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KNX Technical Reference Manual

ABB i-bus® KNX

Room temperature controller with display

6108/18-500

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1 Notes on the instruction manual

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

Please keep this manual in a safe place.

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

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

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

www.BUSCH-JAEGER.com

2 Safety

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

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

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

2.1 Information and symbols used

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

Danger

Risk of death / serious damage to health

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

Warning

Serious damage to health

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

Caution

Damage to health

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

Attention

Damage to property

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

NOTE

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

The following safety symbols are used in the operating manual.

This symbol alerts to electric voltage.

2.2 Intended use

This device is a room temperature controller for decentralized flush-mounted installation.

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

The device is intended for the following:

- Operation according to the listed technical data
- Installation in dry interior rooms and suitable flush-mounted boxes
- Use with the connecting options available on the device

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

Extensive functions are available for the room temperature controller. The scope of applications is contained in Chapter 10 “Description of application and parameters“ on page 29 (only in languages of the countries DE, EN, ES, FR, IT and NL).

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

2.3 Improper use

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

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

The device is not intended for the following:

- Unauthorized structural changes
- Repairs
- Outdoor use
- The use in bathroom areas
- Insert with an additional bus coupler

2.4 Target group / Qualifications of personnel

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

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

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

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

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

No special qualifications are needed to operate the device.

2.5 Safety instructions

Danger - Electric voltage!

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

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

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

Danger - Electric voltage!

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

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

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

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

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

Moisture and contamination can damage the device.

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

2.6 Environment

Consider the protection of the environment!

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

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

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

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

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

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

3 Setup and function

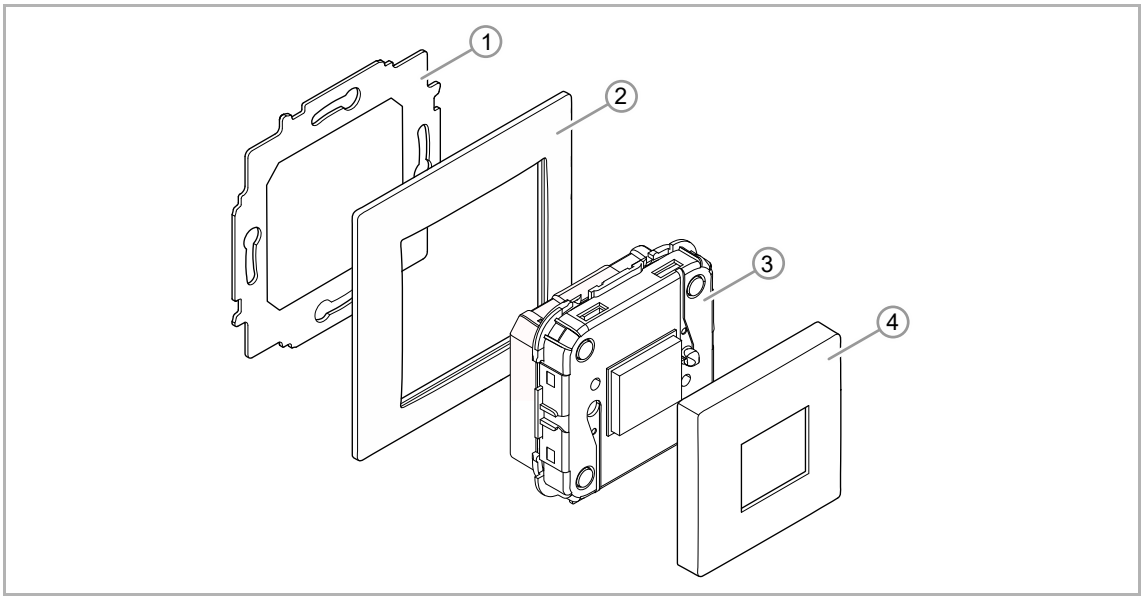


Fig. 1: Product overview

[1] Support ring

[2] Cover frame (not included in scope delivery)

[3] Flush-mounted insert

[4] Cover plate (not included in scope of delivery)

The room temperature controller senses the current room temperature and regulates the heating or cooling. The room temperature controller also serves to control two-/four-pipe systems (2-/4-pipe fan coil units) and conventional air-conditioning units.

Additionally, further switch-control telegrams can be sent to KNX actuators to activate a connected ventilation fan.

Hotel management systems can gain direct access to the room temperature controller via KNX and activate controllers in the room. The fan speed level can also be selected manually via buttons (forced operation). This makes it possible to very quickly adjust the temperature in a hotel room to the individual wishes of the guests. The device supports the full function for international hotel applications. It can function in the operating modes "heating and cooling", "heating" or "cooling" and each one optionally with an additional stage.

For operation and display, the room temperature controller is equipped with push-buttons. An LCD display serves to indicate the current operating states and values. The use of simple icons on the buttons and in the display allow the room temperature controller to be operated easily and intuitively.

The devices must be parameterised for the use of the functions.

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

3.1 Scope of supply

Included in the scope of delivery are:

- Support ring [1]
- Flush-mounted insert [3]

See Figure on Page 13.

Please order the cover frame [2] and cover plate [4] separately.

