KNX Technical Reference Manual

Room temperature controller with universal input, flush-mounted

6109/05-500

Power and productivity
for a better world™

ABB

Table of contents

1 Notes on the instruction manual

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

Please keep this manual in a safe place.

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

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

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

www.BUSCH-JAEGER.com

2 Safety

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

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

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

2.1 Information and symbols used

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

Danger

Risk of death / serious damage to health

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

Warning

Serious damage to health

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

Caution

Damage to health

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

This device is a room air monitoring device for flush-mounted installation.

The device is intended for the following:

- controlling the room temperature,
- * determining/measuring the following values:
  – temperature
- operation according to the listed technical data,
- installation in dry interior rooms and suitable windproof flush-mounted boxes,
- use with the connecting options available on the device.

The additional room temperature control function is suitable for the control of a ventilator convector with fan coil actuator or a conventional heating and cooling system.

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

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 30.

The device has no internal temperature sensor. For regulating and/or measuring, an external temperature sensor (PT1000 or 6226/T) must be connected at the corresponding inputs on the device or an appropriate temperature value must be sent via the KNX bus.

2.3   Improper use

Each use not listed in Chapter 2.2 "Intended use" on page 15 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 functional measuring device and is installed flush-mounted in the wall. As well as monitoring the air quality, it also offers the option of controlling room air conditioning.

The device measures the following values:

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

Table 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:
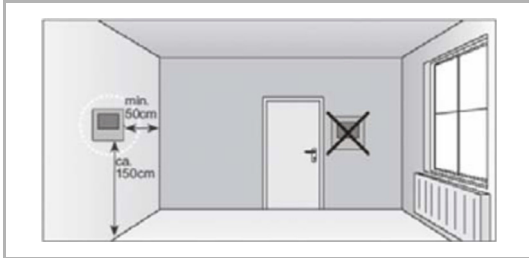
Fig. 1:   Installation site - Distance

- The device should be installed at a height of approximately 150 cm from the floor and 50 cm from a door frame.
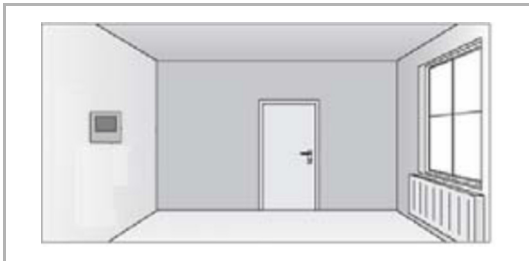
Fig. 2:   Installation site – Position of radiator

- The device should be installed on a wall opposite a radiator.
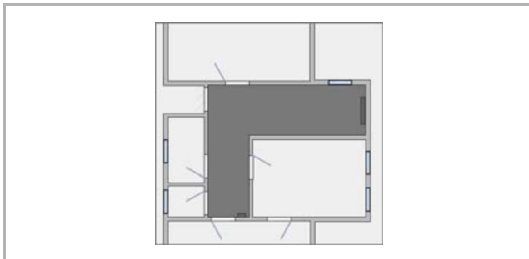
Fig. 3:   Installation site - Room architecture

- The angles of the room architecture should not separate a radiator and the device from each other.
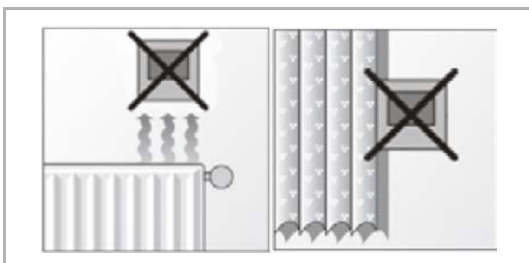
Fig. 4:   Installation site – Position of RTC

- 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.
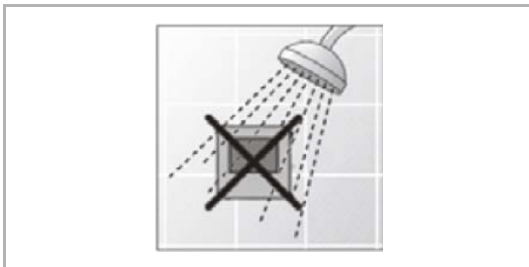
Fig. 6:   Installation site – Wetting with fluids

- Wetting the room temperature controller with fluids is to be avoided.
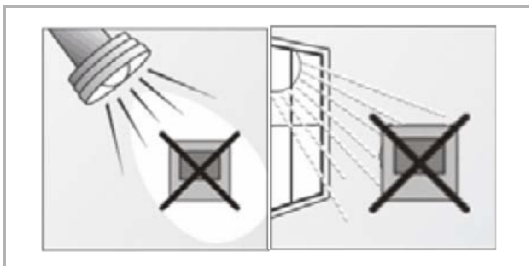
Fig. 7:   Installation site – Direct sunlight

- 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.

To install the device, perform the following steps:
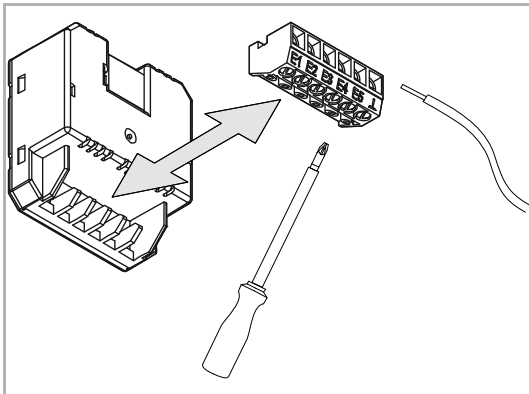
1. Connect the cable to the flush-mounted insert.

– 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 25
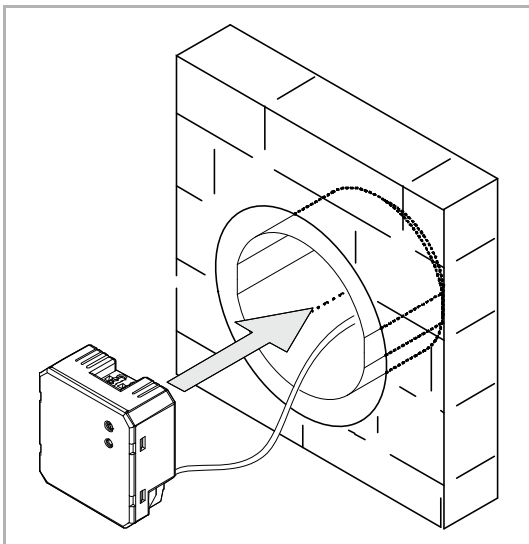
2. Mount the flush-mounted insert.

6.3   Electrical connection
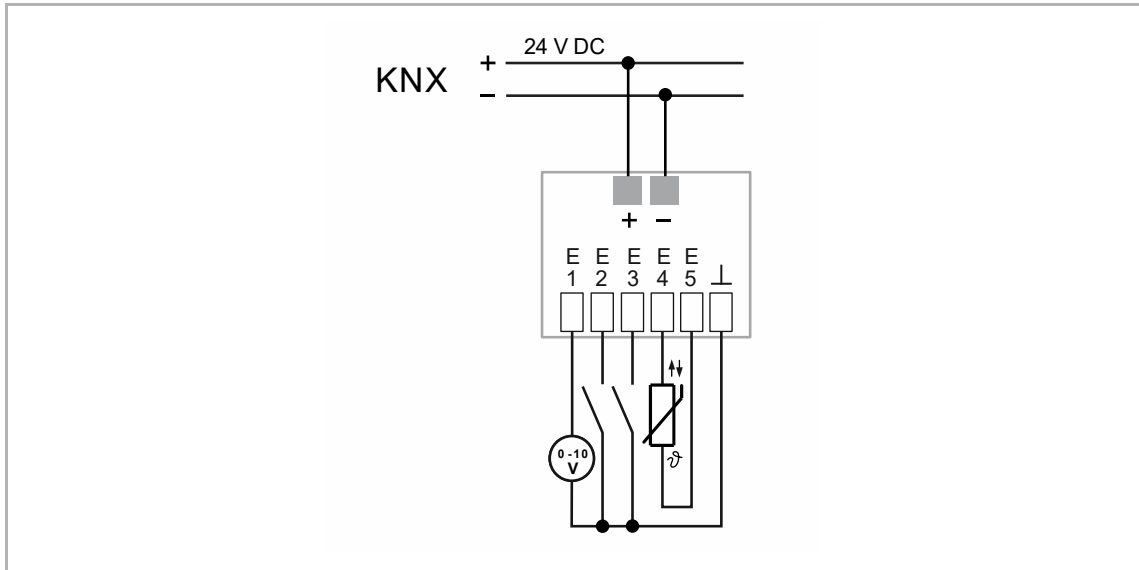
Fig. 8:   *Electrical connection*

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
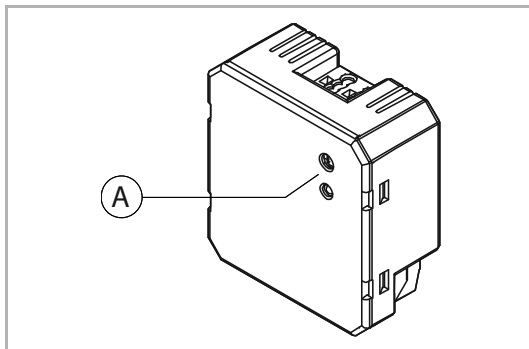
Fig. 9: Assigning a physical address

Use the following steps to switch to programming mode:

1. Press the programming button (A) on the front of the device.

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 30.

8   Operation

The function of the RTC depends on the type of application. Local operation is not possible.

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 the range, see Chapter 10 "Description of application and parameters" on page 30.

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
6109/05-500: Room temperature controller with universal input, flush-mounted

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

KNX application
General functions
Global settings
RTC
Inputs
Temperature

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

10.2 Application "RTC"

10.2.1 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.

