2CDC 508 179 D0201 | 24.11.2017

Product manual

ABB i-bus KNX®

LGS/A 1.2 Air Quality Sensor with RTC

Table of contents

1 Notes on the instruction manual

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

Please keep this manual in a safe place.

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

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

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

www.abb.com/knx

2 Safety

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

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

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

2.1 Information and symbols used

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

Danger

Risk of death / serious damage to health

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

Warning

Serious damage to health

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

Caution

Damage to health

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

Attention

Damage to property

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

NOTE

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

This symbol alerts to electric voltage.

2.2 Intended use

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

The device is intended for the following:

- controlling the quality of the room air,
- controlling the room temperature,
- determining/measuring the following values:
  - CO_2
  - relative humidity
  - temperature
  - air pressure
- operation according to the listed technical data,
- the installation in dry interior rooms.

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

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

Note

- The integrated bus coupler enables connection to a KNX bus line.
- Extensive functions are available for the device. For the range of applications, see chapter 10.1 “Application program“ on page 31.

2.3 Improper use

Each use not listed in Chapter 2.2 “Intended use“ on page 14 is deemed improper use and can lead to personal injury and damage to property.

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

The device is not intended for the following:

- Unauthorized structural changes
- Repairs
- Outdoor use
- The use in bathroom areas
- The control of the device serves for monitoring and regulating the quality of the air. It must not be used for safety-related tasks.

2.4 Target group / Qualifications of personnel

2.4.1 Operation

No special qualifications are needed to operate the device.

2.4.2 Installation, commissioning and maintenance

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

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

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

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

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

2.5 Safety instructions

Danger - Electric voltage!

Electric voltage! Risk of death and fire due to electric voltage of 100 … 240 V.

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

- Work on the 100 … 240 V supply system may only be performed by authorised and qualified electricians.
- Disconnect the mains power supply before installation / disassembly.
- Never use the device with damaged connecting cables.
- Do not open covers firmly bolted to the housing of the device.
- Use the device only in a technically faultless state.
- Do not make changes to or perform repairs on the device, on its components or its accessories.
- Keep the device away from water and wet surroundings.

Danger - Electric voltage!

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

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

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

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

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

Moisture and contamination can damage the device.

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

3 Information on protection of the environment

3.1 Environment

Consider the protection of the environment!

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

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

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

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

(EU Directive 2012/19/EU WEEE and 2011/65/EU RoHS)

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

4 Setup and function

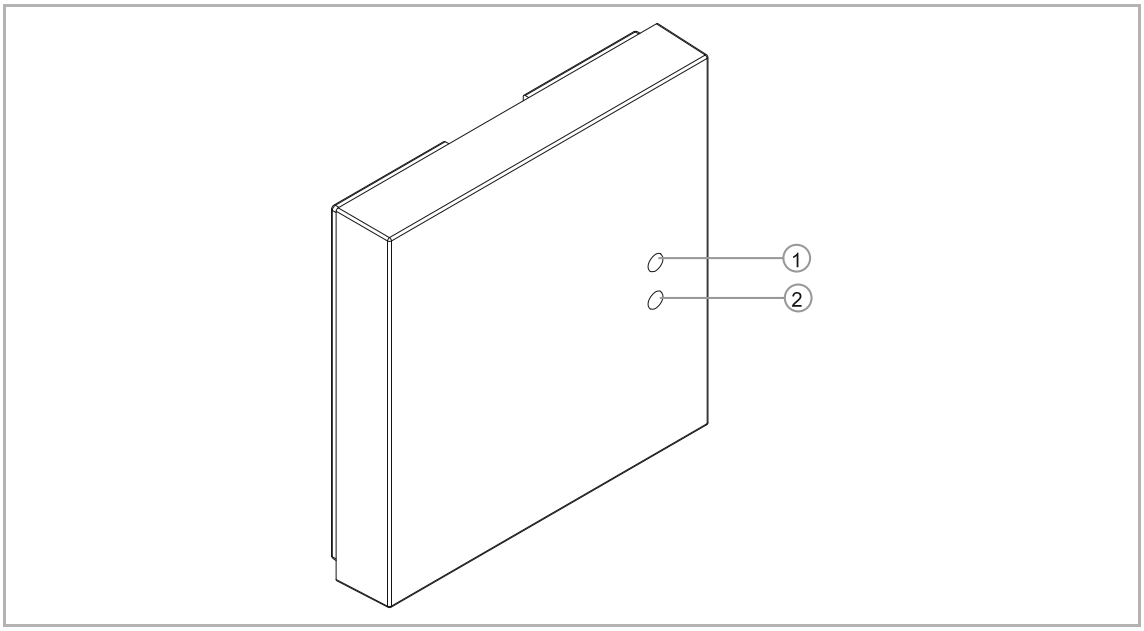


Fig. 1: Product overview

[1] LED of CO2 concentration

[2] LED of relative humidity

4.1 Functions

The device is a functional measuring device and is installed surface-mounted on the wall. As well as monitoring the air quality, it also offers the option of controlling room air conditioning.

The device measures the following values:

- CO_2 content of the air
- Relative humidity of the room
- Temperature
- Air pressure (absolute)

4.2 Sources of interference

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

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

5 Technical data

Designation	Value
Power supply:	24 V DC (via bus line)
KNX connection:	Bus connecting terminal, screwless
Bus subscribers:	1 (≤12 mA)
Temperature range:	-5°C to +45°C
Storage temperature:	-10°C to +60°C
Protection type:	IP 20
Protection class:	III
Dimensions:	80.5 mm x 80.5 mm x 17 mm (H x W x D).
Parameter setting:	Parameters are set using the ETS Tool Software.
Display values ▪ Carbon dioxide: ▪ Relative humidity: ▪ Temperature: ▪ Air pressure:	 390 ppm to 10000 ppm 0% - 100% 0°C to 35°C 300 hPa to 1100 hPa
Nominal current:	< 9 mA
Calibration:	Calibration: Automatic when the KNX voltage is connected
Mode of operation (DIN EN 60730-1)	See operating instructions
Degree of contamination (DIN EN 60730-1)	See operating instructions

Table 1: Technical data

6 Connection, installation / mounting

Danger - Electric voltage!

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

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

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

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

6.1 Installation site

For proper commissioning please observe the following points:

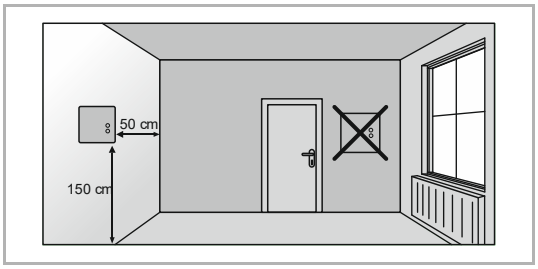


Fig. 2: Installation site - Distance

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

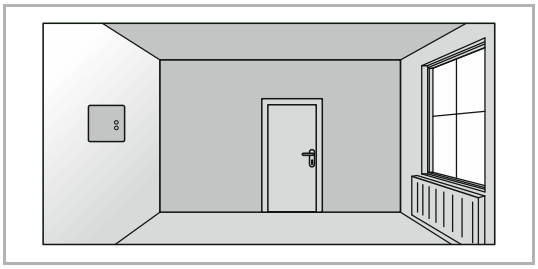


Fig. 3: Installation site – Position of radiator

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

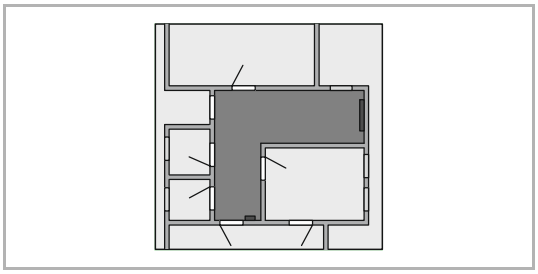


Fig. 4: Installation site - Room architecture

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

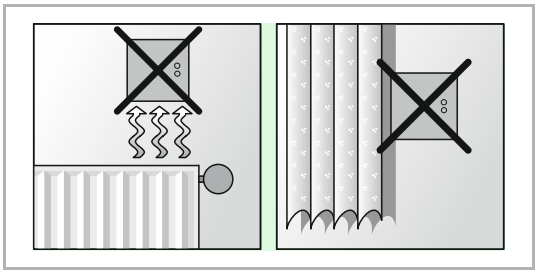


Fig. 5: Installation site – Position of RTC

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

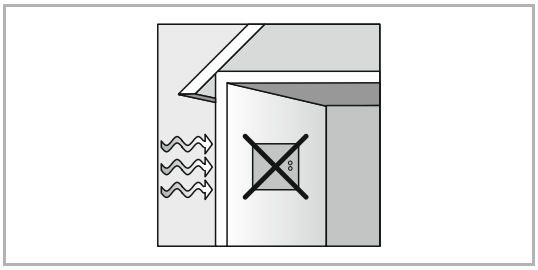


Fig. 6: Installation site - Exterior wall

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

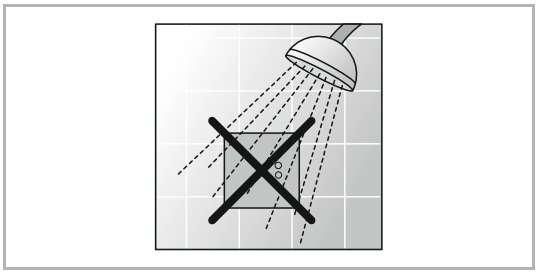


Fig. 7: Installation site – Wetting with fluids

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

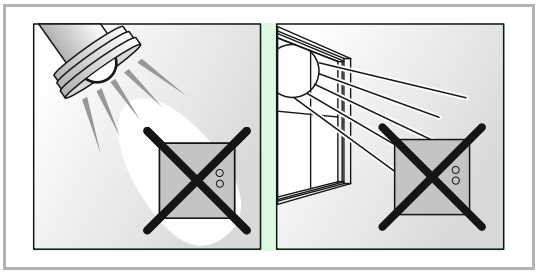


Fig. 8: Installation site – Direct sunlight

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

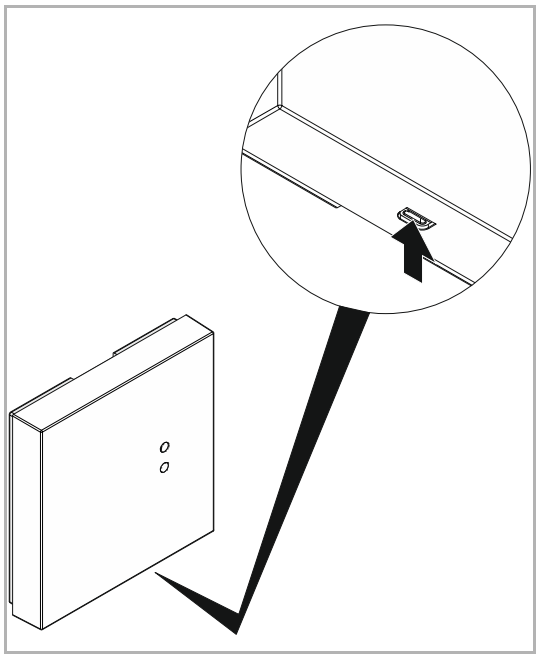
6.2 Mounting

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

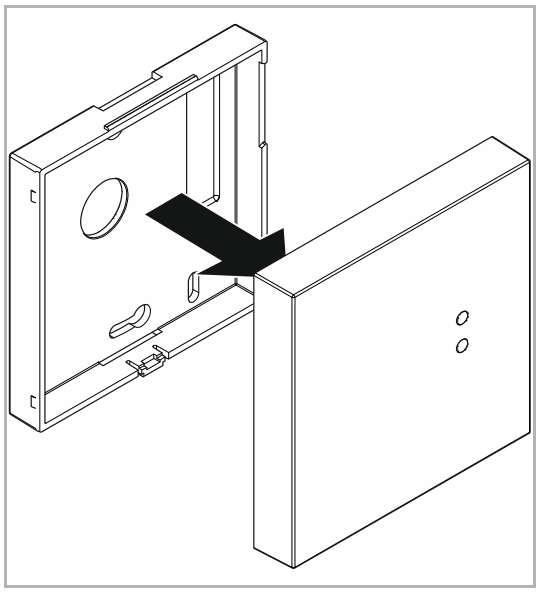
The plastic parts of the device are sensitive.

– Pull the cover of the housing off only with your hands.
– Do not lever parts off with screwdrivers or similar hard objects.

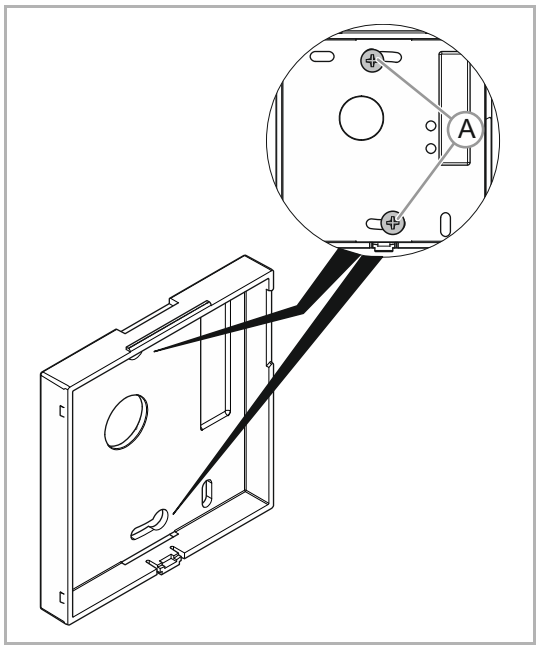
To install the device, perform the following steps:



1. Press the locking catch on the bottom of the device.

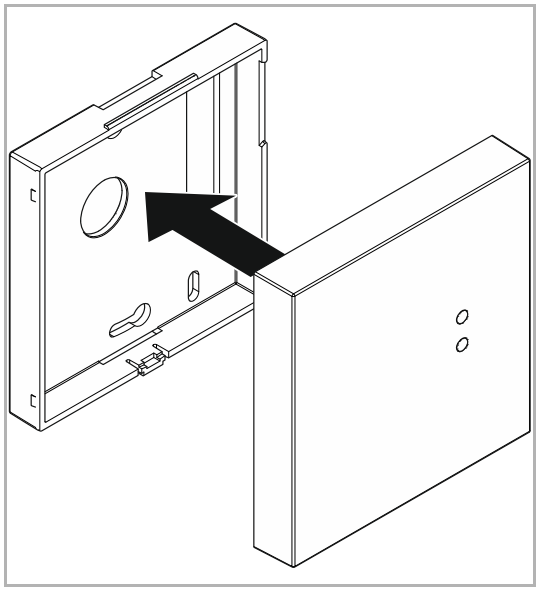


2. Pull the cover off the housing with both hands.



3. Screw the surface-mounted housing onto the wall with two screws [A].
4. Connect the cables to the surface-mounted housing.

– For the connection assignment, see chapter 6.3 “Electrical connection“ on page 26



5. Attach the housing cover to the surface-mounted housing.

6.3 Electrical connection

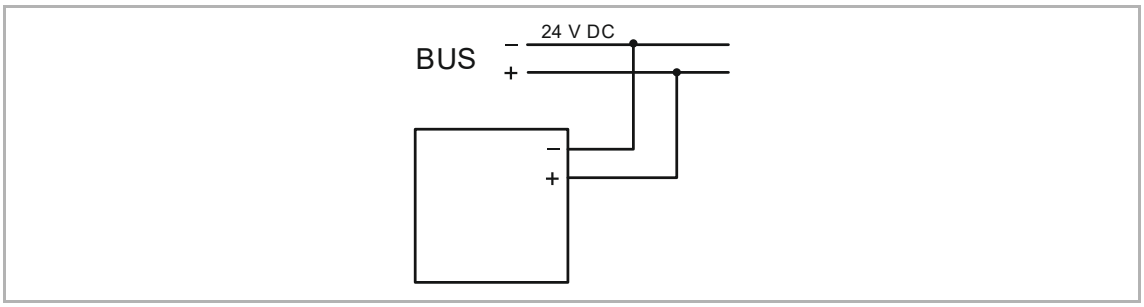


Fig. 9: Electrical connection

7 Commissioning

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

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

7.1.1 Preparation

1. Connect a PC to the KNX bus line via the KNX interface, e.g. via the commissioning interface / the commissioning adapter 6149/21).
   – The current Engineering Tool Software must be installed on the PC (ETS 4.2 or higher).
2. Switch on the bus voltage.

7.1.2 Assigning a physical address

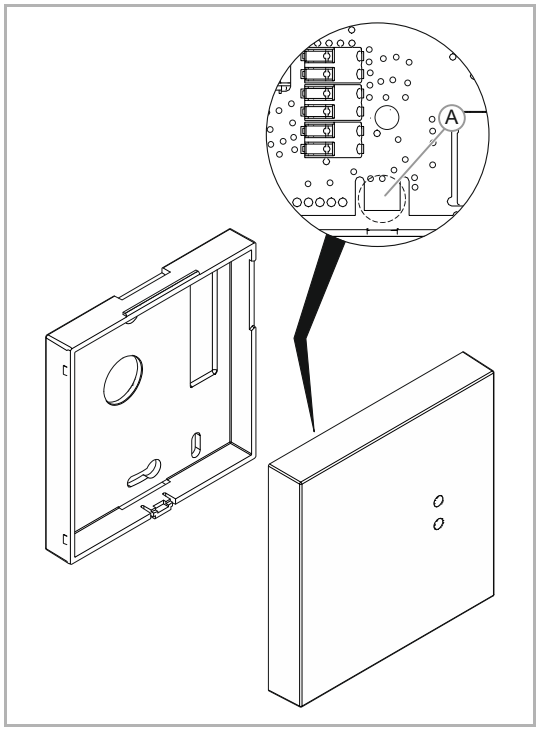


Fig. 10: Assigning a physical address

– To activate the programming mode, press the programming button [A] inside the housing.

7.1.3 Assigning the group address(es)

The group addresses are assigned in connection with the ETS.

7.1.4 Selecting the application program

The application is loaded into the device via the ETS.

7.1.5 Differentiating the application program

Various functions can be implemented via the ETS.

Detailed description of parameters, see chapter 10 “Description of application and parameters“ on page 31.

8 Operation

The LED on the front of the device can be used to display when certain CO2 and moisture levels have been exceeded. The thresholds can be programmed in the application program.

Two threshold values for CO2 and moisture can be specified in the application. The LED for the respective value lights up green as long as the values remain below the threshold.

If the value exceeds the first threshold but remains below the value of the second threshold, the LED lights up orange.

The LED lights up red as soon as the second threshold has been exceeded.

The LEDs can deactivated via the bus.

9 Maintenance

9.1 Cleaning

Caution! - Risk of damaging the device!

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

Clean dirty devices with a soft dry cloth.

