connected to the alarm transmitter.

10.6.9 Fahrenheit

Number	Name	Object function	Data type
33	1. Fahrenheit	Input / output	Switching
	2. Fahrenheit (master)	Input / output	Switching
	3. Fahrenheit (slave)	Input / output	Switching

The temperature indication on the display can be changed from Celsius (°C) to Fahrenheit (°F). The conversion from Celsius to Fahrenheit always takes place in the display unit, since only Celsius values are sent over the KNX bus. The value (0) results in a temperature indication in Celsius, while the value (1) results in Fahrenheit.

NOTE

Item 2:

If the Fahrenheit object is active in the master/slave mode, the Fahrenheit (slave) object must be connected to this object.

Item 3:

If the Fahrenheit object is active in the master/slave mode, the Fahrenheit (master) object must be connected to this object.

10.6.10 Display backlighting

Number	Name	Object function	Data type
34	Display backlighting	Input / output	Switching

The display backlighting is activated with value (1) and deactivated with value (0) via the 1-bit communication object.

NOTE

This function is mainly used in rooms where backlighting during the night is considered to be a disturbing factor, such as in hotel rooms and bedrooms.

10.6.11 On/Off request

Number	Name	Object function	Data type
35	1. On/off request (master)	Input	Switching
	2. On/off request (slave)	Input	Switching

This 1-bit communication object must be connected to the respective slave communication object in order to synchronise the devices in the master/slave configuration.

10.6.12 Setpoint display

Number	Name	Object function	Data type
36	1. Set value display (master)	Input / output	2-byte floating point value
	2. Set value display (slave)	Input / output	2-byte floating point value

This 2-byte communication object must be connected to the respective slave communication object in order to synchronise the devices in the master/slave configuration.

10.6.13 Request setpoint

Number	Name	Object function	Data type
37	1. Request set value (master)	Input	Percent (0 - 100%)
	2. Request set value (slave)	Input	Percent (0 - 100%)

This 1-byte communication object must be connected to the respective slave communication object in order to synchronise the devices in the master/slave configuration.

10.6.14 Confirm setpoint

Number	Name	Object function	Data type
38	1. Confirm set value (master)	Input / output	Percent (0 - 100%)
	2. Confirm set value (slave)	Input / output	Percent (0..100%)

This 1-byte communication object must be connected to the respective slave communication object in order to synchronise the devices in the master/slave configuration.

10.6.15 Heating/cooling request

Number	Name	Object function	Data type
39	1. Heating/cooling request (master)	Input	Switching
	2. Heating/cooling request (slave)	Input	Switching

This 1-bit communication object must be connected to the respective slave communication object in order to synchronise the devices in the master/slave configuration.

10.6.16 Request fan speed level manually

Number	Name	Object function	Data type
40	1. Request fan speed level manually (master)	Input	Switching
	2. Request fan speed level manually (slave)	Input	Switching

This 1-bit communication object must be connected to the respective slave communication object in order to synchronise the devices in the master/slave configuration.

10.6.17 Request fan speed level

Number	Name	Object function	Data type
41	1. Request fan speed level (master)	Input	Percent (0..100%)
	2. Request fan speed level (slave)	Input	Percent (0..100%)

This 1-byte communication object must be connected to the respective slave communication object in order to synchronise the devices in the master/slave configuration.

10.6.18 Confirm fan speed level

Number	Name	Object function	Data type
42	1. Confirm fan speed level (master)	Input / output	Percent (0..100%)
	2. Confirm fan speed level (slave)	Input / output	Percent (0..100%)

This 1-byte communication object must be connected to the respective slave communication object in order to synchronise the devices in the master/slave configuration.

10.6.19 Controller status RHCC

Number	Name	Object function	Data type
43	Controller status RHCC	Output	2-byte floating point value

This communication object outputs the heating/cooling operation type, active/inactive operation, the frost and heat alarm, and the error (actual temperature reading failure) in accordance with the specification for the RHCC (Room Heating Cooling Controller) status.

10.6.20 Controller status HVAC

Number	Name	Object function	Data type
44	1. Controller status HVAC	Output	Percent (0..100%)
	2. Controller status HVAC (master)	Output	Percent (0..100%)
	3. Controller status HVAC (slave)	Output	Percent (0..100%)

This communication object outputs the current operating mode, the heating/cooling mode, active/inactive mode, the frost alarm and the dew point alarm in accordance with the specification for the HVAC (Heating Ventilation Air Conditioning) status.

Note

Item 2:

If the master/slave mode is active, the HVAC status (slave) object must be connected to this object.

Item 3:

If the master/slave mode is active, the HVAC status (master) object must be connected to this object.

10.6.21 Commissioned

Number	Name	Object function	Data type
45	Commissioned	Output	Switching

The controller uses this 1-bit communication object to send a cyclical "sign of life". This signal can be used to monitor the device, e.g. by means of a visualisation.

10.7 Communication objects "Inputs"

10.7.1 Pulse counter

10.7.2 Pulse counter — E1-E5 — MC – Main counter reading

Number	Name	Object function	Data type
	MC: Main counter reading		

This parameter defines the data type of the main counter.

The parameter depends on the "Data type" parameter. Different limit values are preset according to the data type that is selected. The input fields can be freely edited. The following object types are available to select for the main counter data type:

Options:	8-bit value [-128 to 127]
	8-bit value [0 to 255]
	16-bit value [-32,768 to 32,767]
	16-bit value [0 to 65,535]
	32-bit value [-2,147,485,648 to 2,147,483,647]

10.7.3 Pulse counter — E1-E5 — MC – Limit value exceeded

Number	Name	Object function	Data type (DPT)
178	E1 MC: Limit value exceeded	Output	Bool
269	E2 MC: Limit value exceeded	Output	Bool
339	E3 MC: Limit value exceeded	Output	Bool
409	E4 MC: Limit value exceeded	Output	Bool
512	E5 MC: Limit value exceeded	Output	Bool

If the parameterized limit value of the main counter is exceeded, the excess is sent to the KNX bus as a 1-bit value.