10.2.2 General — Control function

Options:	Heating
	Heating with additional stage
	Cooling
	Cooling with additional stage
	Heating and cooling
	Heating and cooling with additional stage

– *Heating*: For operating a heat-based automatic single-room control. The temperature is regulated to the setpoint value defined in the parameter. The "Controller type" and "Heating type" can be programmed for optimal control.

– *Heating with additional stage*: In addition to the control function described under heating, the additional stage enables the activation of an additional heating circuit. This type of additional stage is used, for example, to quickly heat up a bathroom with floor heating via a heated towel rack.

– *Cooling*: For operating a cooling-based automatic single-room control. The temperature is regulated to the setpoint value defined in the parameter. The "Controller type" and "Cooling type" can be programmed for optimal control.

– *Cooling with additional stage*: In addition to the control function described under cooling, the additional stage enables the activation of an additional cooling device. This type of additional stage is used, for example, to quickly cool a room via an added cooling device.

- *Heating and cooling*: For operating a two-wire or four-wire system used to heat or cool a room. Switching between heating and cooling takes place using a central switch (two-wire system) or is carried out manually and / or automatically via the single room temperature controller (four-wire system).

- *Heating and cooling* with an additional stage: In addition to the heating and cooling functions, one additional stage each with an autonomous controller type can be programmed.

Note

This parameter is only available if the "Device function" parameter is set on "Single device" or "Master device".

10.2.3 General — Operating mode after reset

Options:	Comfort
	Standby
	Eco mode
	Cooling with additional stage
	Frost/heat protection

After a reset the device will run in the operating mode after a restart until a new operating mode is set as the result of device operation or by communication objects, as the case may be. This operating mode should be defined during the planning phase. An improperly defined operating mode can result in a loss of comfort or increased energy consumption.

- *Comfort*: If the room temperature is not automatically lowered and the room is therefore controlled independent of its use.

- *Standby*: If the room is controlled automatically, e.g. by a presence detector, as a function of its use.

- *Eco mode*: If the room is controlled automatically or manually as a function of it use.

- *Frost/heat protection*: If only the building protection function is necessary in the room after a reset.

Note

This parameter is only available if the "Device function" parameter is set on "Single device" or "Master device".

10.2.4   General — Additional functions

Options:	No
	Yes

–   This parameter enables additional functions and communication objects.

10.2.5   General — Send cyclic "In operation" (min)

Options:	Setting option between 5 - 3000 minutes

–   Communication object "In operation" serves for the information that the controller still operates. Value "1" is sent cyclic. The cycle for sending is set via this parameter. If there is no cyclic telegram, the function of the device is disturbed and the air-conditioning of the room can be maintained via forced control. For this, however, the system and/or actuator must have the "Forced control" function.

10.2.6 Heating control

Note

Only available when the "Device function" parameter is set on either "Single device" or "Master device" and the control function parameter is set on either "Heating", "Heating with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.7 Heating control — Control value type

Options:	2-point 1 bit, Off/On
	2-point 1 byte, (0/100%)
	PI continuous, 0-100%
	PI PWM, On/Off
	Fan coil

The actuation of the control valve is determined by the selection of the controller type.

–   *2-Point 1 Bit, Off/On*: The 2-point control is the simplest type of control. The controller switches on when the room temperature drops below a certain level (setpoint temperature value minus hysteresis) and switches off when a particular value (setpoint temperature value plus hysteresis) is exceeded. The switch-on and switch-off commands are transmitted as 1-bit commands.

–   *2-Point 1 Byte, 0/100%*: This is another two-point control as described above. In this case, however, the switch-on and switch-off commands are transmitted as 1-byte values (0% / 100%).

–   *PI continuous, 0-100%*: The PI controller adjusts its output value between 0% and 100% to match the difference between the actual value and the setpoint value and enables a precise regulation of the room temperature to the setpoint value. It sends the control value to the bus as a 1-byte value (0% - 100%). To reduce the bus load, the control value is only transmitted if it has changed by a predefined percentage in relation to the previous sent value. The control value can also be transmitted cyclically.

–   *PI PWM, On/Off*: This also is a PI controller. Here, the output is a 1-bit command. For this to occur, the calculated control value is converted into a pulse-interval signal.

–   *Fan coil*: The fan coil controller operates like the PI continuous controller. In addition, it allows the separate activation of the fan in the fan coil unit (e.g. fan speed levels 1 - 3).

10.2.8 Heating control — Heating type

Options:	PI continuous, 0 – 100% and PI PWM, On/Off:
	▪ Area (e.g. floor heating) 4°C 200 min
	▪ Convector (e.g. heater) 1.5°C 100 min
	▪ Free configuration
	Fan coil:
	▪ Fan coil 4°C 90 min
	▪ Free configuration

Multiple heating types (panel heating, convector heating or fan coil) with preset parameters are available to the user.

– If the required heating type is not available, individual parameters can be specified in free configuration.

Note

This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.9 Heating control — P-component (x 0.1°C)

Options:	Setting option between 10 - 100

The P-component refers to the proportional band of a control. It fluctuates around the setpoint value and can be used to influence control speed with a PI controller. The smaller the setpoint, the faster it reacts to the control. However, to avoid the risk of an overshoot, this value should not be set too low. A P-component from 0.1 to 25.5 K can be set.

Note

This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil". In addition, the "Heating type" parameter must be set on "Free configuration".

10.2.10 Heating control — I-component (min.)

Options:	Setting option between 0 - 255

The I-component refers to the reset time of a control. The integral component has the effect of moving the room temperature slowly toward, and ultimately reaching, the setpoint value. Depending on the type of system used, the reset time has to have different values. In general, the more inactive the overall system, the greater the reset time.

Note

This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil". In addition, the "Heating type" parameter must be set on "Free configuration".

10.2.11 Heating control — Extended settings

Options:	No
	Yes

– This parameter enables additional functions and communication objects, e.g. "Basic stage heating".

10.2.12 Basic stage heating

Note

Only available when the "Extended settings" parameter under "Heating control" is set on "Yes".

10.2.13 Basic stage heating — Status object heating

Options:	No
	Yes

– This parameter enables the "Status heating" communication object.

10.2.14 Basic stage heating — Mode of the control value

Options:	Normal
	Inverse

The mode of the control value can be used to adapt the control value to de-energised opened (normal) or de-energised closed (inverse) valves.

– N*ormal*: Value 0 means "Valve closed".

– *Inverse*: Value 0 means "Valve open".

10.2.15 Basic stage heating — Hysteresis (x 0.1°C)

Options:	Setting option between 3 - 255

The hysteresis of the two-point controller specifies the fluctuation range of the controller around the setpoint value. The lower switching point is located at "Setpoint value minus hysteresis" and the upper point is at "Setpoint value plus hysteresis".

Note

This parameter is only available when the "Control value type" parameter is set either on "2-point 1 Bit, Off/On" or "2-point 1 Byte, 0/100%".

10.2.16 Basic stage heating — Control value difference for sending of heating control value

Options:	2 %
	5 %
	10 %
	Send cyclic only

The control values of the 0 - 100% PI continuous controller are not transmitted after every calculation. Instead, they are transmitted when the calculation results in a value that is different enough to the previous sent value to make a transmission meaningful. This value difference can be entered here.

Note

This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.17 Basic stage heating — Cyclic sending of the control value (min)

Options:	Setting option between 1 - 60 minutes

The current control value used by the device can be cyclically transmitted to the bus.

Note

This parameter is only available when the "Control value type" parameter is set either on "2-point 1 Bit, Off/On", "2-point 1 Byte, 0/100%", "PI continuous, 0-100%" or "Fan coil".

10.2.18 Basic stage heating — PWM cycle heating (min)

Options:	Setting option between 1 - 60 minutes

In PI PWM, On/off the control value percentage values are converted into a pulse-interval signal. This means that a selected PWM cycle will be divided into an on-phase and an off-phase based on the control value. Accordingly, a control value output of 33% in a PWM cycle of 15 min. results in an "On-phase" of five minutes and an "Off-phase" of 10 min. The time for a PWM cycle can be specified here.

Note

This parameter is only available when the "Control value type" parameter is set on "PI PWM, On/Off".

10.2.19 Basic stage heating — Maximum control value (0 - 255)

Options:	Setting option between 0 - 255

The maximum control value of the PI controller defines the maximum value outputted by the controller. If a maximum value under 255 is chosen, the value will not be exceeded, even if the controller calculates a higher control value.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.20 Basic stage heating — Minimum control value for basic load (0 to 255)

Options:	Setting option between 0 - 255

The minimum control value of the PI controller defines the minimum value output by the controller. If a minimum value greater than zero is chosen, the controller will not output a lower value, even if it calculates a value that is lower. This parameter can be used to set a basic load, e.g. for operating floor heating. Even if the controller calculates the control value zero, a heating medium will flow through the floor heating system to prevent the floor from cooling down. Under "Settings of basic load", it is also possible to define whether this basic load will be permanently active or whether it will be switched by the "Basic load" object.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.21 Control of additional heating stage

Note

Only available when the "Device function" parameter is set on either "Single device" or "Master device" and the control function parameter is set on either "Heating with additional stage" or "Heating and cooling with additional stages".

10.2.22 Control of additional heating stage — Control value type

Options:	2-point 1 bit, Off/On
	2-point 1 byte, (0/100%)
	PI continuous, 0-100%
	PI PWM, On/Off
	Fan coil

The actuation of the control valve is determined by the selection of the controller type.

– *2-Point 1 Bit, Off/On*: The 2-point control is the simplest type of control. The controller switches on when the room temperature drops below a certain level (setpoint temperature value minus hysteresis) and switches off when a particular value (setpoint temperature value plus hysteresis) is exceeded. The switch-on and switch-off commands are transmitted as 1-bit commands.

– *2-Point 1 Byte, 0/100%*: This is another two-point control as described above. In this case, however, the switch-on and switch-off commands are transmitted as 1-byte values (0% / 100%).