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

10 Description of application and parameters

10.1 Application program

The following application program is available:

Application program
LGS/A 1.2: Air Quality Sensor with RTC

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

KNX application
Global settings
Room temperature controller
$C0_2$
Relative humidity
Temperature
Dew point
Air pressure

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

10.2 Global settings

10.2.1 Global settings — send "In operation"

Options:	Inactive
	Sends "0"
	Sends "1"

The "Send 'In operation'" communication object serves to inform the user that the controller is still in operation. This parameter defines which value the communication object "Send 'In operation'" sends as the "life signal".

10.2.2 Global settings — Cycle time [s] in operation

Options:	Setting option between 0 - 65535 seconds

The "In operation" communication object serves to inform you that the controller is still in operation. The value "1" or "0" is sent cyclically. This parameter is used to set the cycle for sending. If the cyclic telegram is not sent, 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 "Send 'In operation'" parameter is set to "Sends '0'" or "Sends '1.'"

10.2.3 Global settings — request status

Options:	Inactive
	Active

This parameter enables the "Request status" communication object.

10.2.4 Global settings — request status with

Options:	"0"
	"1"
	"0" and "1"

This parameter determines the value at which the current "In operation" status is requested.

Note
This parameter is only available if the "Request status" parameter is set to "Active".

10.2.5 Global settings — send delay after bus voltage recovery … in s

Options:	Setting option between 2 - 255 seconds

Using this parameter, the sending of the output value after bus voltage recovery can be delayed. This means a telegram will not be sent until a delay time expires.

10.3 Application "RTC"

10.3.1 General — Device function

Options:	Single device
	Master device

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

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

10.3.2 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.

10.3.3 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.

10.3.4 General — Additional functions

Options:	No
	Yes

– This parameter enables additional functions and communication objects.

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

Options:	Setting option between 5 - 3000 minutes

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

10.3.6 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".

10.3.7 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).

10.3.8 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".

10.3.9 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".

10.3.10 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".

10.3.11 Heating control — Extended settings

Options:	No
	Yes

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

10.3.12 Basic stage heating

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

10.3.13 Basic stage heating — Status object heating

Options:	No
	Yes

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

10.3.14 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".

10.3.15 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%".

10.3.16 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".

10.3.17 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".

10.3.18 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“.

10.3.19 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".

10.3.20 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".

10.3.21 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".

10.3.22 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).

10.3.23 Control of additional heating stage — Additional heating type

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

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

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

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

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

Options:	Setting option between 10 - 100

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

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

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

Options:	Setting option between 0 - 255

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

Note

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

10.3.26 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.

10.3.27 Control of additional heating stage — Extended settings

Options:	No
	Yes

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

10.3.28 Additional heating stage

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

10.3.29 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".

10.3.30 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%".

10.3.31 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".

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

Options:	Setting option between 1 - 60 minutes

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

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

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

Options:	Setting option between 0 - 255

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

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

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

Options:	Setting option between 0 - 255

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

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

10.3.35 Cooling control

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

10.3.36 Cooling control — Control value type

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

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

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

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

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

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

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

10.3.37 Cooling control — Cooling type

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

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

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

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

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

Options:	Setting option between 10 - 100

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

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

10.3.39 Cooling control — I-component (min.)

Options:	Setting option between 0 - 255

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

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

10.3.40 Cooling control — Extended settings

Options:	No
	Yes

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

10.3.41 Basic stage cooling

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

10.3.42 Basic stage cooling — Status object cooling

Options:	No
	Yes

This parameter enables the "Status cooling" communication object.

10.3.43 Basic stage cooling — Mode of the control value

Options:	Normal
	Inverse

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

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

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

Options:	Setting option between 3 - 255

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

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

10.3.45 Basic stage cooling - Control value difference for sending of cooling control value

Options:	2 %
	5 %
	10 %
	Send cyclic only

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

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

10.3.46 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".

10.3.47 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".

10.3.48 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".

10.3.49 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).

10.3.50 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".

10.3.51 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".

10.3.52 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".

10.3.53 Control of additional cooling stage — Extended settings

Options:	No
	Yes

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

10.3.54 Additional cooling stage

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

10.3.55 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".

10.3.56 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%".

10.3.57 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".

10.3.58 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".

10.3.59 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".

10.3.60 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".

10.3.61 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".

10.3.62 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.

10.3.63 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".

10.3.64 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.

10.3.65 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".

10.3.66 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.

10.3.67 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".

10.3.68 Setpoint settings

10.3.69 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".

10.3.70 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".

10.3.71 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".

10.3.72 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".

10.3.73 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".

10.3.74 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.

10.3.75 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".

10.3.76 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".

10.3.77 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".

10.3.78 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".

10.3.79 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".

10.3.80 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.

10.3.81 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.

10.3.82 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.

10.3.83 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".

10.3.84 Setpoint adjustment

10.3.85 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".

10.3.86 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".

10.3.87 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".

10.3.88 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".

10.3.89 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.

10.3.90 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.

10.3.91 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.

10.3.92 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.

10.3.93 Temperature reading

10.3.94 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.

10.3.95 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".

10.3.96 Temperature reading — Weighting of internal measurement (0 to 100%)

Options:	Setting option between 0 - 100

Specifying the weighting of the internal measurement from 0 to 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".

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

Options:	Setting option between 0 - 100

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

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

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

Options:	Setting option between 0 - 100

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

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

10.3.99 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.

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

Options:	Setting option between 1 - 100

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

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

10.3.101 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".

10.3.102 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.

10.3.103 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".

10.3.104 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.

10.3.105 Alarm functions

10.3.106 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".

10.3.107 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".

10.3.108 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.

10.3.109 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.

10.3.110 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".

10.3.111 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.

10.3.112 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.

10.3.113 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.

10.3.114 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.

10.3.115 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.

10.3.116 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".

10.3.117 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".

10.3.118 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.

10.3.119 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.

10.3.120 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".

10.3.121 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".

10.3.122 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.

10.3.123 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.

10.3.124 Summer compensation

10.3.125 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.

10.3.126 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".

10.3.127 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".

10.3.128 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".

10.3.129 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".

10.4 "CO2" application

10.4.1 CO2 — CO2 sensor

Options:	**Inactive**
	Active

The parameter activates the CO_2 sensor. The corresponding communication objects are displayed in ETS.

10.4.2 CO2 — measured value correction

Options:	500 ppm
	450 ppm
	400 ppm
	350 ppm
	300 ppm
	250 ppm
	200 ppm
	150 ppm
	100 ppm
	50 ppm
	0 ppm
	-50 ppm
	-100 ppm
	-150 ppm
	-200 ppm
	-250 ppm
	-300 ppm
	-350 ppm
	-400 ppm
	-450 ppm
	-500 ppm

The measured CO_2 value can be corrected using the parameter. The corrected value is displayed on the device and sent to the KNX bus.

10.4.3 CO2 — CO2 sensor error

Options:	Message
	Do not send message

If an error is detected on the sensor, it can be sent to the KNX.

10.4.4 CO2 — sent CO2 value in case of change (mm:ss)

Options:	Inactive
	In case of a change of 10 ppm
	In case of a change of 20 ppm
	In case of a change of 50 ppm
	In case of a change of 100 ppm
	In case of a change of 150 ppm
	In case of a change of 200 ppm
	In case of a change of 250 ppm
	In case of a change of 300 ppm
	In case of a change of 350 ppm
	In case of a change of 400 ppm
	In case of a change of 450 ppm
	In case of a change of 500 ppm

A parameter is used to determined when a change should be actively sent to the KNX bus. The telegram load can be reduced by the setting.

10.4.5 CO2 — cyclically send the CO2 value

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If you wish to send the CO2 value cyclically through the corresponding KNX communication object, a corresponding time must be selected here.

10.4.6 CO2 — external measured value

Options:	Active
	Inactive

An additional external measured value can be used in the measurement, as well.

10.4.7 CO2 — share

Options:	Include in calculation at 10%
	Include in calculation at 20%
	Include in calculation at 30%
	Include in calculation at 40%
	Include in calculation at 50%
	Include in calculation at 60%
	Include in calculation at 70%
	Include in calculation at 80%
	Include in calculation at 90%
	Only use external measured value

The share of the weighting of the measured value integrated through a KNX communication object is defined using this parameter.

10.4.8 CO2 — CO2 threshold 1 (LED orange)

Options:	400 ppm
	450 ppm
	500 ppm
	550 ppm
	600 ppm
	650 ppm
	700 ppm
	750 ppm
	800 ppm
	850 ppm
	900 ppm
	950 ppm
	1000 ppm
	1050 ppm
	1100 ppm
	1150 ppm
	1200 ppm
	1250 ppm
	1300 ppm
	1350 ppm
	1400 ppm
	1450 ppm
	1500 ppm

This parameter is used to set the threshold value from which the LED switches over to orange on the front of the device to indicate the CO2 value. If the CO2 value remains below this threshold value, the LED lights up green.

10.4.9 CO2 — CO2 threshold 2 (LED red)

Options:	Same as threshold 1
	Threshold 1+50 ppm
	Threshold 1+100 ppm
	Threshold 1+150 ppm
	Threshold 1+200 ppm
	Threshold 1+250 ppm
	Threshold 1+300 ppm
	Threshold 1+350 ppm
	Threshold 1+400 ppm
	Threshold 1+450 ppm
	Threshold 1+500 ppm
	Threshold 1+550 ppm
	Threshold 1+600 ppm
	Threshold 1+650 ppm
	Threshold 1+700 ppm
	Threshold 1+750 ppm
	Threshold 1+800 ppm
	Threshold 1+850 ppm
	Threshold 1+900 ppm
	Threshold 1+950 ppm
	Threshold 1+1000 ppm

This parameter is used to set the threshold value from which the LED switches over to red on the front of the device to indicate the CO2 value. If the CO2 value remains below this threshold value and above threshold value 1, the LED lights up orange.