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

3.2 Overview of types

Article number	Product name	Sensor channels
6108/18-500	Room temperature controller with display	1

Table 1: Overview of types

3.3 Functions

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

Special features	Function
▪ Function illumination ▪ Freely programmable ▪ Day/Night switchover of display illumination	▪ Set / actual temperature ▪ Comfort/standby ▪ Eco mode ▪ Frost protection ▪ Heat protection ▪ Heating ▪ Cooling ▪ Fan control ▪ Logic functions

Table : Overview of functions

NOTE
The room temperature controller operates as PI controller and in time adjusts its control value also to the response of the room.

3.4 Device overview

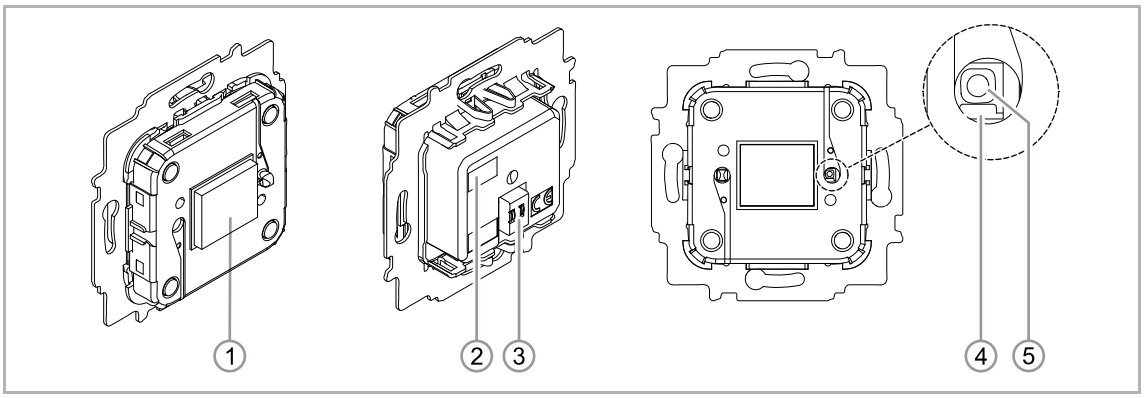


Fig. 2: Device overview of room temperature controller

[1] Display
[2] Type plate
[3] Bus connection terminal
[4] Programming LED
[5] Programming button

4 Technical data

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

Table 2: Technical data

4.1 Dimensional drawings

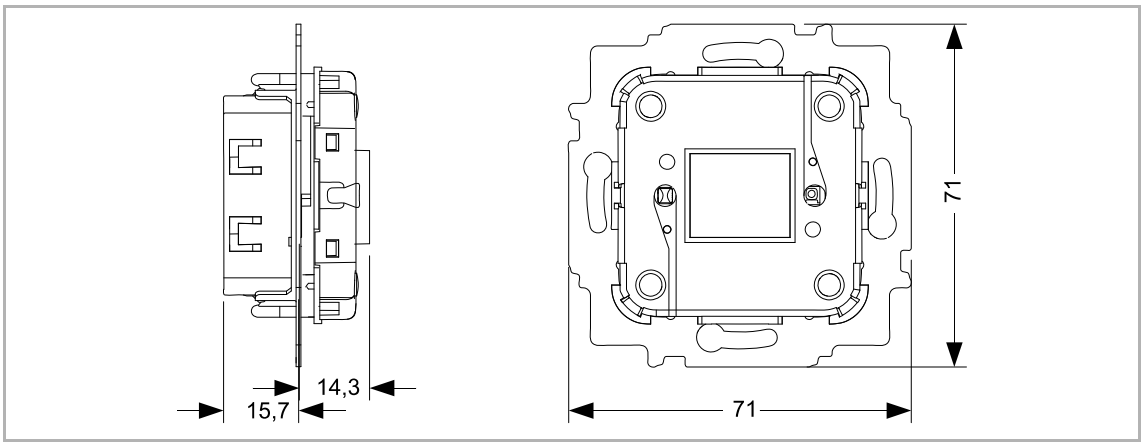


Fig. 3: Dimensions (all dimensions are in mm)

4.2 Circuit diagrams

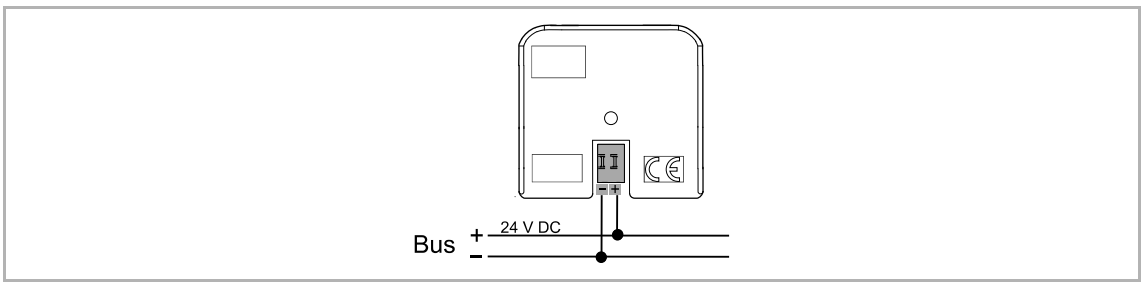


Fig. 4: Electrical connection

5 Connection, installation / mounting

Danger - Electric voltage!