– *PI continuous, 0-100%*: The PI controller adjusts its output value between 0% and 100% to match the difference between the actual value and the setpoint value and enables a precise regulation of the room temperature to the setpoint value. It sends the control value to the bus as a 1-byte value (0% - 100%). To reduce the bus load, the control value is only transmitted if it has changed by a predefined percentage in relation to the previous sent value. The control value can also be transmitted cyclically.

– *PI PWM, On/Off*: This also is a PI controller. Here, the output is a 1-bit command. For this to occur, the calculated control value is converted into a pulse-interval signal.

– *Fan coil*: The fan coil controller operates like the PI continuous controller. In addition, it allows the separate activation of the fan in the fan coil unit (e.g. fan speed levels 1 - 3).

10.2.23 Control of additional heating stage — Additional heating type

Options:	PI continuous, 0 – 100% and PI PWM, On/Off:
	■ Area (e.g. floor heating) 4°C 200 min
	■ Convector (e.g. heater) 1.5°C 100 min
	■ Free configuration
	Fan coil:
	■ Fan coil 4°C 90 min
	■ Free configuration

Multiple heating types (panel heating, convector heating or fan coil) with preset parameters are available to the user.

– If the required heating type is not available, individual parameters can be specified in the free configuration.

Note

This parameter is only available when "Control value type" parameter for the additional stage is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.24 Control of additional heating stage — P-component (x 0.1°C)

Options:	Setting option between 10 - 100

The P-component refers to the proportional range of a control. It fluctuates around the setpoint value and can be used to influence control speed of a controller. The smaller the setpoint, the faster the controller responds. However, to avoid the risk of an overshoot, this value should not be set too low. A P-component from 0.1 to 25.5 K can be set.

Note

This parameter is only available when "Control value type" parameter for the additional stage is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil". The "Additional heating type" parameter must be set on "Free configuration".

10.2.25 Control of additional heating stage — I-component (min)

Options:	Setting option between 0 - 255

The I-component refers to the reset time of a control. The integral component has the effect of moving the room temperature slowly toward, and ultimately reaching, the setpoint value. Depending on the type of system used, the reset time has to have different values. In general, the more inactive the overall system, the greater the reset time.

Note

This parameter is only available when "Control value type" parameter for the additional stage is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil". The "Additional heating type" parameter must be set on "Free configuration".

10.2.26 Control of additional heating stage — Temperature difference to basic stage (x 0.1°C)

Options:	Setting option between 0 - 255

The setpoint temperature of the additional stage is defined as a function of the current setpoint temperature of the base stage and is expressed as a difference. The value represents the setpoint value starting at which the additional stage will operate.

10.2.27 Control of additional heating stage — Extended settings

Options:	No
	Yes

This parameter enables additional functions and communication objects, e.g. "Additional heating stage".

10.2.28 Additional heating stage

Note

Only available when the "Extended settings" parameter under "Control of additional heating stage" is set on "Yes".

10.2.29 Additional heating stage — Mode of the control value

Options:	Normal
	Inverse

The mode of the control value can be used to adapt the control value to de-energised opened (normal) or de-energised closed (inverse) valves.

– *Normal*: Value 0 means "Valve closed".

– *Inverse*: Value 0 means "Valve open".

10.2.30 Additional heating stage — Hysteresis (x 0.1°C)

Options:	Setting option between 3 - 255

The hysteresis of the two-point controller specifies the fluctuation range of the controller around the setpoint value. The lower switching point is located at "Setpoint value minus hysteresis" and the upper point is at "Setpoint value plus hysteresis".

Note

This parameter is only available when the "Control value type" parameter is set either on "2-point 1 Bit, Off/On" or "2-point 1 Byte, 0/100%".

10.2.31 Additional heating stage — Control value difference for sending of heating control value

Options:	2 %
	5 %
	10 %
	Send cyclic only

The control values of the 0 - 100% PI continuous controller are not transmitted after every calculation. Instead, they are transmitted when the calculation results in a value that is different enough to the previous sent value to make a transmission meaningful. This value difference can be entered here.

Note

This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.32 Additional heating stage — Cyclic sending of the control value (min)

Options:	Setting option between 1 - 60 minutes

The current control value used by the device can be cyclically transmitted to the bus.

Note
This parameter is only available when the "Control value type" parameter is set either on "2-point 1 Bit, Off/On", "2-point 1 Byte, 0/100%", "PI continuous, 0-100%" or "Fan coil".

10.2.33 Additional heating stage — Maximum control value (0 - 255)

Options:	Setting option between 0 - 255

The maximum control value of the PI controller defines the maximum value outputted by the controller. If a maximum value under 255 is chosen, the value will not be exceeded, even if the controller calculates a higher control value.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.34 Additional heating stage — Minimum control value for basic load (0 - 255)

Options:	Setting option between 0 - 255

The minimum control value of the PI controller defines the minimum value output by the controller. If a minimum value greater than zero is chosen, the controller will not output a lower value, even if it calculates a value that is lower. This parameter can be used to set a basic load, e.g. for operating floor heating. Even if the controller calculates the control value zero, a heating medium will flow through the floor heating system to prevent the floor from cooling down. Under "Settings of basic load", it is also possible to define whether this basic load will be permanently active or whether it will be switched by the "Basic load" object.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.35 Cooling control

Note

Only available when the "Device function" parameter is set on either "Single device" or "Master device" and the control function parameter is set on either "Cooling", "Cooling with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.36 Cooling control — Control value type

Options:	2-point 1 bit, Off/On
	2-point 1 byte, (0/100%)
	PI continuous, 0-100%
	PI PWM, On/Off
	Fan coil

The actuation of the control valve is determined by the selection of the controller type.

– *2-Point 1 Bit, Off/On*: The 2-point control is the simplest type of control. The controller switches on when the room temperature drops below a certain level (setpoint temperature value minus hysteresis) and switches off when a particular value (setpoint temperature value plus hysteresis) is exceeded. The switch-on and switch-off commands are transmitted as 1-bit commands.

– *2-Point 1 Byte, 0/100%*: This is another two-point control as described above. In this case, however, the switch-on and switch-off commands are transmitted as 1-byte values (0% / 100%).

– *PI continuous, 0-100%*: The PI controller adjusts its output value between 0% and 100% to match the difference between the actual value and the setpoint value and enables a precise regulation of the room temperature to the setpoint value. It sends the control value to the bus as a 1-byte value (0% - 100%). To reduce the bus load, the control value is only transmitted if it has changed by a predefined percentage in relation to the previous sent value. The control value can also be transmitted cyclically.

– *PI PWM, On/Off*: This also is a PI controller. Here, the output is a 1-bit command. For this to occur, the calculated control value is converted into a pulse-interval signal.

– *Fan coil*: The fan coil controller operates like the PI continuous controller. In addition, it allows the separate activation of the fan in the fan coil unit (e.g. fan speed levels 1 - 3).

10.2.37 Cooling control — Cooling type

Options:	PI continuous, 0 – 100% and PI PWM, On/Off:
	▪ Area (e.g. cooling ceiling) 5°C 240 min
	▪ Free configuration
	Fan coil:
	▪ Fan coil 4°C 90 min
	▪ Free configuration

Two cooling types (area or fan coil) with preset parameters are available to the user.

If the required cooling type is not available, individual parameters can be specified in free configuration.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.38 Cooling control — P-component (x 0.1°C)

Options:	Setting option between 10 - 100

The P-component refers to the proportional band of a control. It fluctuates around the setpoint value and can be used to influence control speed with a PI controller. The smaller the setpoint, the faster it reacts to the control. However, to avoid the risk of an overshoot, this value should not be set too low. A P-component from 0.1 to 25.5 K can be set.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil". In addition, the "Cooling type" parameter must be set on "Free configuration".

10.2.39 Cooling control — I-component (min.)

Options:	Setting option between 0 - 255

The I-component refers to the reset time of a control. The integral component has the effect of moving the room temperature slowly toward, and ultimately reaching, the setpoint value. Depending on the type of system used, the reset time has to have different values. In general, the more inactive the overall system, the greater the reset time.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil". In addition, the "Cooling type" parameter must be set on "Free configuration".

10.2.40 Cooling control — Extended settings

Options:	No
	Yes

This parameter enables additional functions and communication objects, e.g. "Basic stage cooling".

10.2.41 Basic stage cooling

> **Note**
> Only available when the "Extended settings" parameter under "Cooling control" is set on "Yes".

10.2.42 Basic stage cooling — Status object cooling

Options:	No
	Yes

This parameter enables the "Status cooling" communication object.

10.2.43 Basic stage cooling — Mode of the control value

Options:	Normal
	Inverse

The mode of the control value can be used to adapt the control value to de-energised opened (normal) or de-energised closed (inverse) valves.

– N*ormal*: Value 0 means "Valve closed".

– *Inverse*: Value 0 means "Valve open".

10.2.44 Basic stage cooling — Hysteresis (x 0.1°C)

Options:	Setting option between 3 - 255

The hysteresis of the two-point controller specifies the fluctuation range of the controller around the setpoint value. The lower switching point is located at "Setpoint value minus hysteresis" and the upper point is at "Setpoint value plus hysteresis".

> **Note**
> This parameter is only available when the "Control value type" parameter is set either on "2-point 1 Bit, Off/On" or "2-point 1 Byte, 0/100%".

10.2.45 Basic stage cooling — Control value difference for sending of cooling control value

Options:	2 %
	5 %
	10 %
	Send cyclic only

The control values of the 0 - 100% PI continuous controller are not transmitted after every calculation. Instead, they are transmitted when the calculation results in a value that is different enough to the previous sent value to make a transmission meaningful. This value difference can be entered here.

Note

This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.46 Basic stage cooling — Control value difference for sending of cooling control value

Options:	2%
	5%
	10%
	Send cyclic only

The control values of the 0 - 100% PI continuous controller are not transmitted after every calculation. Instead, they are transmitted when the calculation results in a value that is different enough to the previous sent value to make a transmission meaningful. This value difference can be entered here.