10.4.10 CO2 — CO2 controller type

Options:	Inactive
	Single-stage
	Two-stage
	Three-stage
	PI

The control type for actuating the external fan is defined using this parameter.

10.4.11 CO2 — permit change of the basic set value through the bus

Options:	No
	Yes

The basic set value defined for the first threshold can be optimised through the KNX bus, e.g., through a visualisation.

10.4.12 CO2 — control value output format

Options:	Switch command
	Priority
	percent
	Byte
	Scene

The output value when the respective threshold is exceeded or undershot is defined using this parameter.

10.4.13 CO2 — send control value at switchover

Options:	Inactive
	Active

At each change in status between ON and OFF, the corresponding control value is sent.

10.4.14 CO2 — send control value at switchover

Options:	Inactive
	In case of a change of 1%
	In case of a change of 2%
	In case of a change of 3%
	In case of a change of 4%
	In case of a change of 5%
	In case of a change of 6%
	In case of a change of 7%
	In case of a change of 8%
	In case of a change of 9%
	In case of a change of 10%
	In case of a change of 11%
	In case of a change of 12%
	In case of a change of 13%
	In case of a change of 14%
	In case of a change of 15%
	In case of a change of 16%
	In case of a change of 17%
	In case of a change of 18%
	In case of a change of 19%
	In case of a change of 20%
	In case of a change of 21%
	In case of a change of 22%
	In case of a change of 23%
	In case of a change of 24%
	In case of a change of 25%

The control value is sent after a defined percentage change. If this is not desired, the parameter must be accordingly set to "inactive".

10.4.15 CO2 — send control value at switchover

Options:	Inactive
	In case of a change of 1
	In case of a change of 2
	In case of a change of 5
	In case of a change of 10
	In case of a change of 15
	In case of a change of 20
	In case of a change of 25
	In case of a change of 30
	In case of a change of 35
	In case of a change of 40
	In case of a change of 45
	In case of a change of 50

The control value is sent after a defined value change. If this is not desired, the parameter must be accordingly set to "inactive".

10.4.16 CO2 — cyclically send control value

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If you wish to send the control value cyclically through the corresponding KNX communication object, the corresponding time must be selected.

10.4.17 CO2 — hysteresis (symmetrical)

Options:	50 ppm
	100 ppm
	150 ppm
	200 ppm
	250 ppm
	300 ppm

The basic set value has a hysteresis. If the parameterised hysteresis value is exceeded/undershot, the corresponding value is sent.

10.4.18 CO2 — CO2 threshold 1

Options:	400 ppm
	450 ppm
	500 ppm
	550 ppm
	600 ppm
	650 ppm
	700 ppm
	750 ppm
	800 ppm
	850 ppm
	900 ppm
	950 ppm
	1000 ppm
	1050 ppm
	1100 ppm
	1150 ppm
	1200 ppm
	1250 ppm
	1300 ppm
	1350 ppm
	1400 ppm
	1450 ppm
	1500 ppm

The first basic value from which a reaction should be triggered, e.g., "Fan speed level 1" is defined through threshold 1.

10.4.19 CO2 — switch command below threshold 1

Options:	Off
	One

The parameter defines which state should be sent after threshold value 1 is undershot.

10.4.20 CO2 — switch command above threshold 1

Options:	Off
	One

The parameter defines which state should be sent after threshold value 1 is exceeded.

10.4.21 CO2 — control value at measurement failure

Options:	Off
	One

If the internal or external measurement malfunctions or fails, a defined switch command can be sent through this parameter.

10.4.22 CO2 — priority below threshold 1

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 1 is undershot.

10.4.23 CO2 — priority above threshold 1

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 1 is exceeded.

10.4.24 CO2 — control value at measurement failure

Options:	End priority
	OFF with priority
	ON with priority

If the internal or external measurement malfunctions or fails, a defined switch command can be sent through this parameter.

10.4.25 CO2 — blocking object

Options:	Inactive
	Active

The complete function of the CO2 sensor can be blocked using this parameter and the corresponding communication object. Deactivation takes place by setting a value of 0.

10.4.26 CO2 — CO2 threshold 2

Options:	Same as threshold 1
	Threshold 1+50 ppm
	Threshold 1+100 ppm
	Threshold 1+150 ppm
	Threshold 1+200 ppm
	Threshold 1+250 ppm
	Threshold 1+300 ppm
	Threshold 1+350 ppm
	Threshold 1+400 ppm
	Threshold 1+450 ppm
	Threshold 1+500 ppm
	Threshold 1+550 ppm
	Threshold 1+600 ppm
	Threshold 1+650 ppm
	Threshold 1+700 ppm
	Threshold 1+750 ppm
	Threshold 1+800 ppm
	Threshold 1+850 ppm
	Threshold 1+900 ppm
	Threshold 1+950 ppm
	Threshold 1+1000 ppm

The parameterised value of threshold 2 from which a reaction should be triggered, e.g., "Fan speed level 2", is added to threshold 1 (basic value).

10.4.27 CO2 — switch command below threshold 2

Options:	Off
	One

The parameter defines which state should be sent after threshold value 2 is undershot.

10.4.28 CO2 — switch command above threshold 2

Options:	Off
	One

The parameter defines which state should be sent after threshold value 2 is exceeded.

10.4.29 CO2 — control value at measurement failure

Options:	Off
	One

If the internal or external measurement malfunctions or fails, a defined switch command can be sent through this parameter.

10.4.30 CO2 — priority below threshold 2

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 2 is undershot.

10.4.31 CO2 — priority above threshold 2

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 2 is exceeded.

10.4.32 CO2 — control value at measurement failure

Options:	End priority
	OFF with priority
	ON with priority

If the internal or external measurement malfunctions or fails, a defined switch command can be sent through this parameter.

10.4.33 CO2 — CO2 threshold 3

Options:	Same as threshold 2
	Threshold 2+50 ppm
	Threshold 2+100 ppm
	Threshold 2+150 ppm
	Threshold 2+200 ppm
	Threshold 2+250 ppm
	Threshold 2+300 ppm
	Threshold 2+350 ppm
	Threshold 2+400 ppm
	Threshold 2+450 ppm
	Threshold 2+500 ppm
	Threshold 2+550 ppm
	Threshold 2+600 ppm
	Threshold 2+650 ppm
	Threshold 2+700 ppm
	Threshold 2+750 ppm
	Threshold 2+800 ppm
	Threshold 2+850 ppm
	Threshold 2+900 ppm
	Threshold 2+950 ppm
	Threshold 2+1000 ppm

The parameterised value of threshold 3 from which a reaction should be triggered, e.g., "Fan speed level 3", is added to threshold 1 (basic value) and threshold 2.

10.4.34 CO2 — switch command below threshold 3

Options:	Off
	One

The parameter defines which state should be sent after threshold value 3 is undershot.

10.4.35 CO2 — switch command above threshold 3

Options:	Off
	One

The parameter defines which state should be sent after threshold value 3 is exceeded.

10.4.36 CO2 — control value at measurement failure

Options:	Off
	One

If the internal or external measurement malfunctions or fails, a defined switch command can be sent through this parameter.

10.4.37 CO2 — priority below threshold 3

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 3 is undershot.

10.4.38 CO2 — priority above threshold 3

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 3 is exceeded.

10.4.39 CO2 — control value at measurement failure

Options:	End priority
	OFF with priority
	ON with priority

If the internal or external measurement malfunctions or fails, a defined switch command can be sent through this parameter.

10.4.40 CO2 — percentage below threshold 1

Options:	0-100

The parameter defines which value should be sent after threshold value 1 is undershot.

10.4.41 CO2 — value below threshold 1 (-255)

Options:	0-255

The parameter defines which value should be sent after threshold value 2 is exceeded.

10.4.42 CO2 — percentage

Options:	0-100

The parameter defines which value should be sent after threshold value 2 is undershot.

10.4.43 CO2 — value

Options:	0-255

The parameter defines which value should be sent after threshold value 2 is exceeded.

10.4.44 CO2 — percentage

Options:	0-100

The parameter defines which value should be sent after threshold value 3 is undershot.

10.4.45 CO2 — value

Options:	0-255

The parameter defines which value should be sent after threshold value 3 is exceeded.

10.4.46 CO2 — control value in case of lack of measured values

Options:	0%
	5%
	10%
	15%
	20%
	25%
	30%
	35%
	40%
	45%
	50%
	55%
	60%
	65%
	70%
	75%
	80%
	85%
	90%
	95%
	100%

If the internal or external measurement malfunctions or fails, a defined value can be sent through this parameter.

10.4.47 CO2 — proportional range

Options:	100 ppm
	200 ppm
	300 ppm
	400 ppm
	500 ppm
	600 ppm
	800 ppm
	1000 ppm
	1200 ppm
	1400 ppm
	1600 ppm
	1800 ppm
	2000 ppm

In case of a PI controller for the control of a fan, for example, the P-component of the controller can be influenced by the set values.

10.4.48 CO2 — readjust time (15…240 min)

Options:	15-240

In case of a PI controller for the control of a fan, for example, the I-component of the controller can be influenced by the set values.

10.4.49 CO2 — minimum control value

Options:	0%
	5%
	10%
	15%
	20%
	25%
	30%
	35%
	40%
	45%
	50%
	55%
	60%
	65%
	70%
	75%
	80%
	85%
	90%
	95%

The parameter can be used to influence the control value for controlling the fan or ventilation valve, for example.

In the process, the ventilation valve can be prevented from closing with a value greater than 0%.