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

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

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

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

5.1 Electrical connection

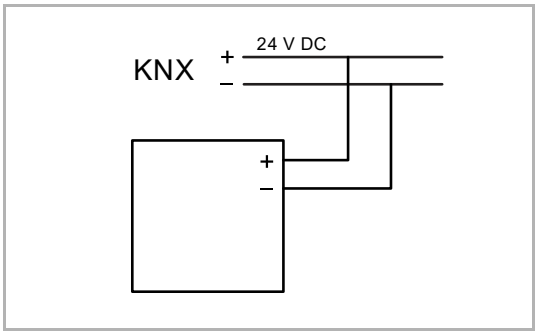


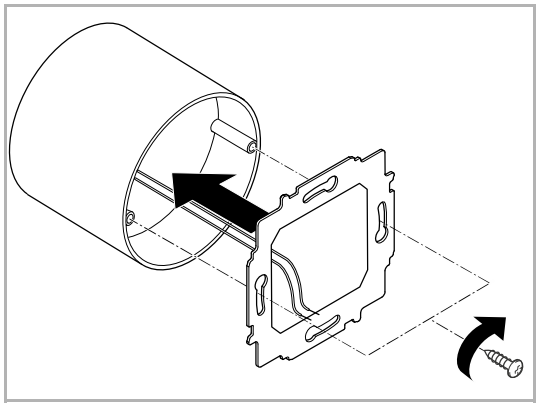
Fig. 5: Connection of bus coupler

Carry out the electrical connection according to the circuit diagram.

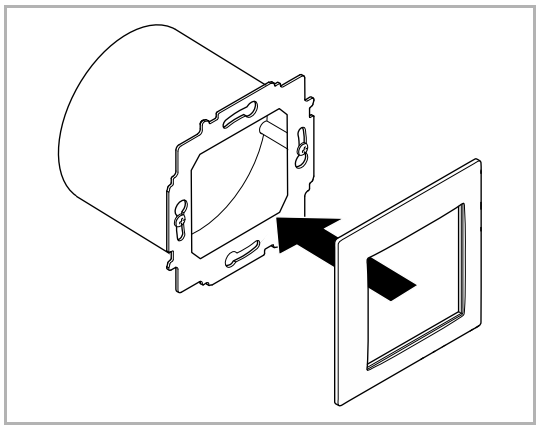
5.2 Mounting

NOTE
The device (with integrated bus coupler) has been prepared for installing in flush-mounted boxes in connection with the enclosed support ring.

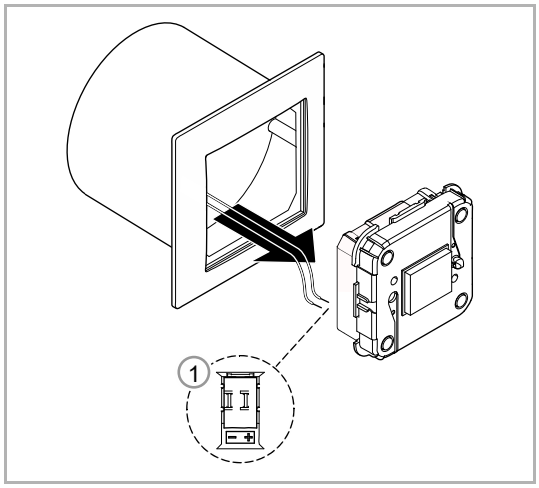
To install the device, perform the following steps:



1. Screw the support ring to the flush-mounted box.

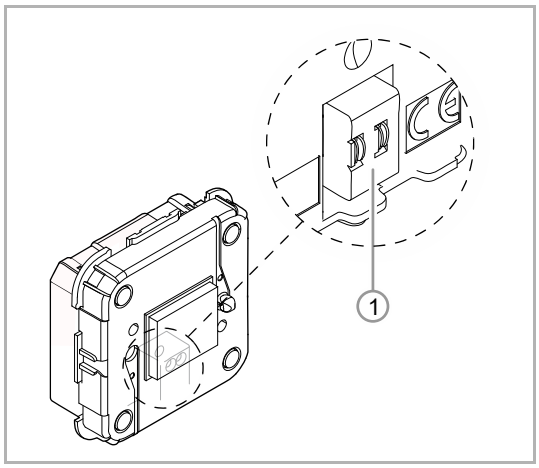


2. Attach the cover frame.



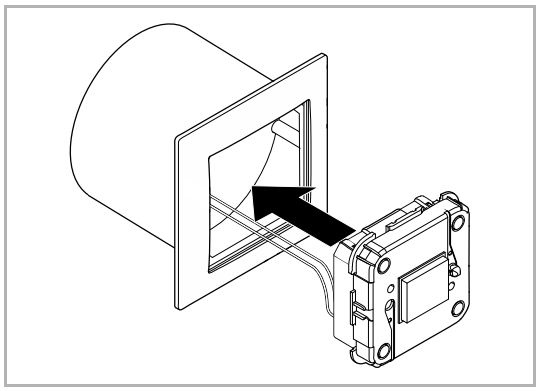
3. Pull the bus line out of the flush-mounted box and connect the line to the bus connection terminal [1], see chapter 5.1 “Electrical connection“ on page 17.

– Observe the correct polarity!