10.7.4 Pulse counter — E1-E5 — MC – Counter reading 1-byte value

Number	Name	Object function	Data type (DPT)
167	E1 MC: Counter reading 1-byte value	Output	Value_1_Count
168			Value_1_Ucount
258	E2 MC: Counter reading 1-byte value	Output	Value_1_Count
259			Value_1_Ucount
328	E3 MC: Counter reading 1-byte value	Output	Value_1_Count
329			Value_1_Ucount
398	E4 MC: Counter reading 1-byte value	Output	Value_1_Count
399			Value_1_Ucount
501	E5 MC: Counter reading 1-byte value	Output	Value_1_Count
502			Value_1_Ucount

The output transfers the main counter value to the KNX bus in the form of a 1-byte value.

10.7.5 Pulse counter — E1-E5 — MC – Counter reading 2-byte value

Number	Name	Object function	Data type (DPT)
169	E1 MC: Counter reading 2-byte value	Output	Value_2_Count
170			Value_2_Ucount
260	E2 MC: Counter reading 2-byte value	Output	Value_2_Count
261			Value_2_Ucount
330	E3 MC: Counter reading 2-byte value	Output	Value_2_Count
331			Value_2_Ucount
400	E4 MC: Counter reading 2-byte value	Output	Value_2_Count
401			Value_2_Ucount
503	E5 MC: Counter reading 2-byte value	Output	Value_2_Count
504			Value_2_Ucount

The output transfers the main counter value to the KNX bus in the form of a 2-byte value.

10.7.6 Pulse counter — E1-E5 — MC – Counter reading 4-byte value

Number	Name	Object function	Data type (DPT)
171	E1 MC: Counter reading 4-byte value	Output	Value_4_Count
262	E2 MC: Counter reading 4-byte value	Output	Value_4_Count
332	E3 MC: Counter reading 4-byte value	Output	Value_4_Count
402	E4 MC: Counter reading 4-byte value	Output	Value_4_Count
505	E5 MC: Counter reading 4-byte value	Output	Value_4_Count

The output transfers the main counter value to the KNX bus in the form of a 4-byte value.

10.7.7 Pulse counter — E1-E5 — MC – Request counter reading

Number	Name	Object function	Data type (DPT)
177	E1 MC: Request counter reading	Input	Switch
268	E2 MC: Request counter reading	Input	Switch
338	E3 MC: Request counter reading	Input	Switch
408	E4 MC: Request counter reading	Input	Switch
511	E5 MC: Request counter reading	Input	Switch

The current reading of the main counter can be read/requested via the KNX bus.

10.7.8 Pulse counter — E1-E5 — disable

Number	Name	Object function	Data type (DPT)
184	E1: Disable	Input	Enable
275	E2: Disable	Input	Enable
345	E3: Disable	Input	Enable
415	E4: Disable	Input	Enable
518	E5: Disable	Input	Enable

When the value "1" is received at the object, the parameterised function is completely disabled.

It is then enabled when the value "0" is received. Only then will it be possible for the input objects to communicate on the KNX bus again.

10.7.9 Pulse counter — E1-E5 — IC – Stop

Number	Name	Object function	Data type (DPT)
183	E1 IC: Stop	Input	Bool
274	E2 IC: Stop	Input	Bool
344	E3 IC: Stop	Input	Bool
414	E4 IC: Stop	Input	Bool
517	E5 IC: Stop	Input	Bool

Via this object, the intermediate counter is stopped when the value "0" is received.

Any further incoming telegrams will not be counted.

The value "1" enables the intermediate counter again. Any telegrams that are received are included in the count.

10.7.10 Pulse counter — E1-E5 — IC – Limit value exceeded

Number	Name	Object function	Data type (DPT)
179	E1 IC: Limit value exceeded	Output	Bool
270	E2 IC: Limit value exceeded	Output	Bool
340	E3 IC: Limit value exceeded	Output	Bool
410	E4 IC: Limit value exceeded	Output	Bool
513	E5 IC: Limit value exceeded	Output	Bool

If the parameterized limit value of the intermediate counter is exceeded, the excess is sent to the KNX bus as a 1-bit value.

10.7.11 Pulse counter — E1-E5 — IC – Reverse direction

Number	Name	Object function	Data type (DPT)
181	E1 IC: Reverse direction	Input	Bool
272	E2 IC: Reverse direction	Input	Bool
342	E3 IC: Reverse direction	Input	Bool
412	E4 IC: Reverse direction	Input	Bool
515	E5 IC: Reverse direction	Input	Bool

The counting direction of the intermediate counter can be changed using this object.

10.7.12 Pulse counter — E1-E5 — IC – Reset

Number	Name	Object function	Data type (DPT)
182	E1 IC: Reset	Input	Bool
273	E2 IC: Reset	Input	Bool
343	E3 IC: Reset	Input	Bool
413	E4 IC: Reset	Input	Bool
516	E5 IC: Reset	Input	Bool

The intermediate counter is reset to the value "0".

10.7.13 Pulse counter — E1-E5 — IC – Counter reading 1-byte value

Number	Name	Object function	Data type (DPT)
172	E1 IC: Counter reading 1-byte value	Output	Value_1_Count
173			Value_1_Ucount
263	E2 IC: Counter reading 1-byte value	Output	Value_1_Count
264			Value_1_Ucount
333	E3 IC: Counter reading 1-byte value	Output	Value_1_Count
334			Value_1_Ucount
403	E4 IC: Counter reading 1-byte value	Output	Value_1_Count
404			Value_1_Ucount
506	E5 IC: Counter reading 1-byte value	Output	Value_1_Count
507			Value_1_Ucount

The output transfers the intermediate counter value to the KNX bus in the form of a 1-byte value.