Note

This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%,"PI PWM, On/Off" or "Fan coil".

10.2.47 Basic stage cooling — Cyclic sending of the control value (min)

Options:	Setting option between 1 - 60 minutes

The current control value used by the device can be cyclically transmitted to the bus.

NOTE

This parameter is only available when the "Control value type" parameter is set either on "2-point 1 Byte, Off/On", "2-point 1 Byte, 0/100%", "PI continuous, 0-100%" or "Fan coil".

10.2.48 Basic stage cooling — Maximum control value (0 - 255)

Options:	Setting option between 0 - 255

The maximum control value of the PI controller defines the maximum value outputted by the controller. If a maximum value under 255 is chosen, the value will not be exceeded, even if the controller calculates a higher control value.

Note

This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.49 Basic stage cooling — Minimum control value for basic load (0 to 255)

Options:	Setting option between 0 - 255

The minimum control value of the PI controller defines the minimum value output by the controller. If a minimum value greater than zero is chosen, the controller will not output a lower value, even if it calculates a value that is lower. This parameter can be used to set a basic load, e.g. for operating surface cooling. Even if the controller calculates the control value zero, a cooling medium will flow through the cooling area to prevent the floor from heating up. Under "Settings of basic load", it is also possible to define whether this basic load will be permanently active or whether it will be switched by the "Basic load" object.

Note

This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.50 Control of additional cooling stage

Note

Only available when the "Device function" parameter is set on either "Single device" or "Master device" and the control function parameter is set on either "Cooling with additional stage" or "Heating and cooling with additional stages".

Options:	2-point 1 bit, Off/On
	2-point 1 byte, (0/100%)
	PI continuous, 0-100%
	PI PWM, On/Off
	Fan coil

The actuation of the control valve is determined by the selection of the controller type.

–   *2-Point 1 Bit, Off/On*: The 2-point control is the simplest type of control. The controller switches on when the room temperature drops below a certain level (setpoint temperature value minus hysteresis) and switches off when a particular value (setpoint temperature value plus hysteresis) is exceeded. The switch-on and switch-off commands are transmitted as 1-bit commands.

–   *2-Point 1 Byte, 0/100%*: This is another two-point control as described above. In this case, however, the switch-on and switch-off commands are transmitted as 1-byte values (0% / 100%).

–   *PI continuous, 0-100%*: The PI controller adjusts its output value between 0% and 100% to match the difference between the actual value and the setpoint value and enables a precise regulation of the room temperature to the setpoint value. It sends the control value to the bus as a 1-byte value (0% - 100%). To reduce the bus load, the control value is only transmitted if it has changed by a predefined percentage in relation to the previous sent value. The control value can also be transmitted cyclically.

–   *PI PWM, On/Off*: This also is a PI controller. Here, the output is a 1-bit command. For this to occur, the calculated control value is converted into a pulse-interval signal.

–   *Fan coil*: The fan coil controller operates like the PI continuous controller. In addition, it allows the separate activation of the fan in the fan coil unit (e.g. fan speed levels 1 - 3).

10.2.51 Control of additional cooling stage — Cooling type

Options:	PI continuous, 0 – 100% and PI PWM, On/Off:
	▪ Area (e.g. cooling ceiling) 5°C 240 min
	▪ Free configuration
	Fan coil:
	▪ Fan coil 4°C 90 min
	▪ Free configuration

Two cooling types (area or fan coil) with preset parameters are available to the user.

If the required cooling type is not available, individual parameters can be specified in free configuration.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.52 Control of additional cooling stage — P-component (x 0.1°C)

Options:	Setting option between 10 - 100

The P-component refers to the proportional band of a control. It fluctuates around the setpoint value and can be used to influence control speed with a PI controller. The smaller the setpoint, the faster it reacts to the control. However, to avoid the risk of an overshoot, this value should not be set too low. A P-component from 0.1 to 25.5 K can be set.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil". In addition, the "Cooling type" parameter must be set on "Free configuration".

10.2.53 Control of additional cooling stage — P-component (min)

Options:	Setting option between 0 - 255

The I-component refers to the reset time of a control. The integral component has the effect of moving the room temperature slowly toward, and to ultimately reaching, the setpoint. Depending on the type of system used, the reset time has to have different values. In general, the more inactive the overall system, the greater the reset time.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil". In addition, the "Cooling type" parameter must be set on "Free configuration".

10.2.54 Control of additional cooling stage — Extended settings

Options:	No
	Yes

This parameter enables additional functions and communication objects, e.g. "Additional cooling stage".

10.2.55 Additional cooling stage

Note

Only available when the "Extended settings" parameter under "Control of additional cooling stage" is set on "Yes".

10.2.56 Additional cooling stage — Mode of the control value

Options:	Normal
	Inverse

The mode of the control value can be used to adapt the control value to de-energised opened (normal) or de-energised closed (inverse) valves.

– *Normal*: Value 0 means "Valve closed".

– *Inverse*: Value 0 means "Valve open".

10.2.57 Additional cooling stage — Hysteresis (x 0.1°C)

Options:	Setting option between 3 - 255

The hysteresis of the two-point controller specifies the fluctuation range of the controller around the setpoint value. The lower switching point is located at "Setpoint value minus hysteresis" and the upper point is at "Setpoint value plus hysteresis".

Note

This parameter is only available when the "Control value type" parameter is set either on "2-point 1 Bit, Off/On" or "2-point 1 Byte, 0/100%".

10.2.58 Additional cooling stage — Control value difference for sending of cooling control value

Options:	2%
	5%
	10%

The control values of the 0 - 100% PI continuous controller are not transmitted after every calculation. Instead, they are transmitted when the calculation results in a value that is different enough to the previous sent value to make a transmission meaningful. This value difference can be entered here.

Note

This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.59 Additional cooling stage — Cyclic sending of the control value (min)

Options:	Setting option between 1 - 60 minutes

The current control value used by the device can be cyclically transmitted to the bus.

Note
This parameter is only available when the "Control value type" parameter is set either on "2-point 1 Bit, Off/On", "2-point 1 Byte, 0/100%", "PI continuous, 0-100%" or "Fan coil".

10.2.60 Additional cooling stage — Maximum control value (0 - 255)

Options:	Setting option between 0 - 255

The maximum control value of the PI controller defines the maximum value outputted by the controller. If a maximum value under 255 is chosen, the value will not be exceeded, even if the controller calculates a higher control value.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.61 Additional cooling stage — Minimum control value for basic load (0 - 255)

Options:	Setting option between 0 - 255

The minimum control value of the PI controller defines the minimum value output by the controller. If a minimum value greater than zero is chosen, the controller will not output a lower value, even if it calculates a value that is lower. This parameter can be used to set a basic load, e.g. for operating surface cooling. Even if the controller calculates the control value zero, a cooling medium will flow through the cooling area to prevent the floor from heating up. Under "Settings of basic load", it is also possible to define whether this basic load will be permanently active or whether it will be switched by the "Basic load" object.

Note
This parameter is only available when "Control value type" parameter is set either on "PI continuous, 0 – 100%", "PI PWM, On/Off" or "Fan coil".

10.2.62 Settings of basic load

○
|| **Note**
Only available when the "Device function" parameter is set on either "Single device" or "Master device" and the control function parameter is set on either "Heating with additional stage", "Cooling with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.63 Settings of basic load — Minimum control value for basic load > 0

Options:	Always active
	Activate via object

The function finds application when in the desired area, e.g. with floor heating, the floor is to have a basic warmth. The size of the minimum control value specifies the volume of heating medium that flows through the controlled area, even when the calculation of the control value of the controller would indicate a lower value.

– *Always active*: Here it is possible to define whether this basic load will be permanently active or whether it will be switched via the "Basic load" object.

– *Activate via object*: When this parameter is selected, the basic load function, which means the minimum control value with a value higher than zero, can be activated (1) or deactivated (2). If it is activated, then the heating medium will always be fed through the system with at least the minimum control value. If it is deactivated, the control value can be reduced to zero with the controller.

10.2.64 Combined heating and cooling modes

Note
Only available when the "Device function" parameter is set on either "Single device" or "Master device" and the control function parameter is set on either "Heating and cooling" or "Heating and cooling with additional stages".

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

Options:	Automatic
	Only via object
	On-site/via extension unit and via object

This function makes it possible to switch between the heating and cooling mode of the device.

– *Automatic*: E.g. for four-conductor systems which allow the switchover between heating and cooling at all times. The device switches automatically between heating and cooling and to the associated setpoint. "Switchover heating/cooling" is a transmitting object.

– *Only via object*: E.g. for two-conductor systems which are operated in heating mode in the winter and cooling mode in the summer. The switchover between heating and cooling and to the associated setpoint is carried out via the corresponding communication object. This function is used when a central switchover of the single room controllers is required. "Switchover heating/cooling" is a receiving object.

– *Local/ via extension unit and via object*: E.g. for four-conductor systems which allow the switchover between heating and cooling at all times. The switchover between heating and cooling and to the associated setpoint is carried out manually on the device by the user of the room or via the "Switchover heating/cooling" object via the bus. "Switchover heating/cooling" is a transmitting and receiving object.

10.2.66 Combined heating and cooling modes — Operating mode after reset

Options:	Cooling
	Heating

After a bus voltage failure, a system reset, or the attachment of a device to the bus coupler, the device starts in the parameterized "Operating mode after reset". The operating mode can be changed when the system is running using the options set under "Switchover heating/cooling".

10.2.67 Combined heating and cooling modes — Heating/cooling control value output

Options:	Via 1 object
	Via 2 objects

This parameter is used to define whether the control value is transmitted to the climate control actuator using one or two objects. If the climate control actuator has separate control value inputs for heating and cooling, or if separate actuators are used, then the option "Via 2 objects" must be selected. Select the option "Via 1 object" if a single actuator only has one object that receives both the heating and the cooling control values.