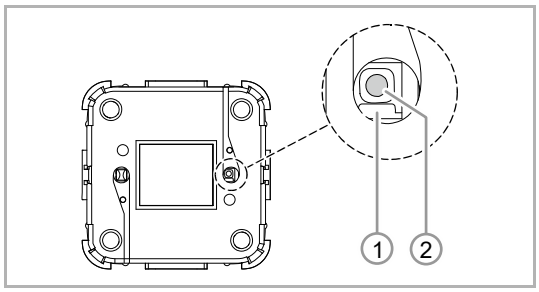


4. Turn the device into the correct installation position.

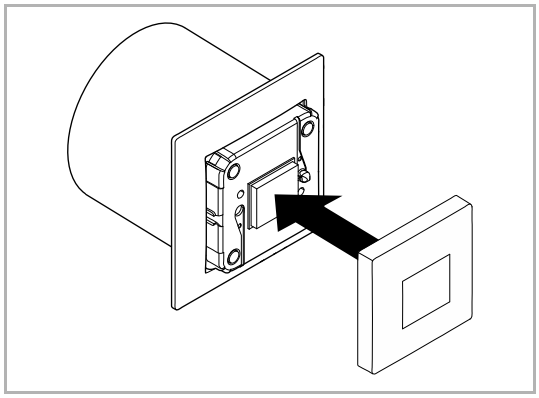
– The bus connection terminal [1] must be at the rear at the bottom.



5. Push the device through the cover frame and the support ring until it latches into the support ring.



6. Commission the device. Programming is carried out via the programming button [2].



7. When programming has been completed, attach the cover plate to the device insert.

6 Commissioning

6.1 Software

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

NOTE

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

6.1.1 Preparation

1. Connect a PC to the KNX bus line via the KNX interface (e.g. via the commissioning interface / commissioning adapter 6149/21-500).
   – The Engineering Tool Software must be installed on the PC (native application from ETS 4.0).
2. Switch on the bus voltage.

6.1.2 Assigning a physical address

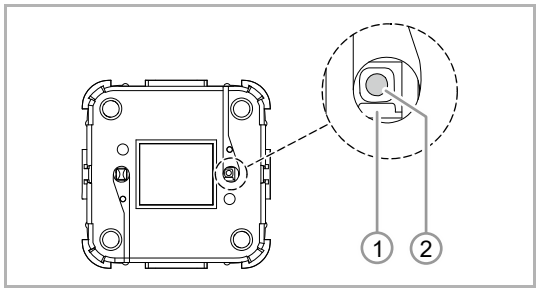


Fig. : Assigning a physical address

1. Press the programming button [2]. The red programming LED [1] lights up.

6.1.3 Assigning the group address(es)

The group addresses are assigned in connection with the ETS.

6.1.4 Selecting the application program

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

6.1.5 Differentiating the application program

Various functions can be implemented via the ETS.

Detailed description of parameters, see chapter 10 “Description of application and parameters“ on page 29 (only in languages DE, EN, ES, FR, IT and NL).

7 Update

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

NOTE

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

8 Operation

The room temperature controller is operated via the button elements of the cover plate.

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

Extentive parameters are available in one application. The range of parameters is available at Chapter 10 “Description of application and parameters“ on page 29 (only in languages DE, EN, ES, FR, IT and NL).

NOTE

In the basic setting the display always indicates the set-point temperature!

8.1 Control elements

NOTE

The scope of delivery contains only the electronic insert. It must still be completed with a suitable cover plate and a cover frame.

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

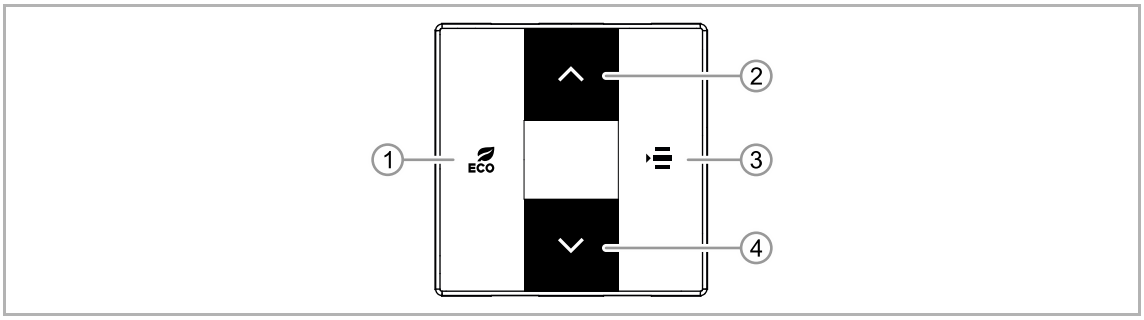


Fig. 6: Control elements

[1] ECO mode; press the button

[2] Temperature increase; press the button

[3] Selection of one of the following functions in the sequence of the list.
Prerequisite: The functions have been parameterized beforehand.

- Setpoint adjustment
- Off/On (OFF; long press of the button)
- Fan speed levels
- Switchover heating/cooling

Keep the button pressed until the display flashes. Press button several times until the desired function appears.

[4] Reduce temperature; press the button

NOTE

The display of the room temperature controller always indicates the set-value temperature. This can be changed via the arrow keys of the control element.