10.7.14 Pulse counter — E1-E5 — IC – Counter reading 2-byte value

Number	Name	Object function	Data type (DPT)
174	E1 IC: Counter reading 2-byte value	Output	Value_2_Count
175			Value_2_Ucount
264	E2 IC: Counter reading 2-byte value	Output	Value_2_Count
265			Value_2_Ucount
335	E3 IC: Counter reading 2-byte value	Output	Value_2_Count
336			Value_2_Ucount
405	E4 IC: Counter reading 2-byte value	Output	Value_2_Count
406			Value_2_Ucount
508	E5 IC: Counter reading 2-byte value	Output	Value_2_Count
509			Value_2_Ucount

The output transfers the intermediate counter value to the KNX bus in the form of a 2-byte value.

10.7.15 Pulse counter — E1-E5 — IC – Counter reading 4-byte value

Number	Name	Object function	Data type (DPT)
176	E1 IC: Counter reading 4-byte value	Output	Value_4_Count
267	E2 IC: Counter reading 4-byte value	Output	Value_4_Count
337	E3 IC: Counter reading 4-byte value	Output	Value_4_Count
407	E4 IC: Counter reading 4-byte value	Output	Value_4_Count
510	E5 IC: Counter reading 4-byte value	Output	Value_4_Count

The output transfers the intermediate counter value to the KNX bus in the form of a 4-byte value.

10.7.16 Pulse counter — E1-E5 — IC – Request counter reading

Number	Name	Object function	Data type (DPT)
180	E1 IC: Request counter reading	Input	Switch
271	E2 IC: Request counter reading	Input	Switch
341	E3 IC: Request counter reading	Input	Switch
411	E4 IC: Request counter reading	Input	Switch
514	E5 IC: Request counter reading	Input	Switch

The current reading of the intermediate counter can be read/requested via the KNX bus.

10.7.17 Blind

10.7.18 Blind — E1-E5 — Top end position

Number	Name	Object function	Data type (DPT)
124	E1: Top end position	Output	Bool
215	E2: Top end position	Output	Bool
285	E3: Top end position	Output	Bool
355	E4: Top end position	Output	Bool
458	E5: Top end position	Output	Bool

If the actuator being used has a corresponding communication object that detects the top end position of the blind or roller shutter, it is possible to link this information to the binary input.

With this information, the "Move blind down" action is executed each time this application is actuated.

10.7.19 Blind — E1-E5 — Bottom end position

Number	Name	Object function	Data type (DPT)
125	E1: Bottom end position	Output	Bool
216	E2: Bottom end position	Output	Bool
286	E3: Bottom end position	Output	Bool
356	E4: Bottom end position	Output	Bool
459	E5: Bottom end position	Output	Bool

If the actuator being used has a corresponding communication object that detects the bottom end position of the blind or roller shutter, it is possible to link this information to the binary input.

With this information, the "Move blind up" action is executed each time this application is actuated.

10.7.20 Blind — E1-E5 — Blind UP/DOWN

Number	Name	Object function	Data type (DPT)
122	E1: Blind UP/DOWN	Output	UpDown
213	E2: Blind UP/DOWN	Output	UpDown
283	E3: Blind UP/DOWN	Output	UpDown
353	E4: Blind UP/DOWN	Output	UpDown
456	E5: Blind UP/DOWN	Output	UpDown

It is possible to use the input to move the blind/roller shutter up or down alternately.

10.7.21 Blind — E1-E5 — STOP/slat adjustment

Number	Name	Object function	Data type (DPT)
123	E1: STOP/slat adjustment	Output	Step
214	E2: STOP/slat adjustment	Output	Step
284	E3: STOP/slat adjustment	Output	Step
354	E4: STOP/slat adjustment	Output	Step
457	E5: STOP/slat adjustment	Output	Step

The object is used to send the appropriate 1-bit value for stopping or adjusting the slats to the KNX bus via the output or the corresponding KNX object.

The value "0" or "1" is sent alternately during the process.

10.7.22 Blind — E1-E5 — disable

Number	Name	Object function	Data type (DPT)
126	E1: Disable	Input	Enable
217	E2: Disable	Input	Enable
287	E3: Disable	Input	Enable
357	E4: Disable	Input	Enable
460	E5: Disable	Input	Enable

When the value "1" is received at the object, the parameterised function is completely disabled.

It is then enabled when the value "0" is received. Only then will it be possible for the input objects to communicate on the KNX bus again.

10.7.23 Multiple operation

10.7.24 Multiple operation — E1-E5 — Switching — 1 actuation

Number	Name	Object function	Data type (DPT)
161	E1: Switching 1 actuation	Output	Switch
252	E2: Switching 1 actuation	Output	Switch
322	E3: Switching 1 actuation	Output	Switch
392	E4: Switching 1 actuation	Output	Switch
495	E5: Switching 1 actuation	Output	Switch

The parameter sends the corresponding value "1" or "0" to the KNX bus.

10.7.25 Multiple operation — E1-E5 — Switching — 2 actuations

Number	Name	Object function	Data type (DPT)
162	E1: Switching 2 actuations	Output	Switch
253	E2: Switching 2 actuations	Output	Switch
323	E3: Switching 2 actuations	Output	Switch
393	E4: Switching 2 actuations	Output	Switch
496	E5: Switching 2 actuations	Output	Switch

The second step of the multifunction is sent to the KNX bus with the parameterized value.

10.7.26 Multiple operation — E1-E5 — Switching — 3 actuations

Number	Name	Object function	Data type (DPT)
163	E1: Switching 3 actuations	Output	Switch
254	E2: Switching 3 actuations	Output	Switch
324	E3: Switching 3 actuations	Output	Switch
394	E4: Switching 3 actuations	Output	Switch
497	E5: Switching 3 actuations	Output	Switch

The third step of the multifunction is sent to the KNX bus with the parameterized value.

10.7.27 Multiple operation — E1-E5 — Switching — 4 actuations

Number	Name	Object function	Data type (DPT)
164	E1: Switching 4 actuations	Output	Switch
255	E2: Switching 4 actuations	Output	Switch
325	E3: Switching 4 actuations	Output	Switch
395	E4: Switching 4 actuations	Output	Switch
498	E5: Switching 4 actuations	Output	Switch

The fourth step of the multifunction is sent to the KNX bus with the parameterized value.