10.2.68 Combined heating and cooling modes — Additional heating/cooling stage control value output

Options:	Via 1 object
	Via 2 objects

This parameter is used to define whether the control value is transmitted to the climate control actuator using one or two objects. If the climate control actuator has separate control value inputs for heating and cooling, or if separate actuators are used, then the option "Via 2 objects" must be selected. Select the option "Via 1 object" if a single actuator only has one object that receives both the heating and the cooling control values.

Note

This parameter is only available when the "Control function" parameter is set on "Heating and cooling with additional stages".

10.2.69 Setpoint settings

Note

This parameter is only available if the "Device function" parameter is set on either "Single device" or "Master device".

10.2.70 Setpoint settings — Setpoint for heating comfort = setpoint for cooling comfort

Options:	No
	Yes

This parameter is used to configure the manner in which the setpoint adjustment functions.

– *Yes*: The device has the same setpoint for heating and cooling in the comfort mode. The system switches to heating when the temperature drops below the setpoint minus hysteresis. It switches to cooling when the temperature exceeds the setpoint plus hysteresis. The hysteresis is parameterizable.

– *No*: The function has two separate setpoints for heating and cooling in the comfort mode. The device will display the currently active setpoint value. Switching between heating and cooling occurs via the "Switchover heating/cooling" parameter setting.

Note

This parameter is only available when the "Control function" parameter is set on "Heating and cooling" or "heating and cooling with additional stages".

10.2.71 Setpoint settings — Hysteresis for switchover heating/cooling (x 0.1°C)

Options:	Setting option between 5 - 100

This parameter specifies the one-sided hysteresis for switching between heating and cooling when "Setpoint heating comfort = Setpoint cooling comfort" is active. If the room temperature exceeds the setpoint temperature value plus hysteresis, the system switches to cooling. If the room temperature falls below the setpoint temperature value minus hysteresis, the system switches to heating.

Note

This parameter is only available when the "Setpoint heating comfort = Setpoint cooling comfort" parameter is set on "Yes".

10.2.72 Setpoint settings — Setpoint temperature for heating and cooling comfort (°C)

Options:	Setting option between 10 - 40

Specifies the comfort temperature for heating and cooling when people are present.

Note

This parameter is only available when the "Control function" parameter is set on "Heating and cooling" or "heating and cooling with additional stages".

10.2.73 Setpoint settings — Setpoint temperature for heating comfort (°C)

Options:	Setting option between 10 - 40

Specifies the comfort temperature for heating when people are present.

Note

This parameter is only available when the "Control function" parameter is set on "Heating" or "Heating with additional stage".

10.2.74 Setpoint settings — Reduction for standby heating (°C)

Options:	Setting option between 10 - 40

Specifies the temperature in heating mode when nobody is present. On devices with a display, this mode is indicated by the standby icon.

Note

This parameter is only available when the "Control function" parameter is set on "Heating", "Heating with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.75 Setpoint settings — Reduction for ECO heating (°C)

Options:	Setting option between 0 - 15

Specifies the temperature in heating mode when nobody is present. On devices with a display, this mode is indicated by the eco icon.

10.2.76 Setpoint settings — Set-point temperature for frost protection (°C)

Options:	Setting option between 5 - 15

Function for protecting the building against the cold. On devices with a display, this mode is indicated by the frost protection icon. Manual operation is blocked.

Note

This parameter is only available when the "Control function" parameter is set on "Heating", "Heating with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.77 Setpoint settings — Setpoint temperature for cooling comfort (°C)

Options:	Setting option between 10 - 40

Specifies the comfort temperature for cooling when people are present.

Note
This parameter is only available when the "Control function" parameter is set on "Cooling" or "Cooling with additional stage".

10.2.78 Setpoint settings — Increase for standby cooling (°C)

Options:	Setting option between 0 - 15

Specifies the temperature in cooling mode when nobody is present. On devices with a display, this mode is indicated by the standby icon.

Note
This parameter is only available when the "Control function" parameter is set on "Cooling", "Cooling with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.79 Setpoint settings — Increase for ECO cooling (°C)

Options:	Setting option between 0 - 15

Specifies the temperature in cooling mode when nobody is present. On devices with a display, this mode is indicated by the eco icon.

Note
This parameter is only available when the "Control function" parameter is set on "Cooling", "Cooling with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.80 Setpoint settings — Set-point temperature for heat protection (°C)

Options:	Setting option between 27 - 45

Function for protecting the building against heat. On devices with a display, this mode is indicated by the heat protection icon. Manual operation is blocked.

Note
This parameter is only available when the "Control function" parameter is set on "Cooling", "Cooling with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.81 Setpoint settings — Send current setpoint

Options:	Cyclic and during change
	Only for change

The current setpoint value can be sent to the bus either cyclically and after a change, or only after a change.

10.2.82 Setpoint settings — Cyclic sending of the current set-point temperature (min)

Options:	Setting option between 5 - 240

This parameter is used to specify the amount of time that will elapse before the current setpoint value is automatically transmitted.

Note

This parameter is only available when the "Send current setpoint" is set on "Only during change".

10.2.83 Setpoint adjustment

> **Note**
> This parameter is only available if the "Device function" parameter is set on either "Single device" or "Master device".

10.2.84 Setpoint adjustment — Maximum manual increase during heating mode (0 - 15°C)

Options:	Setting option between 0 - 15

This preset can be used to limit the manual increase during heating.

> **Note**
> This parameter is only available when the "Control function" parameter is set on "Heating", "Heating with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.85 Setpoint adjustment — Maximum manual reduction during heating mode (0 - 15°C)

Options:	Setting option between 0 - 15

This preset can be used to limit the manual decrease during heating.

> **Note**
> This parameter is only available when the "Control function" parameter is set on "Heating", "Heating with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.86 Setpoint adjustment — Maximum manual increase during cooling mode (0 - 15°C)

Options:	Setting option between 0 - 15

This preset can be used to limit the manual increase during cooling.

> **Note**
> This parameter is only available when the "Control function" parameter is set on "Cooling", "Cooling with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.87 Setpoint adjustment — Maximum manual reduction during cooling mode (0 - 15°C)

Options:	Setting option between 0 - 15

This preset can be used to limit the manual decrease during cooling.

Note

This parameter is only available when the "Control function" parameter is set on "Cooling", "Cooling with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.88 Setpoint adjustment — Resetting of the manual adjustment for receipt of a basic setpoint

Options:	No
	Yes

Activating this parameter will cause the manual adjustment to be deleted and the new setpoint value to be provided when a new value is received via the "Basic setpoint" object.

If the parameter is deactivated, the manual adjustment is added to the new base setpoint value. Example: Previous base setpoint value of 21°C + manual adjustment of 1.5°C = 22.5°C. The object receives a new basic setpoint of 18°C plus the previous manual adjustment of 1.5°C for a total of 19.5°C.

10.2.89 Setpoint adjustment — Resetting the manual adjustment for change of operating mode

Options:	No
	Yes

If the device switches to a new operating mode, the manual adjustment is deleted and the parameterized setpoint temperature for the operating mode plus any change by the base setpoint value object will be applied if this parameter is activated. Example: Comfort temperature of 21°C plus manual adjustment of 1.5°C = 22.5°C. Change to Eco with programmed temperature 17°C. The device regulates the temperature to 17°C, since the manual adjustment is deleted.

If the parameter is deactivated, the manual setpoint adjustment will be added to the temperature in the new operating mode. Example: Comfort temperature of 21°C plus manual adjustment of 1.5°C = 22.5°C. If the system switches to Eco with a parameterized temperature of 17°C, the device regulates the temperature to 18.5°C, since the manual adjustment is added.

10.2.90 Setpoint adjustment — Resetting the manual adjustment via object

Options:	No
	Yes

If this parameter is activated, a separate object can be used to delete the manual adjustment at any time. Example of application: Resetting the manual adjustment on all devices located in a building using a system clock.

10.2.91 Setpoint adjustment — Permanent storage of on-site operation

Options:	No
	Yes

If this parameter is activated, the manual settings for setpoint and, where applicable, fan speed level, as well as the value of the "Basic load" object, will be stored in the device and re-activated after a reset. The same applies to the operating mode.

If the device is re-programmed, the stored setpoint values will also be deleted.

10.2.92 Temperature reading

10.2.93 Temperature reading — Inputs of temperature reading

Options:	External measurement
	Weighted measurement

The room temperature can be fed to the device by a communication object via the bus. In addition, weighted measuring is also available, in which the weighted average of up to two temperature values (2 x external) is calculated and used as an input value for control.

10.2.94 Temperature reading — Inputs of weighted temperature reading

Options:	External measurement
	2 x external measurement

Specifies the temperature reading inputs for the weighted measurement, in which the calculated weighted average of the inputs is used as an input value for control.

Note

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

10.2.95 Temperature reading — Weighting of external measurement (0 to 100%)

Options:	Setting option between 0 - 100

Specifying the weighting of the external measurement from 0 to 100%.

Note

This parameter is only available when the "Inputs of weighted temperature reading" parameter is set on "external measurement" or "2x external measurement".

10.2.96 Temperature reading — Weighting of external measurement 2 (0 to 100%)

Options:	Setting option between 0 - 100

Specifying the weighting of the external measurement 2 from 0 to 100%. The setting together with the weighting of the external measurement (0 - 100%) must result in 100%.

Note

This parameter is only available when the "Inputs of weighted temperature reading" parameter is set on "2x external measurement".

10.2.97 Temperature reading — 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 "Weighted measurement".

10.2.98 Temperature reading — Monitoring time for temperature reading (0 = no monitoring) (min)

Options:	Setting option between 0 - 120

If no temperature is read within the parameterized time period, the device switches to error mode. It transmits a telegram to the bus via the "Actual temperature error" object and applies the operating mode and control value for error (0 - 255) settings.

10.2.99 Temperature reading — Operating mode for fault

Options:	Cooling
	Heating

In the event of a failure of the actual temperature measurement, the device will no longer be able to independently specify the heating/cooling operating type. As a result, the operating type best suited to protecting the building will be selected.