8.2 Operating modes

The device has the following operating modes:

Display	Operating mode
	Comfort operation – Application: You are in the room for a longer period of time; the comfort temperature is to be reached. – Behaviour of the RTC: The display indicates the set-value temperature that has been set. The controller aims at this temperature.
	Eco mode – Application: You are leaving the room for a few hours; the room temperature is to be reduced to save energy. However, the room is not to cool down completely. – Behaviour of the RTC: The display indicates "ECO". The temperature is reduced by 2°C. (The reduction can be adjusted in the user interface).
	Off mode – Application: The room is not being used for a longer period of time. – Behaviour of the RTC: The display indicates "OFF". The heating valves are closed (frost protection is active).
	Frost/heat protection – Application: The function switches on automatically when a window contact has been connected and the window is being opened. – Behaviour of the RTC: The display indicates the icon for frost/heat protection. The heating valves close. If the room temperature drops below 7°C, the heating is switched on again to prevent damage to the building.
 	Heating/cooling switchover – Application: The device is suitable both for heating and cooling operation. The switchover of the two operating modes takes place either via a binary input, which has been configured as heating/cooling reverser, or via a press of the button (5) and subsequent selection via the set value adjustment buttons (2/4). – Behaviour of the RTC: The display indicates the icon for heating. The settings for heating mode are available. The heating device, e.g. a heat pump, switches to cooling mode. All RTCs in the building receive information via the KNX bus and switch from heating mode to cooling mode. The display indicates the icon for cooling. The settings for cooling operation are available.
 	Fan operation: – Application: You want to change the automatically selected fan speed level and set the desired fan speed level manually on the device. The control of the temperature in the room continues to be active. – Behaviour of the RTC: The display indicates the set fan speed level and "Auto". The room is heated or cooled via a 3-stage fan coil. The fan sets the necessary fan speed level automatically in dependence of the control.

8.3 Displays / messages

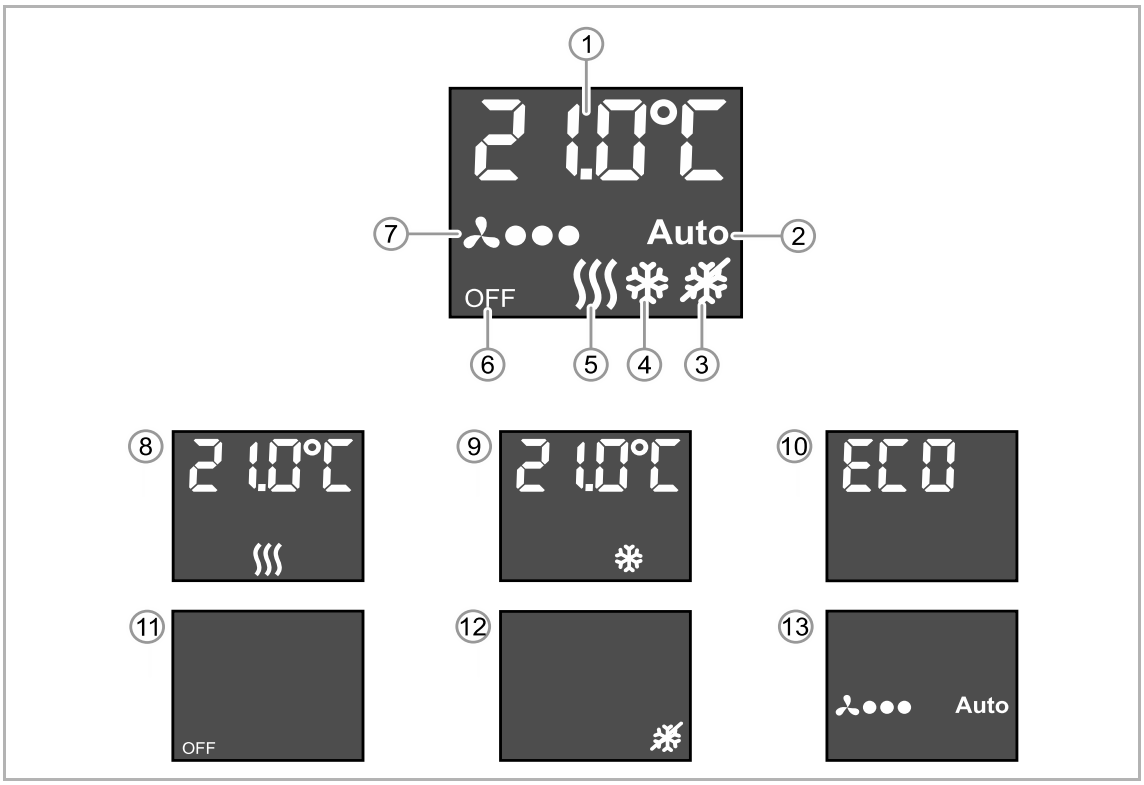


Fig. 7: Displays

[1] Controller switched on / display of set-point temperature
[2] Automatic fan control
[3] Frost protection active
[4] Cooling active
[5] Heating active
[6] Controller off
[7] Fan coil fan, three-stage
[8] Display of comfort mode heating
[9] Display of comfort mode cooling
[10] Display of ECO mode
[11] Display of OFF mode
[12] Display of frost/heat protection operation
[13] Display of fan operation