10.7.28 Multiple operation — E1-E5 — Switching — long actuation

Number	Name	Object function	Data type (DPT)
165	E1: Switching, long actuation	Output	Switch
256	E2: Switching, long actuation	Output	Switch
326	E3: Switching, long actuation	Output	Switch
396	E4: Switching, long actuation	Output	Switch
499	E5: Switching, long actuation	Output	Switch

After a long button press, the corresponding 1-bit value is sent to the KNX bus. The required duration of the button press can be parameterized in the ETC application.

10.7.29 Multiple operation — E1-E5 — disable

Number	Name	Object function	Data type (DPT)
166	E1: Disable	Input	Enable
257	E2: Disable	Input	Enable
327	E3: Disable	Input	Enable
397	E4: Disable	Input	Enable
500	E5: Disable	Input	Enable

When the value "1" is received at the object, the parameterised function is completely disabled.

It is then enabled when the value "0" is received. Only then will it be possible for the input objects to communicate on the KNX bus again.

10.7.30 Switching_alarm

10.7.31 Switch_alarm — E1-E5 — Alarm sensor

Number	Name	Object function	Data type (DPT)
116	E1: Alarm sensor	Output	Alarm
207	E2: Alarm sensor	Output	Alarm
277	E3: Alarm sensor	Output	Alarm
347	E4: Alarm sensor	Output	Alarm
450	E5: Alarm sensor	Output	Alarm

The parameter enables a defined 1-bit alarm telegram to be sent out.

10.7.32 Switch_alarm — E1-E5 — Start event 0/1

Number	Name	Object function	Data type (DPT)
117	E1: Start event 0/1	Input	Switch
208	E2: Start event 0/1	Input	Switch
278	E3: Start event 0/1	Input	Switch
348	E4: Start event 0/1	Input	Switch
451	E5: Start event 0/1	Input	Switch

With this object, it is possible to trigger the same events as the buttons/switches connected to the binary input by receiving a telegram at the "Start event 0/1" communication object.

This application does not take into account any minimum signal duration that is set or any distinction between a short and long pressing duration; in other words, the event is executed immediately.

10.7.33 Switch_alarm — E1-E5 — Switching sensor

Number	Name	Object function	Data type (DPT)
115	E1: Switching sensor	Output	Switch
206	E2: Switching sensor	Output	Switch
276	E3: Switching sensor	Output	Switch
346	E4: Switching sensor	Output	Switch
449	E5: Switching sensor	Output	Switch

It is possible to use the input to move the blind/roller shutter up or down alternately.

10.7.34 Switch_alarm — E1-E5 — disable

Number	Name	Object function	Data type (DPT)
118	E1: Disable	Input	Enable
209	E2: Disable	Input	Enable
279	E3: Disable	Input	Enable
349	E4: Disable	Input	Enable
452	E5: Disable	Input	Enable

When the value "1" is received at the object, the parameterised function is completely disabled.

It is then enabled when the value "0" is received. Only then will it be possible for the input objects to communicate on the KNX bus again.

10.7.35 Dimming

10.7.36 Dim — E1-E5 — Dimming

Number	Name	Object function	Data type (DPT)
120	E1: Dimming	Output	Control_Dimming
211	E2: Dimming	Output	Control_Dimming
281	E3: Dimming	Output	Control_Dimming
351	E4: Dimming	Output	Control_Dimming
454	E5: Dimming	Output	Control_Dimming

The object is used to send the appropriate hexadecimal value for ON/OFF dimming to the KNX bus via the output or the corresponding KNX object.

10.7.37 Dim — E1-E5 — Switching

Number	Name	Object function	Data type (DPT)
119	E1: Switching	Output	Switch
210	E2: Switching	Output	Switch
280	E3: Switching	Output	Switch
350	E4: Switching	Output	Switch
453	E5: Switching	Output	Switch

The output sends the value "0" or "1" to the KNX bus alternately.

10.7.38 Dim — E1-E5 — disable

Number	Name	Object function	Data type (DPT)
121	E1: Disable	Input	Enable
212	E2: Disable	Input	Enable
282	E3: Disable	Input	Enable
352	E4: Disable	Input	Enable
455	E5: Disable	Input	Enable

When the value "1" is received at the object, the parameterised function is completely disabled.

It is then enabled when the value "0" is received. Only then will it be possible for the input objects to communicate on the KNX bus again.

10.7.39 Switching sequences

10.7.40 Switching sequences — E1-E5 — Actuating number

Number	Name	Object function	Data type (DPT)
159	E1: Actuating number	Input	Value_1_Ucount
250	E2: Actuating number	Input	Value_1_Ucount
320	E3: Actuating number	Input	Value_1_Ucount
390	E4: Actuating number	Input	Value_1_Ucount
493	E5: Actuating number	Input	Value_1_Ucount

With this object, it is possible to affect manual adjustment of the switching sequences by specifying a switching level via the KNX bus.

10.7.41 Switching sequences — E1-E5 — Switching — step 1

Number	Name	Object function	Data type (DPT)
153	E1: Switching step 1	Output	Switch
244	E2: Switching step 1	Output	Switch
314	E3: Switching step 1	Output	Switch
384	E4: Switching step 1	Output	Switch
487	E5: Switching step 1	Output	Switch

The first step of the step switch is sent to the KNX bus.

10.7.42 Switching sequences — E1-E5 — Switching — step 2

Number	Name	Object function	Data type (DPT)
154	E1: Switching step 2	Output	Switch
245	E2: Switching step 2	Output	Switch
316	E3: Switching step 2	Output	Switch
385	E4: Switching step 2	Output	Switch
488	E5: Switching step 2	Output	Switch

The second step of the step switch is sent to the KNX bus.