Note

This parameter is only available when the "Control function" parameter is set on "Heating and cooling" or "heating and cooling with additional stages".

10.2.100 Temperature reading — Control value for fault (0 - 255)

Options:	Setting option between 0 - 255

In the event of a failure of the actual temperature measurement, the device will no longer be able to independently determine the control value. In case of an error, a PWM control (1 Bit) with a fixed cycle time of 15 minutes is used automatically instead of a parameterized 2-point control (1 Bit). In this case the set parameter value is taken into consideration for the control value during an error.

10.2.101 Alarm functions

Note

This parameter is only available if the "Device function" parameter is set on either "Single device" or "Master device".

10.2.102 Alarm functions — Condensate water alarm

Options:	No
	Yes

If a fan coil is used, condensation may form during operation as a result of excessive cooling and/or humidity. The associated condensate is typically collected in a container. To protect the container against overflowing, and thus prevent potential damage to devices and/or the building, the container alerts the "Condensation alarm" object (receiving only) that the maximum fill level has been exceeded. This causes the controller to switch to a protective mode. This status is indicated by the corresponding icon on devices that have a display. Local operation is blocked. Operation is only possible again after the alarm has been deactivated.

Note

This parameter is only available when the "Control function" parameter is set either on "Cooling", "Cooling with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.103 Alarm functions — Dew point alarm

Options:	No
	Yes

When refrigerating machines are used, dew may appear on the refrigerant supply lines during operation as a result of excessive cooling and/or humidity. The dew indicator reports the dew formation via the "Dew point alarm" object (receiving only). This causes the controller to switch to a protective mode. This status is indicated by the corresponding icon on devices that have a display. Local operation is blocked. Operation is only possible again after the alarm has been deactivated.

Note

This parameter is only available when the "Control function" parameter is set either on "Cooling", "Cooling with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.104 Alarm functions — Frost alarm temperature for HVAC and RHCC status (°C)

Options:	Setting option between 0 - 15

The RHCC status and HVAC objects have a frost alarm bit. It the input temperature of the controller drops below the temperature set in this parameter, then the frost alarm bit is set in the status objects. It is reset when the temperature is exceeded.

10.2.105 Alarm functions — Heat alarm temperature for RHCC status (°C)

Options:	Setting option between 25 - 70

The RHCC status object has a heat alarm bit. If the input temperature of the controller exceeds the temperature set in this parameter, then the heat alarm bit is set in the status object. It is reset when the temperature falls below the set temperature.

10.2.106 Fan coil settings for fan speed levels

Note

This parameter is only available if the "Device function" parameter is set on either "Single device" or "Master device" and the "Control value type" parameter is set on "Fan coil".

10.2.107 Fan coil settings for fan speed levels — Number of fan speed levels

Options:	3 levels
	5 levels

This parameter is used to specify the number of fan speed levels the actuator will use to control the fan of the fan coil.

10.2.108 Fan coil settings for fan speed levels — Format of the level output

Options:	0..5
	0..255
	1 bit m off n
	1 bit m 1 off n

– *0 to 5*: The level values (0..3 or 0..5) are output in the 1-byte format as the counter values 0..3 or 0..5.

– *0 to 255*: The level values (0..3 or 0..5) are output as percentage values. Example 5-stage fan: The level value 1 is output as 20%, and 5 is output as 100%.

– *1 Bit m from n*: The level values (0..3 or 0..5) are output using 1-bit objects. The number of objects available is the same as the number of fan speed levels. For level 2, for example, the 1-bit fan speed level objects 1 and 2 are output as the value 1, while the other fan speed level objects use the value 0.

– *1 Bit 1 from n*: The level values (0..3 or 0..5) are output using 1-bit objects. The number of objects available is the same as the number of fan speed levels. For the level 2, for example, only the 1-bit fan speed level object 2 is output as the value 1. The other fan speed level objects use the value 0.

10.2.109 Fan coil settings for fan speed levels — Level output

Options:	For manual operation and automatic
	Only for manual operation

This parameter is used to specify when the output of the fan speed level values will occur: either only when the fan speed levels are manually adjusted or also in automatic mode. This setting depends on the options for the fan coil actuator. If the actuator itself controls the fan speed levels in automatic mode based on a derivative of the control value, than the "Only for manual operation" option must be selected. Otherwise, the other option should be selected.

10.2.110 Fan coil settings for fan speed levels — Lowest manually adjustable level

Options:	Level 0
	Level 1

This parameter is used to preselect the lowest fan speed level that can be set by an operation performed at the device. When level 0 is selected, the heating/cooling system will not be in operation (fan speed level and valve control 0) as long as the current operating mode and operation type are maintained. To avoid damage to the building, level 0 is deactivated after 18 hours and the device is returned to automatic mode.

10.2.111 Fan coil settings for fan speed levels — Level status evaluation

Options:	No
	Yes

The controller obtains the current fan speed level for controlling a fan coil actuator either by calculating it from the table of level values under "Fan coil settings for heating" or "Fan coil settings for cooling", or by receiving feedback from the fan coil actuator. If the "Yes" option is selected, the "Fan coil step status" object is activated for receiving the fan speed level from the fan coil actuator.

10.2.112 Fan coil settings heating

Note

This parameter is only available if the "Device function" parameter is set on either "Single device" or "Master device" and the "Control value type" parameter is set on "Fan coil". In addition, the "Control function" parameter must be set on either "Heating", "Heating with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.113 Fan coil settings for heating — Speed level 1 to 5 up to control value (0 to 255) heating

Options:	Setting option between 0 - 255

In this parameter, the control values of the controller are assigned to fan speed levels. This assignment is used if the fan speed levels are transmitted together with the control values.

Note

- These level settings should be adjusted to match the settings in the fan coil actuator.
- Setting the "Control value type" to "Fan coil" in the control parameters is only useful for one of either the basic stage or the additional stage. Setting the basic and additional stage parameters to fan coil is not useful, since the control of only one fan coil actuator each for heating and cooling is supported.
- The "Fan speed level 4 - 5 up to control value (0 - 255) heating" parameters are available only when the "Number of fan speed levels" is set on "5 levels".

10.2.114 Fan coil settings for heating — Fan speed level limit heating for eco mode

Options:	No
	Yes

This parameter limits the fan speed level when the system is switched to eco mode.

10.2.115 Fan coil settings for heating — Maximum speed level heating for eco mode

Options:	Setting option between 0 - 5

Specifies the maximum possible fan speed level when the system is switched to eco mode.

10.2.116 Fan coil settings for cooling

Note

This parameter is only available if the "Device function" parameter is set on either "Single device" or "Master device" and the "Control value type" parameter is set on "Fan coil". In addition, the "Control function" parameter must be set on either "Cooling", "Cooling with additional stage", "Heating and cooling" or "Heating and cooling with additional stages".

10.2.117 Fan coil settings for cooling — Speed level 1 to 5 up to control value (0 to 255) cooling

Options:	Setting option between 0 - 255

In this parameter, the control values of the controller are assigned to fan speed levels. This assignment is used if the fan speed levels are transmitted together with the control values.

Note

- These level settings should be adjusted to match the settings in the fan coil actuator.
- Setting the "Control value type" to "Fan coil" in the control parameters is only useful for one of either the basic stage or the additional stage. Setting the basic and additional stage parameters to fan coil is not useful, since the control of only one fan coil actuator each for heating and cooling is supported.
- The "Fan speed level 4 - 5 up to control value (0 - 255) cooling" parameters are available only when the "Number of fan speed levels" is set on "5 levels".

10.2.118 Fan coil settings for cooling — Fan speed level limit cooling for eco mode

Options:	No
	Yes

This parameter limits the fan speed level when the system is switched to eco mode.

10.2.119 Fan coil settings for cooling — Maximum fan speed level cooling for eco mode

Options:	Setting option between 0 - 5

Specifies the maximum possible fan speed level when the system is switched to eco mode.

10.2.120 Summer compensation

Note

This parameter is only available if the "Device function" parameter is set on either "Single device" or "Master device".

10.2.121 Summer compensation — Summer compensation

Options:	No
	Yes

In order to save energy, and to ensure that the temperature difference occurring during entry and exit of a climate-controlled building stays within comfortable limits, the excessive reduction of room temperature should be prevented during high temperatures in the summer (Summer compensation according to DIN 1946). The room temperature is increased by adjusting the setpoint temperature for cooling.

Raising the room temperature does not, however, mean that you heat up the room. Rather, the adjustment is intended to allow the room temperature to increase to a certain setpoint without cooling. This, for example, prevents the air-conditioning system from further reducing the room temperature to 24°C with an external temperature of 35°C.

However, activation of the summer compensation requires an outside temperature sensor that transmits its measured value to the bus and can be evaluated by the room temperature controller.

The following parameters are available for summer compensation:

- "Lower outside temperature value for summer compensation",
- "Upper outside temperature value for summer compensation",
- "Lower setpoint offset for summer compensation",
- "Upper setpoint offset for summer compensation"

Above the "Upper outside temperature value", the minimum setpoint temperature for cooling is the outside temperature minus the "Upper setpoint offset". The outside temperature has no effect on the minimum setpoint temperature for cooling below the "Lower outside temperature value". Between the "Lower" and "Upper outside temperature value", the minimum setpoint temperature for cooling undergoes floating adjustment by the parameterized setpoint temperature equal to the outside temperature minus the "Lower offset" to a value equal to the outside temperature minus the "Upper setpoint offset" as a function of the outside temperature.

Typical values for summer compensation are:

- 21°C: Lower outside temperature value
- 32°C: Upper outside temperature value
- 0 K: Lower setpoint offset
- 6 K: Upper setpoint offset

This means that a continuous increase of the minimum setpoint value for cooling occurs to a value equal to the outside temperature minus a setpoint offset of 0 to 6 K if the outside temperature increases to 32°C from 21°C.