8.3.1 Switching On and Off

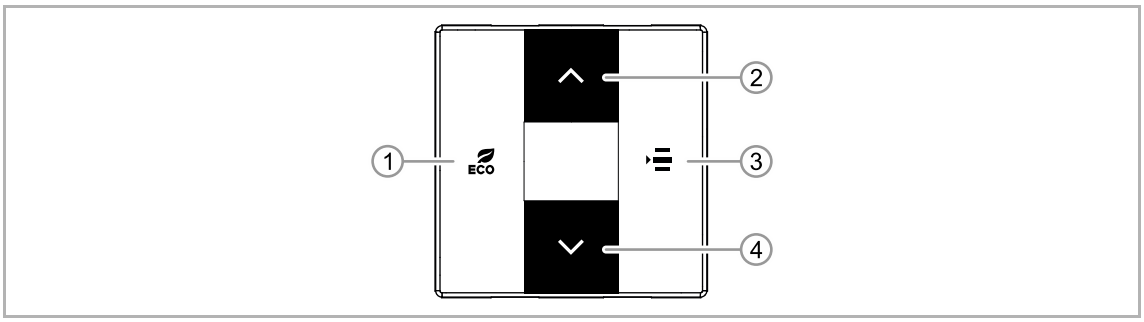


Fig. 8: Control elements

Activation

1. Press the button [3].

   The functions which were active before deactivation are activated.

   The display indicates the adjusted set-point temperature.

Deactivation

1. Keep the button [3] pressed until the display flashes.
2. Press button [3] again several times until function "On/Off" appears.
3. Keep the button [3] pressed until the device switches into the "OFF" status.

NOTE

In the OFF mode all functions and all buttons of the device (except button [3]) are deactivated.

8.3.2 Adjust temperature

Display of the set-point temperature

The set-point temperature appears automatically in the display. For this the device must be switched on.

Setting of the set-point temperature

The desired temperature is set with the buttons [2] and [4]. The currently set temperature is indicated in the display.

- To raise the temperature, press button [2].
- To reduce the temperature, press button [4].

After an adjustable time the device jumps back into the mode that was active before the adjustment of the set-point temperature, e.g. into comfort operation. The stored set-point temperature is displayed.

NOTE

The jump-back time of the device to the primary functions of the control elements is specified via application "Control settings".

8.3.3 Adjusting the fan speed levels

Fig. 9: Display of fan operation

1. Keep the button [3] pressed until the display flashes.
2. Press button [3] again several times until function "Fan speed levels" appears.
3. Select the desired fan speed level with the buttons [2] and [4].
   After an adjustable time the device jumps back into the mode that was active before the adjustment of the fan speed level, e.g. into comfort operation. When the fan is activated, the set fan speed level appears in the display.

NOTE

The jump-back time of the device to the primary functions of the control elements is specified via application "Control settings".

NOTE

The function of the fan speed levels is adjusted in application "RTC". This function is inactive if "Fan coil" has not been parameterized.

8.3.4 Eco mode

Fig. 10: Display of ECO mode

ECO mode can be used to automatically reduce the room temperature and for reducing the fan speed level, e.g. during absence.

Activating the ECO mode

1. Press the button [1].
   The device switches to ECO mode.

Deactivating the ECO mode

2. Press the button [1] again.
   The device jumps back into the mode that was active before the activation of ECO mode, e.g. into comfort operation.

ECO mode is also exited, for example, when the temperature is adjusted manually via buttons [2] and [4].

NOTE

The function of ECO mode is set via applications "RTC" and "Control settings".
The default setting cannot be changed via the setpoint adjustment (buttons [2] and [4]).

8.3.5 Changing the operating status (heating/cooling)

Fig. 11: Operating status heating/cooling

1. Keep the button [3] pressed until the display flashes.
2. Press button [3] again several times until function "Operating status" appears.
3. Select the desired operating status with buttons [2] and [4].
   After an adjustable time the device jumps back into the mode that was active before the adjustment of the operating status, e.g. into comfort operation. The adjustment is stored.

When the control function "Heating" and/or "Cooling" is activated, the currently set operating status is indicated in the display.

9 Maintenance

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

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

9.1 Cleaning

Clean dirty devices with a soft dry cloth.

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

10 Description of application and parameters

The following application program is available:

Application program
Continuous / switching heating cooling TP/7

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

KNX application
RTC settings
Control settings
Button top right

Depending on which device and application are selected, the Engineering Tool Software (ETS) shows different parameters and communication objects. This allows the control element to be set accordingly with multi functions.

10.1 Application "RTC object"

10.1.1 General - Device function

Options:	Single device
	Master device
	Slave device

– *Single device*: The device is used singly in a room as room temperature controller.

– *Master device*: At least two room temperature controllers are located in one room. One device is to be set up as a master device, while the others are to be programmed as slave devices / temperature sensors. The master device is to be linked to the slave devices using the appropriately labelled communication objects. The master device regulates the temperature.

– *Slave device*/temperature sensor: At least two room temperature controllers are located in one room. One device is to be set up as a master device, while the others are to be programmed as slave devices / temperature sensors. The slave devices are to be linked to the master device with the appropriately labelled communication objects. The slave device serves the room temperature control functions of the master.

10.1.2 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".

10.1.3 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".

10.1.4 General - Additional functions

Options:	No
	Yes

– This parameter enables additional functions and communication objects, e.g. window contact and presence detector.

10.1.5 General - Send cyclic "In operation" (min)

Options:	Setting option between 5 - 3000 minutes

– The "In operation" communication object serves to inform that the controller still operates. Value "1" is sent cyclic. This parameter is used to set the cycle for sending. If the cyclic telegram fails, the function of the device is faulty and the air-conditioning of the room can be maintained with a forced operation. However, for this the system and/or actuator must have "Forced operation" function.