10.7.43 Switching sequences — E1-E5 — Switching — step 3

Number	Name	Object function	Data type (DPT)
155	E1: Switching step 3	Output	Switch
246	E2: Switching step 3	Output	Switch
316	E3: Switching step 3	Output	Switch
386	E4: Switching step 3	Output	Switch
489	E5: Switching step 3	Output	Switch

The third step of the step switch is sent to the KNX bus.

10.7.44 Switching sequences — E1-E5 — Switching — step 4

Number	Name	Object function	Data type (DPT)
156	E1: Switching step 4	Output	Switch
247	E2: Switching step 4	Output	Switch
317	E3: Switching step 4	Output	Switch
387	E4: Switching step 4	Output	Switch
490	E5: Switching step 4	Output	Switch

The fourth step of the step switch is sent to the KNX bus.

10.7.45 Switching sequences — E1-E5 — Switching — step 5

Number	Name	Object function	Data type (DPT)
157	E1: Switching step 5	Output	Switch
248	E2: Switching step 5	Output	Switch
318	E3: Switching step 5	Output	Switch
388	E4: Switching step 5	Output	Switch
491	E5: Switching step 5	Output	Switch

The fifth step of the step switch is sent to the KNX bus.

10.7.46 Switching sequences — E1-E5 — Switch step up/down

Number	Name	Object function	Data type (DPT)
158	E1: Switch step up/down	Input	Switch
249	E2: Switch step up/down	Input	Switch
319	E3: Switch step up/down	Input	Switch
389	E4: Switch step up/down	Input	Switch
492	E5: Switch step up/down	Input	Switch

This KNX object makes it possible to switch the actuation direction of the "Step switch" application.

10.7.47 Switching sequences — E1-E5 — disable

Number	Name	Object function	Data type (DPT)
160	E1: Disable	Input	Enable
251	E2: Disable	Input	Enable
321	E3: Disable	Input	Enable
391	E4: Disable	Input	Enable
494	E5: Disable	Input	Enable

When the value "1" is received at the object, the parameterised function is completely disabled.

It is then enabled when the value "0" is received. Only then will it be possible for the input objects to communicate on the KNX bus again.

10.7.48 Scenes

10.7.49 Scene — E1-E5 — Scene storage display

Number	Name	Object function	Data type (DPT)
151	E1: Scene storage display	Output	Enable
242	E2: Scene storage display	Output	Enable
312	E3: Scene storage display	Output	Enable
382	E4: Scene storage display	Output	Enable
485	E5: Scene storage display	Output	Enable

If a storage command is sent via the light scenes to the actuator channels incorporated into the scene, the object provides this status to the KNX bus.

If the object is linked to the object of a KNX control element, for example, the storage process may be visualised by the status LED flashing.

10.7.50 Scene — E1-E5 — Scene

Number	Name	Object function	Data type (DPT)
148	E1: Scene	Output	SceneControl
239	E2: Scene	Output	SceneControl
309	E3: Scene	Output	SceneControl
379	E4: Scene	Output	SceneControl
482	E5: Scene	Output	SceneControl

The object can be used to retrieve one of 64 scenes via a 1-byte value.

10.7.51 Scene — E1-E5 — disable

Number	Name	Object function	Data type (DPT)
152	E1: Disable	Input	Enable
243	E2: Disable	Input	Enable
313	E3: Disable	Input	Enable
383	E4: Disable	Input	Enable
486	E5: Disable	Input	Enable

When the value "1" is received at the object, the parameterised function is completely disabled.

It is then enabled when the value "0" is received. Only then will it be possible for the input objects to communicate on the KNX bus again.

10.7.52 Forced operation value

10.7.53 Forced operation value — E1-E5 — 1-byte value — (-128 to 127) (event 0)

Number	Name	Object function	Data type (DPT)
131	E1: 1-byte value (-128 to 127) (event 0)	Output	Value_1_Count
222	E2: 1-byte value (-128 to 127) (event 0)	Output	Value_1_Count
292	E3: 1-byte value (-128 to 127) (event 0)	Output	Value_1_Count
362	E4: 1-byte value (-128 to 127) (event 0)	Output	Value_1_Count
465	E5: 1-byte value (-128 to 127) (event 0)	Output	Value_1_Count

The output transfers the value "0", as a result of the limit value, from the main counter to the KNX bus as a 1-byte value.

10.7.54 Forced operation value — E1-E5 — 1-byte value — (-128 to 127) (event 1)

Number	Name	Object function	Data type (DPT)
132	E1: 1-byte value (-128 to 127) (event 1)	Output	Value_1_Count
223	E2: 1-byte value (-128 to 127) (event 1)	Output	Value_1_Count
293	E3: 1-byte value (-128 to 127) (event 1)	Output	Value_1_Count
363	E4: 1-byte value (-128 to 127) (event 1)	Output	Value_1_Count
466	E5: 1-byte value (-128 to 127) (event 1)	Output	Value_1_Count

The output transfers the intermediate counter value to the KNX bus in the form of a 1-byte value.

10.7.55 Forced operation value — E1-E5 — 1-byte value — (0 to 255) (event 0)

Number	Name	Object function	Data type (DPT)
133	E1: 1-byte value (0 to 255) (event 0)	Output	Value_1_Ucount
224	E2: 1-byte value (0 to 255) (event 0)	Output	Value_1_Ucount
294	E3: 1-byte value (0 to 255) (event 0)	Output	Value_1_Ucount
364	E4: 1-byte value (0 to 255) (event 0)	Output	Value_1_Ucount
467	E5: 1-byte value (0 to 255) (event 0)	Output	Value_1_Ucount

The output transfers the value "0", as a result of the limit value, from the main counter to the KNX bus as a 1-byte value.

10.7.56 Forced operation value — E1-E5 — 1-byte value — (0 to 255) (event 1)

Number	Name	Object function	Data type (DPT)
134	E1: 1-byte value (0 to 255) (event 1)	Output	Value_1_Ucount
225	E2: 1-byte value (0 to 255) (event 1)	Output	Value_1_Ucount
295	E3: 1-byte value (0 to 255) (event 1)	Output	Value_1_Ucount
365	E4: 1-byte value (0 to 255) (event 1)	Output	Value_1_Ucount
468	E5: 1-byte value (0 to 255) (event 1)	Output	Value_1_Ucount

The output transfers the intermediate counter value to the KNX bus in the form of a 1-byte value.