For example:

For an increasing outside temperature, the minimum setpoint value for cooling will be increased starting at an outside temperature of 21°C. The minimum setpoint temperature for cooling is 25.1°C at an outside temperature of 30°C; 25.5°C at an outside temperature of 31°C; 26°C at an outside temperature of 32°C; and 27°C at an outside temperature of 33°C.

10.2.122 Summer compensation — (Lower) Starting temperature for summer compensation (°C)

Options:	Setting option between -127 - 127

The parameter defines the lower outside temperature value up to which temperature value the setpoint correction (summer compensation) is performed based on too high an outside temperature.

Note

This parameter is only available if the "Summer compensation" parameter is set to "Yes".

10.2.123 Summer compensation — Offset of the set-point temperature for the entry into summer compensation (x 0.1°C)

Options:	Setting option between -127 - 127

The parameter is used to define how many degrees Kelvin the setpoint value will be increased by during summer compensation when the lower temperature value is reached.

Typical values for summer compensation are:

- 20°C: Lower outside temperature value
- 32°C: Upper outside temperature value
- 0 K: Lower setpoint offset
- 4 K: Upper setpoint offset

That means that a flowing setpoint increase of 0 to 4 K occurs if the outside temperature increases from 20°C to 32°C.

Note

This parameter is only available if the "Summer compensation" parameter is set to "Yes".

10.2.124 Summer compensation — (Upper) exit temperature for summer compensation (°C)

Options:	Setting option between -127 - 127

The parameter defines the upper outside temperature value up to which temperature value the setpoint correction (summer compensation) is performed based on too high an outside temperature.

Note

This parameter is only available if the "Summer compensation" parameter is set to "Yes".

10.2.125 Summer compensation — Offset of the set-point temperature for the exit from summer compensation (x 0.1°C)

Options:	Setting option between -127 - 127

The parameter is used to define how many degrees Kelvin the setpoint value will be increased by during summer compensation when the upper temperature value is reached.

Typical values for summer compensation are:

- 20°C: Lower outside temperature value
- 32°C: Upper outside temperature value
- 0 K: Lower setpoint offset
- 4 K: Upper setpoint offset

That means that a flowing setpoint increase of 0 to 4 K occurs if the outside temperature increases from 20°C to 32°C.

Note

This parameter is only available if the "Summer compensation" parameter is set to "Yes".

10.3 Application "Inputs"

10.3.1 Switching_alarm

10.3.2 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.

10.3.3 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.

10.3.4 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.

10.3.5 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.

10.3.6 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.

10.3.7 Switching_alarm — E1-E5 — activate minimum signal duration

Options:	Inactive
	Active

10.3.8 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

10.3.9 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

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

Options:	Inactive
	Active

10.3.11 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.

10.3.12 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.

10.3.13 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.

10.3.14 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.

10.3.15 Switching_alarm — E1-E5 — cyclic sending

Options:	Inactive
	Active

10.3.16 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

10.3.17 Switching_alarm — E1-E5 — for object value

Options:	OFF
	ON
	OFF/ON

10.3.18 Switching_alarm — E1-E5 — input is being actuated

Options:	Closed
	Opened

10.3.19 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".

10.3.20 Dimming

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

Options:	Inactive
	Active

10.3.22 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.

10.3.23 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.

10.3.24 Dimming — E1-E5 — input is being actuated

Options:	Closed
	Opened

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

10.3.25 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.

10.3.26 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".

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

Options:	ON
	OFF
	SWITCHOVER
	INACTIVE

10.3.28 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.

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

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

10.3.30 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

10.3.31 Blind

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

Options:	Active
	Inactive

10.3.33 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.

10.3.34 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.

10.3.35 Blind — E1-E5 — input is being actuated

Options:	Closed
	Opened

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

10.3.36 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)

10.3.37 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".

10.3.38 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

10.3.39 Blind — E1-E5 — reaction at short actuation

Options:	STOP/slat OPEN
	STOP/slat CLOSED

10.3.40 Blind — E1-E5 — reaction at long actuation

Options:	Up
	Down

10.3.41 Blind — E1-E5 — reaction at actuation

Options:	Up
	Down

10.3.42 Forced operation value

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

Options:	Inactive
	Active

10.3.44 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.

10.3.45 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.

10.3.46 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.

10.3.47 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.

10.3.48 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

10.3.49 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

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

Options:	Inactive
	Active

10.3.51 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.

10.3.52 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]

10.3.53 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

10.3.54 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.

10.3.55 Forced_operation_value — E1-E5 — 8-bit scene

Options:	1…64

10.3.56 Forced_operation_value — E1-E5 — call/save scene

Options:	Call
	Save

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

Options:	0…23

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

Options:	0…59

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

Options:	0…59

10.3.60 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

10.3.61 Forced_operation_value — E1-E5 — input is being actuated

Options:	Closed
	Opened

10.3.62 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".

10.3.63 Scenes

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

Options:	Inactive
	Active

10.3.65 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.

10.3.66 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.

10.3.67 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.

10.3.68 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".

10.3.69 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]

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

Options:	Yes
	No

10.3.71 Switching sequences

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

Options:	Inactive
	Active

10.3.73 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.

10.3.74 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.

10.3.75 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.

10.3.76 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

10.3.77 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

10.3.78 Switching sequences — E1-E5 — number of steps

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

10.3.79 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
…	…	…	…	…

10.3.80 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.

10.3.81 Multiple operation

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

Options:	Inactive
	Active

10.3.83 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

10.3.84 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.

10.3.85 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.

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

Options:	Active
	Inactive

10.3.87 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.

10.3.88 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.

10.3.89 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.

10.3.90 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

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

Options:	ON
	OFF
	SWITCHOVER

10.3.92 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.

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

Options:	Inactive
	Active

10.3.94 Pulse counter — E1-E5 — capacitive interference suppression

Options:	Weak
	Medium
	Strong

10.3.95 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.

10.3.96 Pulse counter — E1-E5 — Enable intermediate counter

Options:	Inactive
	Active

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

Options:	Inactive
	Active

10.3.98 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

10.3.99 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

10.3.100 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.

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

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

10.3.102 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]

10.3.103 Pulse counter — E1-E5 — counting method

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

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

Options:	
	1…10000

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

Options:	
	-10000…1…10000

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

Options:	
	Active
	Inactive

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

Options:	
	Active
	Inactive

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

Options:	
	Active
	Inactive

10.3.109 Pulse counter — E1-E5 — save counter reading

Options:	Active
	Inactive

10.3.110 External temperature sensor — temperature-dependent resistance

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

Options:	Inactive
	Active

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

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

10.3.113 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.

10.3.114 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

10.3.115 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

10.3.116 External temperature sensor — line fault

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

Options:	None
	Length
	Resistance

10.3.118 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.

10.3.119 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.

10.3.120 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".

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

Options:	1...10...30

10.3.122 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

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

Options:	Inactive
	Active

10.3.124 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".

10.3.125 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

10.3.126 External temperature sensor — threshold value 1

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

Options:	**-500**…1500

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

Options:	-500…**1500**

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

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

10.3.130 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".

10.3.131 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".

10.3.132 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".

10.3.133 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".

10.3.134 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

10.3.135 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".

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

Options:	**No**
	Yes

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

Options:	Inactive
	Active

10.3.138 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

10.3.139 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

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

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

Options:	Pt1000
	6226/T

10.3.142 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

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

Options:	Inactive
	Active

10.4   Communication objects - RTC

10.4.1   Heating control value

Number	Name	Object function	Data type
1	Heating control value (control value heating/cooling)	Output	1. Switching 2. Percent (0 to 100%)

Description:

1. This object is used to operate a switching actuating drive, e.g. a thermoelectric positioner, that is controlled by a switching/heating actuator.

2. This object is used to control an actuating drive with a continuous input value (0%..100%), e.g. an electromotive actuating drive.

10.4.2   Additional heating stage

Number	Name	Object function	Data type
2	Additional heating stage (additional heating/cooling stage)	Output	1. Switching 2. Percent (0 to 100%)

Description:

1. This object is used to operate a switching actuating drive, e.g. a thermoelectric positioner, that is controlled by a switching/heating actuator.

2. This object is used to control an actuating drive with a continuous input value (0%..100%), e.g. an electromotive actuating drive.

Note

The additional stage can also be used as a parallel second heating stage. To do this, set the parameter for the temperature difference to the basic stage to 0°C.

10.4.3   Cooling control value

Number	Name	Object function	Data type
3	Cooling control value	Output	1. Switching 2. Percent (0 to 100%)

Description:

1. This object is used to operate a switching actuating drive, e.g. a thermoelectric positioner, that is controlled by a switching/heating actuator.

2. This object is used to control an actuating drive with a continuous input value (0%..100%), e.g. an electromotive actuating drive.

10.4.4 Additional cooling stage

Number	Name	Object function	Data type
4	Additional cooling stage	Output	1. Switching 2. Percent (0 to 100%)

Description:

1. This object is used to operate a switching actuating drive, e.g. a thermoelectric positioner, that is controlled by a switching/heating actuator.

2. This object is used to control an actuating drive with a continuous input value (0%..100%), e.g. an electromotive actuating drive.

Note

The additional stage can also be used as a parallel second cooling stage. To do this, set the parameter for the temperature difference to the basic stage to 0°C.

10.4.5 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.

10.4.6 External actual temperature

Number	Name	Object function	Data type
7	External actual temperature	Input	2-byte floating point value

2-byte communication object for reading an external temperature value provided via the KNX bus.

10.4.7 External actual temperature 2

Number	Name	Object function	Data type
8	External actual temperature 2	Input	2-byte floating point value

2-byte communication object for reading an additional external temperature value provided via the KNX bus.

10.4.8 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.

10.4.9 Local actual temperature

Number	Name	Object function	Data type
10	Local actual temperature	Output	Switching

Not visible!

10.4.10 Current setpoint

Number	Name	Object function	Data type
11	Current setpoint	Output	2-byte floating point value

The object outputs the current setpoint temperature resulting from the following: the parameterized setpoint temperature of the current operation type and operating mode, the manual setpoint temperature adjustment, a change in the base setpoint temperature via the base setpoint value object. This is purely a transmitting object.