10.4.50 CO2 — maximum control value

Options:	5%
	10%
	15%
	20%
	25%
	30%
	35%
	40%
	45%
	50%
	55%
	60%
	65%
	70%
	75%
	80%
	85%
	90%
	95%
	100%

The parameter can be used to influence the control value for controlling the fan or ventilation valve, for example.

The maximum limit can be used to influence the ventilation valve directly, for example, so that a complete opening of the ventilation valve can be limited.

10.5 "Relative humidity" application

10.5.1 Humidity — relative humidity sensor

Options:	Inactive
	Active

The parameter activates the relative humidity sensor. The corresponding communicaiton objects are displayed in ETS.

10.5.2 Humidity — measured value correction (offset)

Options:	-5%
	-4%
	-3%
	-2%
	-1%
	0%
	1%
	2%
	3%
	4%
	5%

The measured humidity value can be corrected using the parameter. The corrected value is displayed on the device and sent to the KNX bus.

10.5.3 Humidity — humidity sensor error

Options:	Message
	Do not send message

If an error is detected on the sensor, it can be sent to the KNX.

10.5.4 Humidity — send relative humidity in case of change

Options:	Inactive
	In case of a change of 1%RH
	In case of a change of 2%RH
	In case of a change of 3%RH
	In case of a change of 4%RH
	In case of a change of 5%RH
	In case of a change of 6%RH
	In case of a change of 7%RH
	In case of a change of 8%RH
	In case of a change of 9%RH
	In case of a change of 10%RH
	In case of a change of 11%RH
	In case of a change of 12%RH
	In case of a change of 13%RH
	In case of a change of 14%RH
	In case of a change of 15%RH
	In case of a change of 16%RH
	In case of a change of 17%RH
	In case of a change of 18%RH
	In case of a change of 19%RH
	In case of a change of 20%RH
	In case of a change of 21%RH
	In case of a change of 22%RH
	In case of a change of 23%RH
	In case of a change of 24%RH
	In case of a change of 25%RH

A parameter is used to determined when a change should be actively sent to the KNX bus. The telegram load can be reduced by the setting.

10.5.5 Humidity — cyclically send relative humidity

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If you wish to send the humidity cyclically through the corresponding KNX communication object, the corresponding time must be selected.

10.5.6 Humidity — external measured value

Options:	Inactive
	Active

An additional external measured value can be used in the measurement, as well.

10.5.7 Humidity — share

Options:	Include in calculation at 10%
	Include in calculation at 20%
	Include in calculation at 30%
	Include in calculation at 40%
	Include in calculation at 50%
	Include in calculation at 60%
	Include in calculation at 70%
	Include in calculation at 80%
	Include in calculation at 90%
	Only use external measured value

The share of the weighting of and external measured value integrated through a KNX communication object is defined using this parameter.

10.5.8 Humidity — controller type

Options:	Inactive
	Single-stage
	Two-stage
	Three-stage
	PI

The control type for actuating the external fan is defined using this parameter.

10.5.9 Humidity — permit change of the basic set value through the bus

Options:	No
	Yes

The basic set value defined for the first threshold can be optimised through the KNX bus, e.g., through a visualisation.

10.5.10 Humidity — control value output format

Options:	Switch command
	Priority
	percent
	Byte
	Scene

The output value when the respective threshold is exceeded or undershot is defined using this parameter.

10.5.11 Humidity — send control value at switchover

Options:	Inactive
	Active

At each change in status between "inactive" and "active", the corresponding control value is sent.

10.5.12 Humidity — send control value at switchover

Options:	Inactive
	In case of a change of 1%
	In case of a change of 2%
	In case of a change of 3%
	In case of a change of 4%
	In case of a change of 5%
	In case of a change of 6%
	In case of a change of 7%
	In case of a change of 8%
	In case of a change of 9%
	In case of a change of 10%
	In case of a change of 11%
	In case of a change of 12%
	In case of a change of 13%
	In case of a change of 14%
	In case of a change of 15%
	In case of a change of 16%
	In case of a change of 17%
	In case of a change of 18%
	In case of a change of 19%
	In case of a change of 20%
	In case of a change of 21%
	In case of a change of 22%
	In case of a change of 23%
	In case of a change of 24%
	In case of a change of 25%

The control value is sent after a defined percentage change. If this is not desired, the parameter must be accordingly set to "inactive".

10.5.13 Humidity — send control value at switchover

Options:	Inactive
	In case of a change of 1
	In case of a change of 2
	In case of a change of 5
	In case of a change of 10
	In case of a change of 15
	In case of a change of 20
	In case of a change of 25
	In case of a change of 30
	In case of a change of 35
	In case of a change of 40
	In case of a change of 45
	In case of a change of 50

The control value is sent after a defined value change. If this is not desired, the parameter must be accordingly set to "inactive".

10.5.14 Humidity — cyclically send control value

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If you wish to send the control value cyclically through the corresponding KNX communication object, the corresponding time must be selected.

10.5.15 Humidity — hysteresis (symmetrical)

Options:	1%
	2%
	3%
	4%
	5%
	6%
	7%
	8%
	9%
	10%

The basic set value has a hysteresis. If the parameterised hysteresis value is exceeded/undershot, the corresponding value is sent.

10.5.16 Humidity — RH of threshold 1

Options:	20%
	21%
	22%
	23%
	24%
	25%
	26%
	27%
	28%
	29%
	30%
	31%
	32%
	33%
	34%
	35%
	36%
	37%
	38%
	39%
	40%
	41%
	42%
	43%
	44%
	45%
	46%
	47%
	48%
	49%
	50%

The first basic value from which a reaction should be triggered, e.g., "Fan speed level 1" is defined through threshold 1.

10.5.17 Humidity — switch command below threshold 1

Options:	Off
	One

The parameter defines which state should be sent after threshold value 1 is undershot.

10.5.18 Humidity — switch command above threshold 1

Options:	Off
	One

The parameter defines which state should be sent after threshold value 1 is exceeded.

10.5.19 Humidity — control value at measurement failure

Options:	Off
	One

If the internal or external measurement malfunctions or fails, a defined switch command can be sent through this parameter.

10.5.20 Humidity — priority below threshold 1

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 1 is undershot.

10.5.21 Humidity — priority below threshold 1

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 1 is exceeded.

10.5.22 Humidity — control value at measurement failure

Options:	End priority
	OFF with priority
	ON with priority

If the internal or external measurement malfunctions or fails, a defined switch command can be sent through this parameter.

10.5.23 Humidity — blocking object

Options:	Inactive
	Active

The complete function of the humidity sensor can be blocked using this parameter and the corresponding communication object. Deactivation takes place by setting a value of 0.

10.5.24 Humidity — RH of threshold 2

Options:	Same as threshold 1
	Threshold 1+1%
	Threshold 1+2%
	Threshold 1+3%
	Threshold 1+4%
	Threshold 1+5%
	Threshold 1+6%
	Threshold 1+7%
	Threshold 1+8%
	Threshold 1+9%
	Threshold 1+10%
	Threshold 1+11%
	Threshold 1+12%
	Threshold 1+13%
	Threshold 1+14%
	Threshold 1+15%
	Threshold 1+16%
	Threshold 1+17%
	Threshold 1+18%
	Threshold 1+19%
	Threshold 1+20%
	Threshold 1+21%
	Threshold 1+22%
	Threshold 1+23%
	Threshold 1+24%
	Threshold 1+25%
	Threshold 1+26%
	Threshold 1+27%
	Threshold 1+28%
	Threshold 1+29%
	Threshold 1+30%

The parameterised value of threshold 2 from which a reaction should be triggered, e.g., "Fan speed level 2", is added to threshold 1 (basic value).

10.5.25 Humidity — switch command below threshold 2

Options:	Off
	One

The parameter defines which state should be sent after threshold value 2 is undershot.

10.5.26 Humidity — switch command above threshold 2

Options:	Off
	One

The parameter defines which state should be sent after threshold value 2 is exceeded.

10.5.27 Humidity — RH of threshold 3

Options:	Same as threshold 2
	Threshold 2+1%
	Threshold 2+2%
	Threshold 2+3%
	Threshold 2+4%
	Threshold 2+5%
	Threshold 2+6%
	Threshold 2+7%
	Threshold 2+8%
	Threshold 2+9%
	Threshold 2+10%
	Threshold 2+11%
	Threshold 2+12%
	Threshold 2+13%
	Threshold 2+14%
	Threshold 2+15%
	Threshold 2+16%
	Threshold 2+17%
	Threshold 2+18%
	Threshold 2+19%
	Threshold 2+20%
	Threshold 2+21%
	Threshold 2+22%
	Threshold 2+23%
	Threshold 2+24%
	Threshold 2+25%
	Threshold 2+26%
	Threshold 2+27%
	Threshold 2+28%
	Threshold 2+29%
	Threshold 2+30%

The parameterised value of threshold 3 from which a reaction should be triggered, e.g., "Fan speed level 3", is added to threshold 1 (basic value) and threshold 2.

10.5.28 Humidity — switch command below threshold 3

Options:	Off
	One

The parameter defines which state should be sent after threshold value 3 is undershot.

10.5.29 Humidity — switch command above threshold 3

Options:	Off
	One

The parameter defines which state should be sent after threshold value 3 is exceeded.

10.5.30 Humidity — priority below threshold 3

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 3 is undershot.

10.5.31 Humidity — priority below threshold 3

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 3 is exceeded.

10.5.32 Humidity — set value (10…95% RH)

Options:	10-95

The parameter defines which value should be sent after threshold value 3 is undershot should be sent and/or when the value is below this threshold value.

10.5.33 Humidity — proportional range (10…40% RH)

Options:	10-40

The parameter defines which value should be sent after threshold value 3 is exceeded and/or when the value is above this threshold value.