10.7.57 Forced operation value — E1-E5 — 2-byte value — (-32,768 to 32,767) (event 0)

Number	Name	Object function	Data type (DPT)
137	E1: 2-byte value (-32,768 to 32,767) (event 0)	Output	Value_2_Count
228	E2: 2-byte value (-32,768 to 32,767) (event 0)	Output	Value_2_Count
298	E3: 2-byte value (-32,768 to 32,767) (event 0)	Output	Value_2_Count
368	E4: 2-byte value (-32,768 to 32,767) (event 0)	Output	Value_2_Count
471	E5: 2-byte value (-32,768 to 32,767) (event 0)	Output	Value_2_Count

The output transfers the value "0", as a result of the limit value, from the main counter to the KNX bus as a 2-byte value.

10.7.58 Forced operation value — E1-E5 — 2-byte value — (-32,768 to 32,767) (event 1)

Number	Name	Object function	Data type (DPT)
138	E1: 2-byte value (-32,768 to 32,767) (event 1)	Output	Value_2_Count
229	E2: 2-byte value (-32,768 to 32,767) (event 1)	Output	Value_2_Count
299	E3: 2-byte value (-32,768 to 32,767) (event 1)	Output	Value_2_Count
369	E4: 2-byte value (-32,768 to 32,767) (event 1)	Output	Value_2_Count
472	E5: 2-byte value (-32,768 to 32,767) (event 1)	Output	Value_2_Count

The output transfers the intermediate counter value to the KNX bus in the form of a 2-byte value.

10.7.59 Forced operation value — E1-E5 — 2-byte value — (0 to 65,535) (event 0)

Number	Name	Object function	Data type (DPT)
139	E1: 2-byte value (0 to 65,535) (event 0)	Output	Value_2_Ucount
230	E2: 2-byte value (0 to 65,535) (event 0)	Output	Value_2_Ucount
300	E3: 2-byte value (0 to 65,535) (event 0)	Output	Value_2_Ucount
370	E4: 2-byte value (0 to 65,535) (event 0)	Output	Value_2_Ucount
473	E5: 2-byte value (0 to 65,535) (event 0)	Output	Value_2_Ucount

The output transfers the value "0", as a result of the limit value, from the main counter to the KNX bus as a 2-byte value.

10.7.60 Forced operation value — E1-E5 — 2-byte value — (0 to 65,535) (event 1)

Number	Name	Object function	Data type (DPT)
140	E1: 2-byte value (0 to 65,535) (event 1)	Output	Value_2_Ucount
231	E2: 2-byte value (0 to 65,535) (event 1)	Output	Value_2_Ucount
301	E3: 2-byte value (0 to 65,535) (event 1)	Output	Value_2_Ucount
371	E4: 2-byte value (0 to 65,535) (event 1)	Output	Value_2_Ucount
474	E5: 2-byte value (0 to 65,535) (event 1)	Output	Value_2_Ucount

The output transfers the intermediate counter value to the KNX bus in the form of a 2-byte value.

10.7.61 Forced operation value — E1-E5 — 2-byte floating point (event 0)

Number	Name	Object function	Data type (DPT)
145	E1: 2-byte floating point (event 0)	Output	Value_Temp
236	E2: 2-byte floating point (event 0)	Output	Value_Temp
306	E3: 2-byte floating point (event 0)	Output	Value_Temp
376	E4: 2-byte floating point (event 0)	Output	Value_Temp
479	E5: 2-byte floating point (event 0)	Output	Value_Temp

The value "0" of the 2-byte value is available at the communication object.

10.7.62 Forced operation value — E1-E5 — 2-byte floating point (event 1)

Number	Name	Object function	Data type (DPT)
146	E1: 2-byte floating point (event 1)	Output	Value_Temp
237	E2: 2-byte floating point (event 1)	Output	Value_Temp
307	E3: 2-byte floating point (event 1)	Output	Value_Temp
377	E4: 2-byte floating point (event 1)	Output	Value_Temp
480	E5: 2-byte floating point (event 1)	Output	Value_Temp

The parameter transfers the intermediate counter value to the KNX bus in the form of a 2-byte value.

10.7.63 Forced operation value — E1-E5 — 4-byte value — (-2,147,483,648 to 2,147,483,647) (event 0)

Number	Name	Object function	Data type (DPT)
141	E1: 4-byte value (-2,147,483,648 to 2,147,483,647) (event 0)	Output	Value_4_Ucount
232	E2: 4-byte value (-2,147,483,648 to 2,147,483,647) (event 0)	Output	Value_4_Ucount
302	E3: 4-byte value (-2,147,483,648 to 2,147,483,647) (event 0)	Output	Value_4_Ucount
372	E4: 4-byte value (-2,147,483,648 to 2,147,483,647) (event 0)	Output	Value_4_Ucount
475	E5: 4-byte value (-2,147,483,648 to 2,147,483,647) (event 0)	Output	Value_4_Ucount

The value "0" of the 4-byte value is available at the communication object.

10.7.64 Forced operation value — E1-E5 — 4-byte value — (-2,147,483,648 to 2,147,483,647) (event 1)

Number	Name	Object function	Data type (DPT)
142	E1: 4-byte value (-2,147,483,648 to 2,147,483,647) (event 1)	Output	Value_4_Ucount
233	E2: 4-byte value (-2,147,483,648 to 2,147,483,647) (event 1)	Output	Value_4_Ucount
303	E3: 4-byte value (-2,147,483,648 to 2,147,483,647) (event 1)	Output	Value_4_Ucount
373	E4: 4-byte value (-2,147,483,648 to 2,147,483,647) (event 1)	Output	Value_4_Ucount
476	E5: 4-byte value (-2,147,483,648 to 2,147,483,647) (event 1)	Output	Value_4_Ucount

The output transfers the intermediate counter value to the KNX bus in the form of a 4-byte value.