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

10.1.6 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".

10.1.7 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).

10.1.8 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".

10.1.9 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".

10.1.10 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".

10.1.11 Heating control - Extended settings

Options:	No
	Yes

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

10.1.12 Basic stage heating

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

10.1.13 Basic stage heating - Status object heating

Options:	No
	Yes

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

10.1.14 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".

10.1.15 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%".

10.1.16 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".

10.1.17 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".

10.1.18 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".

10.1.19 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".

10.1.20 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".

10.1.21 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".

10.1.22 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).

10.1.23 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 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".

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

Options:	Setting option between 10 - 100

The P-component refers to the proportional 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 "Additional heating type" parameter must be set on "Free configuration".

10.1.25 Control of additional heating 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 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 "Additional heating type" parameter must be set on "Free configuration".

10.1.26 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.

10.1.27 Control of additional heating stage - Extended settings

Options:	No
	Yes

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

10.1.28 Additional heating stage

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

10.1.29 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.

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

10.1.30 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%".

10.1.31 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".

10.1.32 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".

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".

10.1.33 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".

10.1.34 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".

10.1.35 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).

10.1.36 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".

10.1.37 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".

10.1.38 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".

10.1.39 Cooling control - Extended settings

Options:	No

	Yes

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

10.1.40 Basic stage cooling

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

10.1.41 Basic stage cooling - Status object cooling

Options:	No
	Yes

This parameter enables the "Status cooling" communication object.

10.1.42 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".

10.1.43 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%".

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".

10.1.44 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".

10.1.45 Basic stage cooling - PWM cycle cooling (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“.

10.1.46 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".

10.1.47 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".

10.1.48 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).

10.1.49 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".

10.1.50 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".

10.1.51 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".

10.1.52 Control of additional cooling stage - Extended settings

Options:	No

	Yes

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

10.1.53 Additional cooling stage

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

10.1.54 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.

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

10.1.55 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%".

10.1.56 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".

10.1.57 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".

10.1.58 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".

10.1.59 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".

10.1.60 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".

10.1.61 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.

10.1.62 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".

10.1.63 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.

10.1.64 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".

10.1.65 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.

10.1.66 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".

10.1.67 Setpoint settings

Note

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

10.1.68 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".

10.1.69 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".

10.1.70 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".

10.1.71 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".

10.1.72 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".

10.1.73 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.

10.1.74 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".

10.1.75 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".

10.1.76 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".

10.1.77 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".

10.1.78 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".

10.1.79 Setpoint settings - Display indicates

Options:	Current setpoint
	Relative setpoint

The display can indicate either the absolute or relative setpoint value.

– *Current setpoint*: On devices with a display, the setpoint is shown as an absolute temperature, e.g. 21.0°C.

– *Relative setpoint*: On devices with display, the setpoint is indicated as a relative value, e.g. -5°C .. + 5°C.

10.1.80 Setpoint settings - Display indicates

Options:	Current setpoint
	Relative setpoint

The display can indicate either the absolute or relative setpoint value.

– *Current setpoint*: On devices with a display, the setpoint is shown as an absolute temperature, e.g. 21.0°C.

– *Relative setpoint*: On devices with display, the setpoint is indicated as a relative value, e.g. -5°C .. + 5°C.

10.1.81 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.

10.1.82 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".

10.1.83 Setpoint adjustment

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

10.1.84 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".

10.1.85 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".

10.1.86 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".

10.1.87 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".

10.1.88 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.

10.1.89 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.

10.1.90 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.

10.1.91 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.

10.1.92 Temperature reading - Inputs of temperature reading

Options:	Internal measurement
	External measurement
	Weighted measurement

The room temperature can be measured at the device or fed to the device by an object via the bus. In addition, weighted measuring is also available, in which the weighted average of up to three temperature values (1 x internal, 2 x external) is calculated and used as an input value for control.

10.1.93 Temperature reading - Inputs of weighted temperature reading

Options:	Internal and external measurement
	2 x external measurement
	Internal and 2x 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".

10.1.94 Temperature reading - Weighting of internal measurement (0 to 100%)

Options:	Setting option between 0 - 15

Specifies the weighting of the internal measurement at a level between 0% and 100%.

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

10.1.95 Temperature reading - Weighting of external measurement (0 to 100%)

Options:	Setting option between 0 - 15

Specifies the weighting of the external measurement at a level between 0% and 100%.

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

10.1.96 Temperature reading - Weighting of external measurement 2 (0 to 100%)

Options:	Setting option between 0 - 15

Specifies the weighting of the external measurement 2 at a level between 0% and 100%. When added together with the (0%...100%) weighting of the external measurement, the result must be 100%.

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

10.1.97 Temperature reading - Cyclic sending of the actual temperature (min)

Options:	Setting option between 5 - 240

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

10.1.98 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 parameterized difference between the measured actual temperature and the previous actual temperature that was sent, the changed value will be transmitted.

10.1.99 Temperature reading - Adjustment value for internal temperature measurement (x 0.1°C)

Options:	Setting option between 1 - 100

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

Note

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

10.1.100 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.

10.1.101 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".

10.1.102 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.

10.1.103 Alarm functions

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

10.1.104 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".