10.5.34 Humidity — readjust time (15…240 min)

Options:	15-240

The first basic value from which a reaction should be triggered, e.g., "Fan speed level 1" is defined through threshold 3.

10.5.35 Humidity — minimum control value

Options:	0%
	5%
	10%
	15%
	20%
	25%
	30%
	35%
	40%
	45%
	50%
	55%
	60%
	65%
	70%
	75%
	80%
	85%
	90%
	95%

The parameter defines which value should be sent after threshold value 3 is undershot should be sent and/or when the value is below this threshold value.

10.5.36 Humidity — maximum control value

Options:	5%
	10%
	15%
	20%
	25%
	30%
	35%
	40%
	45%
	50%
	55%
	60%
	65%
	70%
	75%
	80%
	85%
	90%
	95%
	100%

The parameter defines which value should be sent after threshold value 3 is exceeded and/or when the value is above this threshold value.

10.5.37 Humidity — control value in case of lack of measured values

Options:	0%
	5%
	10%
	15%
	20%
	25%
	30%
	35%
	40%
	45%
	50%
	55%
	60%
	65%
	70%
	75%
	80%
	85%
	90%
	95%
	100%

The parameterised value of threshold 3 from which a reaction should be triggered, e.g., "Fan speed level 3", is added to threshold 1 (basic value).

10.5.38 Humidity — minimum control value

Options:	0
	10
	20
	30
	40
	50
	60
	70
	80
	90
	100
	110
	120
	130
	140
	150
	160
	170
	180
	190
	200
	210
	220
	230
	240
	250

The parameter defines which value should be sent after threshold value 3 is undershot should be sent and/or when the value is below this threshold value.

10.5.39 Humidity — maximum control value

Options:	10
	20
	30
	40
	50
	60
	70
	80
	90
	100
	110
	120
	130
	140
	150
	160
	170
	180
	190
	200
	210
	220
	230
	240
	250
	255

The parameter defines which value should be sent after threshold value 3 is exceeded and/or when the value is above this threshold value.

10.5.40 Humidity — control value in case of lack of measured values (0...255)

Options:	0-255

If the internal or external measurement malfunctions or fails, a defined value can be sent through this parameter.

10.6 Application "Temperature"

10.6.1 Temperature — temperature sensor

Options:	Inactive
	Active

The parameter activates the temperature sensor. The corresponding communication objects are displayed in ETS.

10.6.2 Temperature — measured value correction [0.1K], (-5K….+5K)

Options:	-50 … 50

The measured temperature value can be corrected using the parameter. The corrected value is displayed on the device and sent to the KNX bus.

10.6.3 Temperature — temperature controller error

Options:	Message
	Do not send message

If an error is detected on the sensor, it can be sent to the KNX.

10.6.4 Temperature — send temperature in case of change

Options:	Inactive
	In case of a change of 0.1K
	In case of a change of 0.2K
	In case of a change of 0.5K
	In case of a change of 1.0K
	In case of a change of 1.5K
	In case of a change of 2.0K
	In case of a change of 2.5K
	In case of a change of 3.0K
	In case of a change of 3.5K
	In case of a change of 4.0K
	In case of a change of 4.5K
	In case of a change of 5.0K
	In case of a change of 6.0K
	In case of a change of 7.0K
	In case of a change of 8.0K
	In case of a change of 9.0K
	In case of a change of 10K

A parameter is used to determined when a change should be actively sent to the KNX bus. The telegram load can be reduced by the setting.

10.6.5 Temperature — cyclically send temperature

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If you wish to send the temperature cyclically through the corresponding KNX communication object, the corresponding time must be selected.

10.6.6 Temperature — external measured value

Options:	Inactive
	Active

An additional external measured value can be used in the measurement, as well.

10.7 Application "Dew Point"

10.7.1 Dew point — dew point sensor

Options:	Inactive
	Active

The parameter activates the dew point sensor. The corresponding communication objects are displayed in ETS.

10.7.2 Dew point — send dew point temperature in case of change

Options:	Inactive
	In case of a change of 0.1K
	In case of a change of 0.2K
	In case of a change of 0.5K
	In case of a change of 1.0K
	In case of a change of 1.5K
	In case of a change of 2.0K
	In case of a change of 2.5K
	In case of a change of 3.0K
	In case of a change of 3.5K
	In case of a change of 4.0K
	In case of a change of 4.5K
	In case of a change of 5.0K
	In case of a change of 6.0K
	In case of a change of 7.0K
	In case of a change of 8.0K
	In case of a change of 9.0K
	In case of a change of 10K

A parameter is used to determined when a change should be actively sent to the KNX bus. The telegram load can be reduced by the setting.

10.7.3 Dew point — cyclically send dew point temperature

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If you wish to send the dew point temperature cyclically through the corresponding KNX communication object, the corresponding time must be selected.

10.7.4 Dew point — dew point alarm

Options:	Active
	Inactive

If an alarm is sent when the parameterised dew point is exceeded, the parameter must be set to "active". A corresponding communication object is displayed in ETS in parallel.

10.7.5 Dew point — dew point alarm advance

Options:	Without
	1K
	2K
	3K
	4K
	5K

If the alarm is triggered before the dew point is reached, the advance can be set using this parameter. In this way, for example, a fan can be activated before the dew point alarm is reached so that the alarm case is delayed or does not even occur.

10.7.6 Dew point — Dew point alarm hysteresis (symmetrical)

Options:	Without hysteresis
	1K hysteresis
	2K hysteresis
	3K hysteresis
	4K hysteresis
	5K hysteresis

The basic set value has a hysteresis. If the parameterised hysteresis value is exceeded/undershot, the corresponding value is sent.

10.7.7 Dew point — send dew point alarm at status change

Options:	Active
	Inactive

If a changed value/status is present, it can be activated and sent to the KNX bus through the corresponding communication object.

10.7.8 Dew point — cyclically send dew point alarm

Options:	Active
	Inactive

If the current alarm should be sent cyclically through the corresponding KNX communication object, the corresponding time must be selected here.

10.7.9 Dew point — telegram type for dew point alarm

Options:	Switch command
	Priority
	percent
	Byte
	Scene

This parameter defined the output value when the dew point alarm is present.

10.7.10 Dew point — switch command in case of dew point alarm

Options:	Off
	One

The parameter defines which state should be sent in case of a dew point alarm.

10.7.11 Dew point — priority in case of dew point alarm

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent in case of a dew point alarm.

10.7.12 Dew point — percentage in case of dew point alarm (0…100%)

Options:	0-100%

This parameter defines which value between 0 and 100% is sent in case of a dew point alarm.

10.7.13 Dew point — value in case of dew point alarm (0…255)

Options:	0-255

This parameter defines which value between 0 and 255 is sent in case of a dew point alarm.

10.7.14 Dew point — scene in case of dew point alarm (1…64)

Options:	1-64

This parameter defines which scene between 1 and 64 is sent in case of a dew point alarm.

10.7.15 Dew point — switch command at the end of the dew point alarm

Options:	Off
	One

If the dew point alarm is no longer present at the object, this parameter can be used to define which status should be sent.

10.7.16 Dew point — priority at the end of the dew point alarm

Options:	End priority
	OFF with priority
	ON with priority

If the dew point alarm is no longer present at the object, this parameter can be used to define which status should be sent.

10.7.17 Dew point — percentage at the end of the dew point alarm (0…100%)

Options:	0-100%

If the dew point alarm is no longer present at the object, this parameter can be used to define which value between 0 and 100% should be sent.

10.7.18 Dew point — value at the end of the dew point alarm (0…255)

Options:	0-255

If the dew point alarm is no longer present at the object, this parameter can be used to define which value between 0 and 255 should be sent.

10.7.19 Dew point — scene at the end of the dew point alarm (1-64)

Options:	1-64

If the dew point alarm is no longer present at the object, this parameter can be used to define which scene between 1 and 64 should be sent.

10.8 Application "Air pressure"

10.8.1 Air pressure — air pressure sensor

Options:	Inactive
	Active

The parameter activates the air pressure sensor. The corresponding communicaiton objects are displayed in ETS.

10.8.2 Air pressure — air pressure controller error

Options:	Message
	Do not send message

If an error is detected on the sensor, it can be sent to the KNX.

10.8.3 Air pressure — send absolute air pressure at change

Options:	Inactive
	In case of a change of 1 hPa
	In case of a change of 2 hPa
	In case of a change of 5 hPa
	In case of a change of 10 hPa
	In case of a change of 15 hPa
	In case of a change of 20 hPa
	In case of a change of 25 hPa
	In case of a change of 30 hPa
	In case of a change of 35 hPa
	In case of a change of 40 hPa
	In case of a change of 45 hPa
	In case of a change of 50 hPa

A parameter is used to determined when a change should be actively sent to the KNX bus. The telegram load can be reduced by the setting.

10.8.4 Air pressure — cyclically send absolute air pressure

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If you wish to send the air pressure cyclically through the corresponding KNX communication object, the corresponding time must be selected.

10.8.5 Air pressure — send relative air pressure at change

Options:	Inactive
	In case of a change of 1 hPa
	In case of a change of 2 hPa
	In case of a change of 5 hPa
	In case of a change of 10 hPa
	In case of a change of 15 hPa
	In case of a change of 20 hPa
	In case of a change of 25 hPa
	In case of a change of 30 hPa
	In case of a change of 35 hPa
	In case of a change of 40 hPa
	In case of a change of 45 hPa
	In case of a change of 50 hPa

A parameter is used to determined when a change should be actively sent to the KNX bus. The telegram load can be reduced by the setting.