10.7.65 Forced operation value — E1-E5 — 4-byte value — (0 to 4,294,967,295) (event 0)

Number	Name	Object function	Data type (DPT)
143	E1: 4-byte value (0 to 4,294,967,295) (event 0)	Output	Value_4_Ucount
234	E2: 4-byte value (0 to 4,294,967,295) (event 0)	Output	Value_4_Ucount
304	E3: 4-byte value (0 to 4,294,967,295) (event 0)	Output	Value_4_Ucount
374	E4: 4-byte value (0 to 4,294,967,295) (event 0)	Output	Value_4_Ucount
477	E5: 4-byte value (0 to 4,294,967,295) (event 0)	Output	Value_4_Ucount

The value "0" of the 4-byte value is available at the communication object.

10.7.66 Forced operation value — E1-E5 — 4-byte value — (0 to 4,294,967,295) (event 1)

Number	Name	Object function	Data type (DPT)
144	E1: 4-byte value (0 to 4,294,967,295) (event 1)	Output	Value_4_Ucount
235	E2: 4-byte value (0 to 4,294,967,295) (event 1)	Output	Value_4_Ucount
305	E3: 4-byte value (0 to 4,294,967,295) (event 1)	Output	Value_4_Ucount
375	E4: 4-byte value (0 to 4,294,967,295) (event 1)	Output	Value_4_Ucount
478	E5: 4-byte value (0 to 4,294,967,295) (event 1)	Output	Value_4_Ucount

The value "0" of the 4-byte value is available at the communication object.

10.7.67 Forced operation value — E1-E5 — Priority (event 0)

Number	Name	Object function	Data type (DPT)
129	E1: Priority (event 0)	Output	Switch_Control
220	E2: Priority (event 0)	Output	Switch_Control
290	E3: Priority (event 0)	Output	Switch_Control
360	E4: Priority (event 0)	Output	Switch_Control
463	E5: Priority (event 0)	Output	Switch_Control

The output sends a priority 2-bit object to the KNX bus.

10.7.68 Forced operation value — E1-E5 — Priority (event 1)

Number	Name	Object function	Data type (DPT)
130	E1: Priority (event 1)	Output	Switch_Control
221	E2: Priority (event 1)	Output	Switch_Control
291	E3: Priority (event 1)	Output	Switch_Control
361	E4: Priority (event 1)	Output	Switch_Control
464	E5: Priority (event 1)	Output	Switch_Control

The output sends a priority 2-bit object to the KNX bus.

10.7.69 Forced operation value — E1-E5 — Switch (event 0)

Number	Name	Object function	Data type (DPT)
127	E1: Switch (event 0)	Output	Switch
218	E2: Switch (event 0)	Output	Switch
288	E3: Switch (event 0)	Output	Switch
358	E4: Switch (event 0)	Output	Switch
461	E5: Switch (event 0)	Output	Switch

The output sends the value "0" or "1" to the KNX bus alternately.

10.7.70 Forced operation value — E1-E5 — Switch (event 1)

Number	Name	Object function	Data type (DPT)
128	E1: Switch (event 1)	Output	Switch
219	E2: Switch (event 1)	Output	Switch
289	E3: Switch (event 1)	Output	Switch
359	E4: Switch (event 1)	Output	Switch
462	E5: Switch (event 1)	Output	Switch

The output sends the value "0" or "1" to the KNX bus alternately.

10.7.71 Forced operation value — E1-E5 — Scene (event 0)

Number	Name	Object function	Data type (DPT)
135	E1: Scene (event 0)	Output	SceneControl
226	E2: Scene (event 0)	Output	SceneControl
296	E3: Scene (event 0)	Output	SceneControl
366	E4: Scene (event 0)	Output	SceneControl
469	E5: Scene (event 0)	Output	SceneControl

The scene with value "0" is not used.

10.7.72 Forced operation value — E1-E5 — Scene (event 1)

Number	Name	Object function	Data type (DPT)
136	E1: Scene (event 1)	Output	SceneControl
227	E2: Scene (event 1)	Output	SceneControl
297	E3: Scene (event 1)	Output	SceneControl
367	E4: Scene (event 1)	Output	SceneControl
470	E5: Scene (event 1)	Output	SceneControl

The object can be used to retrieve one of 64 scenes via a 1-byte value.

10.7.73 Forced operation value — E1-E5 — Disable

Number	Name	Object function	Data type (DPT)
118, 121, 126, 147, 152, 160, 166, 184, 205	E1: Disable	Input	Enable
209, 212, 217, 238, 243, 251, 257, 275	E2: Disable	Input	Enable
279, 282, 287, 308, 313, 321, 327, 345	E3: Disable	Input	Enable
349, 352, 357, 378, 383, 391, 397, 414, 415, 421	E4: Disable	Input	Enable
452, 455, 460, 481, 486, 494, 500, 518	E5: Disable	Input	Enable

When the value "1" is received at the object, the parameterized function is completely disabled.

It is then enabled when the value "0" is received. Only then will it be possible for the input objects to communicate on the KNX bus again.

10.7.74 External temperature sensor

10.7.75 External temperature sensor — E4 — Bit threshold value 1

Number	Name	Object function	Data type (DPT)
425	E4: Bit threshold value 1	Output	Switch

The value sent via the object is parameterized in the application. This parameterized value is sent to the KNX bus after the threshold is exceeded.

10.7.76 External temperature sensor — E4 — Bit threshold value 2

Number	Name	Object function	Data type (DPT)
437	E4: Bit threshold value 2	Output	Switch

The value sent via the object is parameterized in the application. This parameterized value is sent to the KNX bus after the threshold is exceeded.

10.7.77 External temperature sensor — E4 — Byte threshold value 1

Number	Name	Object function	Data type (DPT)
426	E4: Byte threshold value 1	Output	Value_1_Ucount

The value sent via the object is parameterized in the application. This parameterized value is sent to the KNX bus after the threshold is exceeded.