10.1.105 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".

10.1.106 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.

10.1.107 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.

10.1.108 Fan coil settings - 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".

10.1.109 Fan coil settings - 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.

10.1.110 Fan coil settings - 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.

10.1.111 Fan coil settings - 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.

10.1.112 Fan coil settings - 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.

10.1.113 Fan coil settings - 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.

10.1.114 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".

10.1.115 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".

10.1.116 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.

10.1.117 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.

10.1.118 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".

10.1.119 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".

10.1.120 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.

10.1.121 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.

10.1.122 Summer compensation

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

10.1.123 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.

10.1.124 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".

10.1.125 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".

10.1.126 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".

10.1.127 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".

10.2 Application "Control settings"

10.2.1 General – Jump-back to the primary function

Options:	5 s
	10 s
	20 s
	30 s
	1 min.
	2 min.
	3 min.

The parameter is used to specify the time period of non-operation after which there is a jump-back to the first function of the control element.

10.2.2 Temperature display – Temperature unit

Options:	°C
	°F

This is where the temperature unit is selected for the display on the device. The parameter is used to choose between Celsius (°C) and Fahrenheit (°F).

10.2.3 General - Setting the temperature unit via object

Options:	No
	Yes

The parameter is used to define whether the temperature unit adjustment is transmitted via an object.

10.2.4 General - Setpoint display

Options:	Absolute setpoint (e.g. 21°C)
	Relative setpoint (e.g. -5°C to +5°C)

The parameter is used to define whether the absolute or the relative setpoint is displayed.

10.2.5 General - Display of actual temperature

Options:	No
	Yes

If the actual temperature is to be shown on the display, the parameter must be set on active. The device will then primarily display the actual temperature. When actuating the control element the display changes to the setpoint adjustment. After non-actuation of the control element the current actual temperature again appears in the display after the set waiting period.

10.2.6 General - Waiting period for display of actual temperature

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

After non-actuation of the control element the current actual temperature again appears in the display after the set waiting period.

10.2.7 General - Display of actual temperature in eco mode

Options:	No
	Yes

If the actual temperature is to be shown in ECO mode on the display, the parameter must be set on active. The device will then primarily display the actual temperature. When actuating the control element the display changes to the setpoint adjustment. After non-actuation of the control element the current actual temperature again appears in the display after the set waiting period.

10.2.8 Brightness setting – Day/Night mode

Options:	No
	Yes

Via the activated communication object "Day/Night" the backlighting of the display is shown bright during day mode and darker during night mode.

Note
The operation only applies to the display. It does not apply to the backlighting of the buttons.

10.2.9 Brightness setting – Brightness of display backlighting

Options:	Dark
	Bright

This can be used to define the brightness of the display backlighting independent of day or night mode.

Note
This parameter is only available if the "Day/Night mode" parameter is set on "No".
The operation only applies to the display. It does not apply to the backlighting of the buttons.

10.2.10 Extended settings – Backlighting of icons

Options:	No
	Yes

This is used to define whether the icons are backlit or not.

10.2.11 Extended settings - Font type

Options:	Normal
	Filigree

Allows parameterization of the font type and font size of the display.

10.3 Communication objects - RTC

10.3.1 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.

10.3.2 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.

10.3.3 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.

10.3.4 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.

10.3.5 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.

10.3.6 Actual temperature

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

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

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

10.3.7 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.

10.3.8 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.

10.3.9 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.

10.3.10 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.

10.3.11 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.

10.3.12 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.

10.3.13 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.

10.3.14 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.

10.3.15 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.

10.3.16 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.

10.3.17 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.

10.3.18 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.

10.3.19 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.

10.3.20 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.

10.3.21 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.

10.3.22 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).

10.3.23 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).

10.3.24 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).

10.3.25 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).

10.3.26 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).

10.3.27 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.

10.3.28 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.

10.3.29 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.

10.3.30 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.

10.3.31 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.

10.3.32 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.

10.3.33 Fahrenheit

Number	Name	Object function	Data type
32	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.

10.3.34 Display backlighting

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

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

NOTE

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

10.3.35 On/Off request

Number	Name	Object function	Data type
34	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.

10.3.36 Setpoint display

Number	Name	Object function	Data type
35	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.

10.3.37 Request setpoint

Number	Name	Object function	Data type
36	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.

10.3.38 Confirm setpoint

Number	Name	Object function	Data type
37	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.

10.3.39 Heating/cooling request

Number	Name	Object function	Data type
38	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.

10.3.40 Request fan speed level manually

Number	Name	Object function	Data type
39	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.

10.3.41 Request fan speed level

Number	Name	Object function	Data type
40	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.

10.3.42 Confirm fan speed level

Number	Name	Object function	Data type
41	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.

10.3.43 Controller status RHCC

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

This communication object outputs the heating/cooling operating mode, 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.

10.3.44 Controller status HVAC

Number	Name	Object function	Data type
43	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.

10.3.45 Commissioned

Number	Name	Object function	Data type
44	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.

10.4 Communication objects "Control settings"

10.4.1 Day/Night mode

Number	Name	Object function	Data type
47	Day/Night mode	–	Switching

Description:

Via the activated communication object "Day/Night" the backlighting of the display is shown bright during day mode and darker during night mode.

Note: The operation only applies to the display. It does not apply to the backlighting of the buttons.

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