10.8.6 Air pressure — cyclically send relative air pressure

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If you wish to send the air pressure cyclically through the corresponding KNX communication object, the corresponding time must be selected.

10.8.7 Air pressure — elevation head [m a.s.l.] (0…5000m)

Options:	0-5000

To determine the most precise measured value possible, the mounting height above sea level (a.s.l) must be entered here. The altitude of the site can be determined on the Internet or by GPS.

10.9 Communication objects - RTC

10.9.1 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.

10.9.2 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.

10.9.3 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.

10.9.4 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.

10.9.5 Control On/Off

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

10.9.6 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.

10.9.7 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.

10.9.8 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.

10.9.9 Fault, actual temperature

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

10.9.10 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.

10.9.11 Operating mode

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

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.

10.9.12 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.

10.9.13 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.

10.9.14 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.

10.9.15 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.

10.9.16 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.

10.9.17 Basic load

Number	Name	Object function	Data type
18	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.

10.9.18 Switchover heating/cooling

Number	Name	Object function	Data type
19	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.

10.9.19 Fan coil manual

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

10.9.20 Fan coil step

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

10.9.21 Fan coil step status

Number	Name	Object function	Data type
22	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.

10.9.22 Fan speed level 1

Number	Name	Object function	Data type
23	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).

10.9.23 Fan speed level 2

Number	Name	Object function	Data type
24	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).

10.9.24 Fan speed level 3

Number	Name	Object function	Data type
25	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).

10.9.25 Fan speed level 4

Number	Name	Object function	Data type
26	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).

10.9.26 Fan speed level 5

Number	Name	Object function	Data type
27	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).

10.9.27 Basic setpoint

Number	Name	Object function	Data type
28	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.

10.9.28 Resetting manual setpoints

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

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

10.9.29 Dew point alarm

Number	Name	Object function	Data type
30	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.

10.9.30 Condensate water alarm

Number	Name	Object function	Data type
31	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.

10.9.31 Outside temperature for summer compensation

Number	Name	Object function	Data type
32	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.

10.9.32 Summer compensation active

Number	Name	Object function	Data type
33	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.

10.9.33 Setpoint reached

Number	Name	Object function	Data type
32	Setpoint reached	Output	Switching

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

10.9.34 Fahrenheit

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

10.9.35 Display backlighting

Number	Name	Object function	Data type
51	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.

10.9.36 On/Off request

Number	Name	Object function	Data type
37	1. On/off request (master)	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.

10.9.37 Setpoint display

Number	Name	Object function	Data type
38	1. Set value display (master)	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.

10.9.38 Request setpoint

Number	Name	Object function	Data type
39	1. Request set value (master)	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.

10.9.39 Confirm setpoint

Number	Name	Object function	Data type
40	1. Confirm set value (master)	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.

10.9.40 Heating/cooling request

Number	Name	Object function	Data type
41	1. Heating/cooling request (master)	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.

10.9.41 Request fan speed level manually

Number	Name	Object function	Data type
42	1. Request fan speed level manually (master)	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.

10.9.42 Request fan speed level

Number	Name	Object function	Data type
43	1. Request fan speed level (master)	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.

10.9.43 Confirm fan speed level

Number	Name	Object function	Data type
44	1. Confirm fan speed level (master)	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.

10.9.44 Controller status RHCC

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

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

10.9.45 Controller status HVAC

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

10.9.46 Commissioned

Number	Name	Object function	Data type
49	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.

10.10 Communication objects "CO2"

10.10.1 CO_2 – CO_2 value [ppm]

Number	Name	Object function	Data type (DPT)
151	CO_2: CO_2 value [ppm]	Output	Value_AirQuality

The CO_2 value measured by the device is available via the communication object.

10.10.2 CO_2 – Request CO_2 value

Number	Name	Object function	Data type (DPT)
153	CO_2: Request CO_2 value	Input	Trigger

If the external value is not to be sent cyclically or if the device is being reset, the external value is requested via this object.

10.10.3 CO_2 – External CO_2 value [ppm]

Number	Name	Object function	Data type (DPT)
152	CO_2: External CO_2 value [ppm]	Input	Value_AirQuality

If another CO_2 value is to be included in the measurement, this input can be linked with the other output of a corresponding device.

10.10.4 CO_2 – Sensor error

Number	Name	Object function	Data type (DPT)
154	CO_2: Sensor error	Output	Bool

If a sensor defect occurs or no current value is available to the KNX bus, a telegram with the value "1" is sent to the KNX bus.

A telegram with the value "0" resets the error.

10.10.5 CO_2R – Basic set value [ppm]

Number	Name	Object function	Data type (DPT)
159	CO_2R: Basic set value [ppm]	Input	Value_AirQuality

Another basic set value can be specified for the device via the object.

Once a new value has been received, this acts as the new reference point and therefore has a direct impact on the measuring results of the device.

10.10.6 CO_2R – Blocking object

Number	Name	Object function	Data type (DPT)
163	CO_2R: Blocking object	Input	Enable

When the value "1" is received, all the KNX communication of the CO_2 sensor is blocked and is no longer part of KNX bus communication.

Unblocking happens when the value "0" is received.

10.10.7 CO_2R – Blocking object threshold 1

Number	Name	Object function	Data type (DPT)
160	CO_2R: Blocking object threshold 1	Input	Enable

When the value "1" is received, threshold 1 is blocked and is no longer part of KNX bus communication. Unblocking happens when the value "0" is received.

10.10.8 CO_2R – Blocking object threshold 2

Number	Name	Object function	Data type (DPT)
161	CO_2R: Blocking object threshold 2	Input	Enable

When the value "1" is received, threshold 2 is blocked and is no longer part of KNX bus communication. Unblocking happens when the value "0" is received.

10.10.9 CO_2R – Blocking object threshold 3

Number	Name	Object function	Data type (DPT)
162	CO_2R: Blocking object threshold 3	Input	Enable

When the value "1" is received, threshold 3 is blocked and is no longer part of KNX bus communication. Unblocking happens when the value "0" is received.

10.10.10 CO_2R – Control value (0 to 100%)

Number	Name	Object function	Data type (DPT)
155	CO_2R: Control value (0 to 100%)	Output	Scaling

If this output is parameterized, the relevant value is sent once the parameterized threshold is exceeded.

10.10.11 CO_2R – Control value (0 to 255)

Number	Name	Object function	Data type (DPT)
155	CO_2R: Control value (0 to 255)	Output	Value_1_Ucount

If this output is parameterized, the relevant value is sent once the parameterized threshold is exceeded.

10.10.12 CO_2R – Control value step 1 (priority)

Number	Name	Object function	Data type (DPT)
156	CO_2R: Control value step 1 (priority)	Output	Switch_Control

Each control value step can be parameterized using a defined 2-bit value. If the step in question is exceeded, the value is output via the object.

10.10.13 CO_2R – Control value step 1 (switch object)

Number	Name	Object function	Data type (DPT)
156	CO_2R: Control value step 1 (switch object)	Output	Switch

Each control value step can be parameterized using a defined 1-bit value. If the step in question is exceeded, the value is output via the object.

10.10.14 CO_2R – Control value step 2 (priority)

Number	Name	Object function	Data type (DPT)
157	CO_2R: Control value step 2 (priority)	Output	Switch_Control

Each control value step can be parameterized using a defined 2-bit value. If the step in question is exceeded, the value is output via the object.

10.10.15 CO_2R – Control value step 2 (switch object)

Number	Name	Object function	Data type (DPT)
157	CO_2R: Control value step 2 (switch object)	Output	Switch

Each control value step can be parameterized using a defined 1-bit value. If the step in question is exceeded, the value is output via the object.

10.10.16 CO_2R – Control value step 3 (priority)

Number	Name	Object function	Data type (DPT)
158	CO_2R: Control value step 3 (priority)	Output	Switch_Control

Each control value step can be parameterized using a defined 2-bit value. If the step in question is exceeded, the value is output via the object.

10.10.17 CO_2R – Control value step 3 (switch object)

Number	Name	Object function	Data type (DPT)
158	CO_2R: Control value step 3 (switch object)	Output	Switch

Each control value step can be parameterized using a defined 1-bit value. If the step in question is exceeded, the value is output via the object.

10.10.18 CO_2R – Scene (1 to 64)

Number	Name	Object function	Data type (DPT)
155	CO_2R: Scene (1 to 64)	Output	SceneNumber

If this output is parameterized, the relevant scene number is sent and, therefore, the required scene is started once the parameterized threshold is exceeded.

10.11 Communication objects "Relative humidity"

10.11.1 rH – Humidity value [%]

Number	Name	Object function	Data type (DPT)
164	rH: Humidity value [%]	Output	Value_Humidity

The relative humidity value measured by the device is available via the communication object.

10.11.2 rH — humidity value 1 byte [%]

Number	Name	Object function	Data type (DPT)
165	RH: humidity value 1 byte [%]	Output	Scaling

The relative humidity value measured by the device is available via the communication object.

10.11.3 rH – External humidity value [%]

Number	Name	Object function	Data type (DPT)
166	rH: External humidity value [%]	Input	Value_Humidity

If another relative humidity value is to be included in the measurement, this input can be linked with the other output of a corresponding device.

10.11.4 rH – Request humidity value

Number	Name	Object function	Data type (DPT)
167	rH: Request humidity value	Input	Trigger

If the external value is not to be sent cyclically or if the device is being reset, the external value is requested via this object.

10.11.5 rH – Sensor error

Number	Name	Object function	Data type (DPT)
168	rH: Sensor error	Output	Bool

If a sensor defect occurs or no current value is available to the KNX bus, a telegram with the value "1" is sent to the bus.

A telegram with the value "0" resets the error.