10.4.11 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.

10.4.12 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.

10.4.13 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.

10.4.14 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.

10.4.15 Heating status

Number	Name	Object function	Data type
16	Heating status	Output	Switching

The room temperature controller sends an ON telegram via the "Heating status" object as soon as it is active in the heating mode. If the controller is in the inactive zone between heating and cooling or is in cooling mode, the room temperature controller transmits an OFF telegram on the "Heating status" object.

10.4.16 Cooling status

Number	Name	Object function	Data type
17	Cooling status	Output	Switching

The room temperature controller sends an ON telegram via the "Cooling status" object as soon as it is active in the cooling mode. If the controller is in the inactive zone between heating and cooling or is in heating mode, the room temperature controller transmits an OFF telegram on the "Cooling status" object.

10.4.17 Basic load

Number	Name	Object function	Data type
16	Basic load	Input / output	Switching

This object uses the value 1 to activate a parameterized base load, i.e. a minimum control value greater than zero. The value 0 deactivates the base load. When the base load is deactivated, the control value can be lowered all the way to zero if necessary when the setpoint temperature is reached, despite the minimum value set in the parameter.

Note

Deactivating the basic load for a floor heating system is always useful in the summer, since it saves heating energy.

10.4.18 Switchover heating/cooling

Number	Name	Object function	Data type
17	Switchover heating/cooling	Input / output	Switching

1. Automatic: If the switchover between heating and cooling is performed automatically by the room temperature controller, then this object is used to provide information on the current heating (0) or cooling (1) status to the KNX bus. It is a transmitting object.

2. Only via object: The switchover between heating and cooling on the room temperature controller occurs solely via this 1-bit communication object. The value (0) activates the heating mode, and the value (1) activates the cooling mode. This is a receiving object.

3. Manual or via object: The switchover between heating and cooling on the room temperature controller occurs by user interaction or via the 1-bit communication object. The information on the respective heating (0) or cooling (1) status is available to the KNX bus. This is a receiving and sending object.

10.4.19 Fan coil manual

Number	Name	Object function	Data type
18	1. Fan coil manual	Output	Switching
	2. Fan coil manual (master)	Output	Switching
	3. Fan coil manual (slave)	Output	Switching

Using this 1-bit communication object, a fan coil actuator can be placed in manual fan mode or returned to automatic fan mode. In the automatic fan mode of the fan coil actuator, the fan's rotational speed is defined in the fan coil actuator using the control value. In manual fan operation, the user of the room temperature controller can set the fan's rotational speed as needed. This setting will remain active until it is reset. The fan speed level 0 is an exception: to avoid damage to the building, automatic mode is activated again 18 hours after fan speed level 0 is selected.

Note

Item 2:

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

Item 3:

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

10.4.20 Fan coil step

Number	Name	Object function	Data type
19	1. Fan coil step	Output	2-byte floating point value
	2. Fan coil step (master)	Output	2-byte floating point value
	3. Fan coil step (slave)	Output	2-byte floating point value

The fan speed level in the fan coil actuator is selected via the 1-byte communication object. Whether the fan speed level information is transmitted in manual or also in automatic fan speed level mode can be set. The formats that can be selected for the 1-byte communication object are the fan speed level (0..5) or a percentage value (0..100%) which is calculated back to a fan speed level in the fan coil actuator.

Note

Item 2:

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

Item 3:

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

10.4.21 Fan coil step status

Number	Name	Object function	Data type
20	Fan coil step status	Input / output	2-byte floating point value

Using the "Fan coil step status" object, the room temperature controller receives the current fan speed level of the fan coil actuator.

10.4.22 Fan speed level 1

Number	Name	Object function	Data type
21	Fan speed level 1	Output	Switching

This 1-bit communication object is used to output the active status (1) of the fan speed level, while the other fan speed levels are deactivated (0), depending on the parameter setting. If the fan speed level is inactive, the object has a value of (0).

10.4.23 Fan speed level 2

Number	Name	Object function	Data type
22	Fan speed level 2	Output	Switching

This 1-bit communication object is used to output the active status (1) of the fan speed level, while the other fan speed levels are deactivated (0), depending on the parameter setting. If the fan speed level is inactive, the object has a value of (0).

10.4.24 Fan speed level 3

Number	Name	Object function	Data type
23	Fan speed level 3	Output	Switching

This 1-bit communication object is used to output the active status (1) of the fan speed level, while the other fan speed levels are deactivated (0), depending on the parameter setting. If the fan speed level is inactive, the object has a value of (0).

10.4.25 Fan speed level 4

Number	Name	Object function	Data type
24	Fan speed level 4	Output	Switching

This 1-bit communication object is used to output the active status (1) of the fan speed level, while the other fan speed levels are deactivated (0), depending on the parameter setting. If the fan speed level is inactive, the object has a value of (0).

10.4.26 Fan speed level 5

Number	Name	Object function	Data type
25	Fan speed level 5	Output	Switching

This 1-bit communication object is used to output the active status (1) of the fan speed level, while the other fan speed levels are deactivated (0), depending on the parameter setting. If the fan speed level is inactive, the object has a value of (0).

10.4.27 Basic setpoint

Number	Name	Object function	Data type
26	Basic setpoint	Input	2-byte floating point value

This 2-byte communication object can be used to change/adjust the parameterized basic setpoint value via the KNX bus. Parameters can be used to define whether the value received by this object is interpreted as "Setpoint heating comfort", "Setpoint cooling comfort" or an average between heating and cooling comfort.

10.4.28 Resetting manual setpoints

Number	Name	Object function	Data type
27	Resetting manual setpoints	Input	Switching

This 1-bit communication object is used to reset the manual setpoint adjustment that was set on the device.

10.4.29 Dew point alarm

Number	Name	Object function	Data type
28	Dew point alarm	Input	Switching

This 1-bit communication object is used to place the controller in the dew point 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 dew.

Note

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 control unit.

10.4.30 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.

10.4.31 Outside temperature for summer compensation

Number	Name	Object function	Data type
30	Outside temperature for summer compensation	Input	2-byte floating point value

In order to save energy, and to ensure that the temperature difference occurring during entry and exit of a climate-controlled building stays within comfortable limits, the reduction of room temperature by cooling devices should be limited as a function of the outside temperature (summer compensation). This, for example, prevents the air-conditioning system from further reducing the room temperature to 24°C with an outside temperature of 35°C.

This function can only be used with an outside temperature sensor. This 2-byte communication object must then be used to provide the controller with the current outside temperature.

10.4.32 Summer compensation active

Number	Name	Object function	Data type
31	Summer compensation active	Output	Switching

This 1-bit communication object is used to indicate via the bus whether the summer compensation is active (1) or inactive (0). If it is active, the setpoint value configured for the cooling mode is increased by the summer compensation function. A decrease of the cooling mode setpoint temperature below the value calculated by the parameterized summer compensation function is not possible. An increase of the setpoint temperature for the cooling mode is always possible.

10.4.33 Setpoint reached

Number	Name	Object function	Data type
32	Setpoint reached	Output	Switching

When the setpoint set on the device in comfort mode has been reached it is sent by means of value (1) as information to the KNX bus via the 1-bit communication object. The function is started by activating the comfort or presence mode. If the reaching of the setpoint temperature is interfered with by the preselection of a different operating mode or by adjustment to a new setpoint, value (0) is sent.

10.4.34 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.

10.4.35 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.

10.4.36 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.

10.4.37 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.

10.4.38 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.

10.4.39 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.

10.4.40 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.

10.4.41 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.

10.4.42 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.

10.4.43 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.

10.4.44 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.

10.4.45 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.

10.5 Communication objects "Inputs"

10.5.1 Pulse counter

10.5.2 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]

10.5.3 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.

10.5.4 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.

10.5.5 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.

10.5.6 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.

10.5.7 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.

10.5.8 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.

10.5.9 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.

10.5.10 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.

10.5.11 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.

10.5.12 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".

10.5.13 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.

10.5.14 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.

10.5.15 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.

10.5.16 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.

10.5.17 Blind

10.5.18 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.

10.5.19 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.

10.5.20 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.

10.5.21 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.

10.5.22 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.

10.5.23 Multiple operation

10.5.24 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.

10.5.25 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.

10.5.26 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.

10.5.27 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.

10.5.28 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.

10.5.29 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.

10.5.30 Switch_alarm

10.5.31 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.

10.5.32 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.

10.5.33 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.

10.5.34 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.

10.5.35 Dimming

10.5.36 Dimming — 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.

10.5.37 Dimming — 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.

10.5.38 Dimming — 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.

10.5.39 Switching sequences

10.5.40 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.

10.5.41 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.

10.5.42 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.

10.5.43 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.

10.5.44 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.

10.5.45 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.

10.5.46 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.

10.5.47 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.

10.5.48 Scenes

10.5.49 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.

10.5.50 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.

10.5.51 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.

10.5.52 Forced operation value

10.5.53 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.

10.5.54 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.

10.5.55 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.

10.5.56 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.

10.5.57 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.

10.5.58 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.

10.5.59 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.

10.5.60 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.

10.5.61 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.

10.5.62 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.

10.5.63 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.

10.5.64 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.

10.5.65 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.

10.5.66 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.

10.5.67 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.

10.5.68 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.

10.5.69 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.

10.5.70 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.

10.5.71 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.

10.5.72 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.

10.5.73 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.

10.5.74 External temperature sensor

10.5.75 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.

10.5.76 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.

10.5.77 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.

10.5.78 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.

10.5.79 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.

10.5.80 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.

10.5.81 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.

10.5.82 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.

10.5.83 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".

10.5.84 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.

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

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

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

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

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

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

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

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

10.5.88 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.

10.5.89 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.

10.5.90 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.

10.5.91 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.

10.5.92 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.

10.5.93 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.

10.5.94 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.

10.5.95 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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