10.7.78 External temperature sensor — E4 — Byte threshold value 2

Number	Name	Object function	Data type (DPT)
438	E4: Byte threshold value 2	Output	Value_1_Ucount

The value sent via the object is parameterized in the application. This parameterized value is sent to the KNX bus after the threshold is exceeded.

10.7.79 External temperature sensor — E4 — 2-byte threshold value 1

Number	Name	Object function	Data type (DPT)
427	E4: 2-byte threshold value 1	Output	Value_2_Ucount

The value sent via the object is parameterized in the application. This parameterized value is sent to the KNX bus after the threshold is exceeded.

10.7.80 External temperature sensor — E4 — 2-byte threshold value 2

Number	Name	Object function	Data type (DPT)
439	E4: 2-byte threshold value 2	Output	Value_2_Ucount

The value sent via the object is parameterized in the application. This parameterized value is sent to the KNX bus after the threshold is exceeded.

10.7.81 External temperature sensor — E4 — Output value

Number	Name	Object function	Data type (DPT)
417	E4: Output value	Output	Value_Temp
422			

The value measured via the external temperature sensor (6226/T or PT1000) is made available to the KNX as a 2-byte value.

10.7.82 External temperature sensor — E4 — Request output value

Number	Name	Object function	Data type (DPT)
418	E4: Request output value	Input	Switch
423			

This value can be retrieved via the communication object using the KNX bus.

10.7.83 External temperature sensor — E4 — Measured value outside of range

Number	Name	Object function	Data type (DPT)
419	E4: Measured value outside of range	Output	Switch
424			

The temperature sensor has a defined measuring range. If it is exceeded, this communication object outputs a 1-bit telegram with the value "1".

10.7.84 External temperature sensor — E4 — Send if threshold value 1 undershot

Number	Name	Object function	Data type (DPT)
431	E4: Send if threshold value 1 undershot	Input	Value_1_Ucount
433			Value_2_Ucount
443			Value_1_Ucount
445			Value_2_Ucount
447			Value_Temp

If the parameterized threshold value is undershot, the value that is undershot is sent to the KNX bus.

10.7.85 External temperature sensor — E4 — Send if threshold value 1 exceeded

Number	Name	Object function	Data type (DPT)
432	E4: Send if threshold value 1 exceeded	Input	Value_1_Ucount
434			Value_2_Ucount
436			Value_Temp
444			Value_1_Ucount
446			Value_2_Ucount
448			Value_Temp

If the parameterized threshold value is exceeded, the value that is exceeded is sent to the KNX bus.

10.7.86 External temperature sensor — E4 — send if threshold value 2 is undershot

Number	Name	Object function	Data type (DPT)
443	E4: Send if threshold value 2 undershot	Input	Value_1_Ucount
445			Value_2_Ucount
447			Value_Temp

If the parameterised threshold value is undershot, the value that is undershot is sent to the KNX bus.

10.7.87 External temperature sensor — E4 — send if threshold value 2 is exceeded

Number	Name	Object function	Data type (DPT)
444	E4: Send if threshold value 2 exceeded	Input	Value_1_Ucount
446			Value_2_Ucount
448			Value_Temp

If the parameterised threshold value is exceeded, the value that is exceeded is sent to the KNX bus.

10.7.88 External temperature sensor — E4 – Temperature threshold value 1

Number	Name	Object function	Data type (DPT)
428	E4: Temperature threshold value 1	Output	Value_Temp

If the temperature is exceeded, the parameterized value is sent to the KNX bus via the communication object.

10.7.89 External temperature sensor — E4 — Temperature threshold value 2

Number	Name	Object function	Data type (DPT)
440	E4: Temperature threshold value 2	Output	Value_Temp

If the temperature is exceeded, the parameterized value is sent to the KNX bus via the communication object.

10.7.90 External temperature sensor — E4 — Change threshold, tolerance band lower limit

Number	Name	Object function	Data type (DPT)
429	E4: Change threshold, tolerance band lower limit	Input	Value_Temp

The lower temperature tolerance limit can be adjusted/changed using the KNX bus. The change is not visible in the ETS application. After downloading the application, it may be necessary to readjust the temperature.

10.7.91 External temperature sensor — E4 — Change threshold, tolerance band upper limit

Number	Name	Object function	Data type (DPT)
430	E4: Change threshold, tolerance band upper limit	Input	Value_Temp

The upper temperature tolerance limit can be adjusted/changed using the KNX bus. The change is not visible in the ETS application. After downloading the application, it may be necessary to readjust the temperature.

10.7.92 External temperature sensor — E4 — Change threshold, tolerance band 2 upper limit

Number	Name	Object function	Data type (DPT)
442	E4: Change threshold, tolerance band 2 upper limit	Input	Value_Temp

The upper temperature tolerance limit can be adjusted/changed using the KNX bus. The change is not visible in the ETS application. After downloading the application, it may be necessary to readjust the temperature.

10.7.93 External temperature sensor — E4 — Change temperature, tolerance band 2 lower limit

Number	Name	Object function	Data type (DPT)
441	E4: Change temperature, tolerance band 2 lower limit	Input	Scaling

The lower temperature tolerance limit can be adjusted/changed using the KNX bus. The change is not visible in the ETS application. After downloading the application, it may be necessary to readjust the temperature.

10.7.94 External temperature sensor — E4 — Heating temperature limit

Number	Name	Object function	Data type (DPT)
420	E4: Heating temperature limit	Output	Switch

The object issues the adjustment command to the room temperature controller or the heating actuator when the parameterized temperature is reached.

The connected valve is approached for protection. The limit is not cancelled until the temperature is undershot.

10.7.95 External temperature sensor — E4 — disable

Number	Name	Object function	Data type (DPT)
416	E4: Disable	Input	Enable

When the value "1" is received at the object, the parameterised function is completely disabled.

It is then enabled when the value "0" is received. Only then will it be possible for the input objects to communicate on the KNX bus again.

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