10.11.6 RFR – Basic set value (1 byte) [%]

Number	Name	Object function	Data type (DPT)
174	RFR: Basic set value (1 byte) [%]	Input	Scaling

Another basic set value can be specified for the device via the object.

Once a new value has been received, this acts as the new reference point and therefore has a direct impact on the measuring results of the device.

10.11.7 RFR – Basic set value [%]

Number	Name	Object function	Data type (DPT)
174	RFR: Basic set value [%]	Input	Value_Humidity

Another basic set value can be specified for the device via the object.

Once a new value has been received, this acts as the new reference point and therefore has a direct impact on the measuring results of the device.

10.11.8 RFR – Blocking object

Number	Name	Object function	Data type (DPT)
178	RFR: Blocking object	Input	Enable

When the value "1" is received, all the KNX communication of the CO_2 sensor is blocked and is no longer part of KNX bus communication.

Unblocking happens when the value "0" is received.

10.11.9 RFR – Blocking object threshold 1

Number	Name	Object function	Data type (DPT)
175	RFR: Blocking object threshold 1	Input	Enable

When the value "1" is received, threshold 1 is blocked and is no longer part of KNX bus communication. Unblocking happens when the value "0" is received.

10.11.10 RFR – Blocking object threshold 2

Number	Name	Object function	Data type (DPT)
176	RFR: Blocking object threshold 2	Input	Enable

When the value "1" is received, threshold 2 is blocked and is no longer part of KNX bus communication. Unblocking happens when the value "0" is received.

10.11.11 RFR – Blocking object threshold 3

Number	Name	Object function	Data type (DPT)
177	RFR: Blocking object threshold 3	Input	Enable

When the value "1" is received, threshold 3 is blocked and is no longer part of KNX bus communication. Unblocking happens when the value "0" is received.

10.11.12 RFR – Control value (0 to 100%)

Number	Name	Object function	Data type (DPT)
169	RFR: Control value (0 to 100%)	Output	Scaling

If this output is parameterized, the relevant value is sent once the parameterized threshold is exceeded.

10.11.13 RFR – Control value (0 to 255)

Number	Name	Object function	Data type (DPT)
169	RFR: Control value (0 to 255)	Output	Value_1_Ucount

If this output is parameterized, the relevant value is sent once the parameterized threshold is exceeded.

10.11.14 RFR – Control value step 1 (priority)

Number	Name	Object function	Data type (DPT)
170	RFR: Control value step 1 (priority)	Output	Switch_Control

Each control value step can be parameterized using a defined 2-bit value. If the step in question is exceeded, the value is output via the object.

10.11.15 RFR – Control value step 1 (switch object)

Number	Name	Object function	Data type (DPT)
170	RFR: Control value step 1 (switch object)	Output	Switch

Each control value step can be parameterized using a defined 1-bit value. If the step in question is exceeded, the value is output via the object.

10.11.16 RFR – Control value step 2 (priority)

Number	Name	Object function	Data type (DPT)
171	RFR: Control value step 2 (priority)	Output	Switch_Control

Each control value step can be parameterized using a defined 2-bit value. If the step in question is exceeded, the value is output via the object.

10.11.17 RFR – Control value step 2 (switch object)

Number	Name	Object function	Data type (DPT)
171	RFR: Control value step 2 (switch object)	Output	Switch

Each control value step can be parameterized using a defined 1-bit value. If the step in question is exceeded, the value is output via the object.

10.11.18 RFR – Control value step 3 (priority)

Number	Name	Object function	Data type (DPT)
172	RFR: Control value step 3 (priority)	Output	Switch_Control

Each control value step can be parameterized using a defined 2-bit value. If the step in question is exceeded, the value is output via the object.

10.11.19 RFR – Control value step 3 (switch object)

Number	Name	Object function	Data type (DPT)
172	RFR: Control value step 3 (switch object)	Output	Switch

Each control value step can be parameterized using a defined 1-bit value. If the step in question is exceeded, the value is output via the object.

10.11.20 RFR — Scene (1 to 64)

Number	Name	Object function	Data type (DPT)
169	RFR: Scene (1 to 64)	Output	SceneNumber

If this output is parameterized, the relevant scene number is sent and, therefore, the required scene is started once the parameterized threshold is exceeded.

10.12 Communication objects "Temperature sensor"

10.12.1 T – Frost alarm

Number	Name	Object function	Data type (DPT)
184	T: Frost alarm	Output	Bool

If the parameterized temperature is undershot, the value "1" is made available to the "Frost alarm" communication object. The alarm is cancelled with the value "0" when the temperature is exceeded.

10.12.2 T – Heat alarm

Number	Name	Object function	Data type (DPT)
183	T: Heat alarm	Output	Bool

If the parameterized temperature is exceeded, the value "1" is made available to the "Heat alarm" communication object. The alarm is cancelled with the value "0" when the temperature is undershot.

10.12.3 T – Sensor error

Number	Name	Object function	Data type (DPT)
182	T: Sensor error	Output	Bool

If a sensor defect occurs or no current value is available to the KNX bus, a telegram with the value "1" is sent to the bus.

A telegram with the value "0" resets the error.

10.12.4 T – Temperature value [°C]

Number	Name	Object function	Data type (DPT)
179	T: Temperature value [°C]	Output	Value_Temp

The temperature value measured by the device is available via the communication object.

10.12.5 T – Request temperature value

Number	Name	Object function	Data type (DPT)
181	T – Request temperature value	Input	Trigger

If the external value is not to be sent cyclically or if the device is being reset, the external value is requested via this object.

10.12.6 T – External temperature value [°C]

Number	Name	Object function	Data type (DPT)
180	T: External temperature value [°C]	Input	Value_Temp

If another temperature value is to be included in the measurement, this input can be linked with the other output of a corresponding device.

10.13 Communication objects "Dew point"

10.13.1 DEWP – Dew point alarm active (0 to 100%)

Number	Name	Object function	Data type (DPT)
186	DEWP: Dew point alarm active (0 to 100%)	Output	Scaling

If this output is parameterized, the relevant value is sent once the parameterized threshold is exceeded.

10.13.2 DEWP – Dew point alarm active (0 to 255)

Number	Name	Object function	Data type (DPT)
186	DEWP: Dew point alarm active (0 to 255)	Output	Value_1_Ucount

If this output is parameterized, the relevant value is sent once the parameterized threshold is exceeded.

10.13.3 DEWP – Dew point alarm active (priority)

Number	Name	Object function	Data type (DPT)
186	DEWP: Dew point alarm active (priority)	Output	Switch_Control

If this output is parameterized, the relevant value is sent once the parameterized threshold is exceeded.

10.13.4 DEWP – Dew point alarm active (switch object)

Number	Name	Object function	Data type (DPT)
186	DEWP: Dew point alarm active (switch object)	Output	Switch

If this output is parameterized, the relevant value is sent once the parameterized threshold is exceeded.

10.13.5 DEWP – Dew point alarm active scene (1 to 64)

Number	Name	Object function	Data type (DPT)
186	DEWP: Dew point alarm active scene (1 to 64)	Output	SceneNumber

If this output is parameterized, the relevant scene number is sent and, therefore, the required scene is started once the parameterized threshold is exceeded.

10.13.6 DEWP – Dew point temperature [°C]

Number	Name	Object function	Data type (DPT)
185	DEWP: Dew point temperature [°C]	Output	Value_Temp

The dew point temperature measured by the device is available via the communication object.

10.13.7 DEWP – Request dew point temperature

Number	Name	Object function	Data type (DPT)
187	DEWP: Request dew point temperature	Input	Triggers

If the external value is not to be sent cyclically or if the device is being reset, the external value is requested via this object.

10.14 Communication objects "Air pressure"

10.14.1 P – Absolute air pressure [Pa]

Number	Name	Object function	Data type (DPT)
188	P: Absolute air pressure [Pa]	Output	Value_Pres

The absolute air pressure measured by the device (air pressure at the measured installation location) is available via the communication object.

10.14.2 P – Request absolute air pressure

Number	Name	Object function	Data type (DPT)
191	P: Request absolute air pressure	Input	Triggers

If the external value is not to be sent cyclically or if the device is being reset, the external value is requested via this object.

10.14.3 P – Relative air pressure [Pa]

Number	Name	Object function	Data type (DPT)
189	P: Relative air pressure [Pa]	Output	Value_AirQuality

The relative air pressure measured by the device is available via the communication object.

The relative air pressure relates to the pressure at sea level. The change is added to the absolute air pressure in order to determine the air pressure at sea level.

10.14.4 P – Request relative air pressure

Number	Name	Object function	Data type (DPT)
192	P: Request relative air pressure	Input	Triggers

If the external value is not to be sent cyclically or if the device is being reset, the external value is requested via this object.

10.14.5 P – Air pressure sensor error

Number	Name	Object function	Data type (DPT)
190	P: Air pressure sensor error	Output	Bool

If a sensor defect occurs or no current value is available to the KNX bus, a telegram with the value "1" is sent to the KNX bus.

A telegram with the value "0" resets the error.

10.14.6 Activating/deactivating P — CO2 and rH LEDs

Number	Name	Object function	Data type (DPT)
193	P: Activating/deactivating CO2 and rH LEDs	Input	Enable

This object is used to activate/deactivate the LEDs on the front of the device. This, for example, makes a deactivation during the night possible.

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A member of the ABB Group

Busch-Jaeger Elektro GmbH
PO box
58505 Lüdenscheid

Freisenbergstraße 2
58513 Lüdenscheid

www.BUSCH-JAEGER.com
info.bje@de.abb.com

Central sales service:
Tel.: +49 2351 956-1600
Fax: +49 2351 956-1700

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