
PRODUCT MANUAL

ABB i-bus[®] KNX

ST/K 1.2

Electromotor Valve Drive



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1 About this document

1.1 Using the product manual

This manual provides detailed technical information on the function, installation and programming of the ABB i-bus® KNX device.

1.2 Legal disclaimer

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1.3 Explanation of symbols

1.	Instructions in specified sequence and result
2.	
⇒	
▶	Individual actions
a)	Priorities
1)	Processes run by the device in a specific sequence
•	List level 1
–	List level 2

Tab. 1: Explanation of symbols

Notes and warnings are represented as follows in this manual:



DANGER

This symbol is a warning about electrical voltage and indicates high-risk hazards that will definitely result in death or serious injury unless avoided.



DANGER

Indicates high-risk hazards that will definitely result in death or serious injury unless avoided.



WARNING

Indicates medium-risk hazards that could result in death or serious injury unless avoided.



CAUTION

Indicates low-risk hazards that could result in slight or moderate injury unless avoided.



CAUTION

Indicates a risk of malfunctions or damage to property and equipment, but with no risk to life and limb.

Example

For use in application, installation and programming examples

i Note

For use in tips on use and operation

1.4

2D code

The packaging and the device are labeled with a 2D code. These codes are used for unique identification of the device and include the following information:

- Link to the product page
- Order code
- Device serial number

The 2D codes can be read using any mobile device with an appropriate 2D code reader.

By scanning the 2D codes with the [ABB Product Scanner](#), you can open additional digital services.

2 Safety

2.1 General safety instructions

- ▶ Protect the device from moisture, dirt and damage during transport, storage and operation.
- ▶ Only use the device with the cover closed.
- ▶ Operate the device only within the specified technical data.
- ▶ Mounting, installation, commissioning and maintenance must be carried out only by qualified electricians.
- ▶ Disconnect device from the supply of electrical power before mounting.

2.2 Qualification of the specialist personnel

Programming the device requires detailed specialist knowledge – particularly about the ETS commissioning software – through KNX training courses.

2.3 Proper use

The devices are intended to be used for temperature control on heating or cooling valves in a KNX environment.

3 Product overview

3.1 Device description

The devices are mounted with the suitable valve adapter on thermostatic valve lower parts on radiators and convectors, etc.

The devices are KNX-certified and can be used as products in a KNX system
→ EU declaration of conformity.

The devices are powered via the bus (ABB i-bus® KNX) and require no additional auxiliary voltage.

The connection to the bus (ABB i-bus® KNX) is made via a KNX bus connection terminal on the pre-fitted connection cable.

The software application Engineering Tool Software (ETS) is used for physical address assignment and parameterization.

3.2 Ordering details

Description	MB	Type	Order no.	Packaging unit [pcs.]	Weight (incl. packaging) [kg]
Electromotor Valve Drive	-	ST/K 1.2	2CDG120092R0011	1	0.23

Tab. 2: Ordering details

3.3 Connections

The devices possess the following connections:

- 1 valve connection
- 2 universal binary inputs (floating). Connection option, e.g. for external temperature sensor, window contact, presence detector or pushbuttons
- 1 KNX bus connection

3.3.1 Inputs



CAUTION

Do not connect any external voltages to the binary inputs (SELV).
Ensure separation from other voltages.

The connections are made using the pre-assembled connecting cable.

Conductor color of connecting cable	Function of the inputs
Yellow	Binary input I1 +
Green	Binary input I1 GND
White	Binary input I2 +
Brown	Binary input I2 GND
Black	KNX bus connection -
Red	KNX bus connection +

Tab. 3: Assignment of conductor colors

3.3.2

Outputs

ⓘ Note

This section is not relevant for these devices.

3.4 Product family

The product family described in this document includes the following devices:

Device type	Name	Features
ST/K 1.2	Electromotor Valve Drive	Binary inputs

Tab. 4: Product family

3.4.1 Dimension drawing

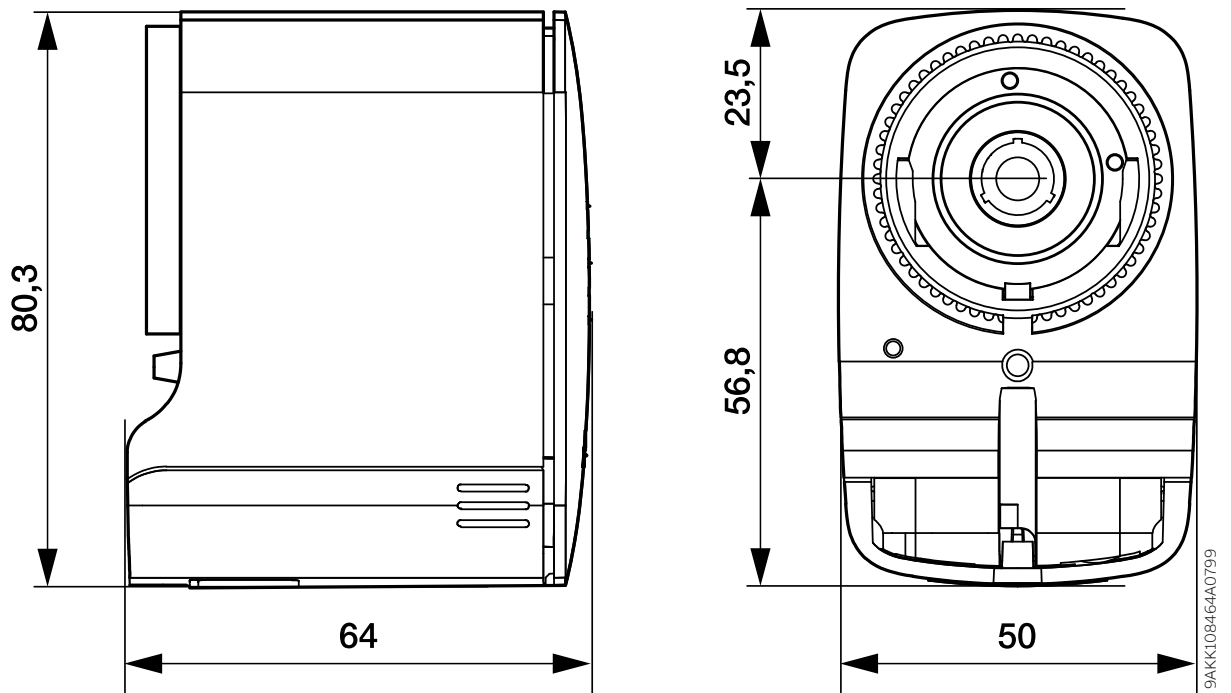


Fig. 1: Dimension drawing ST/K 1.2

3.4.2 Connection diagram

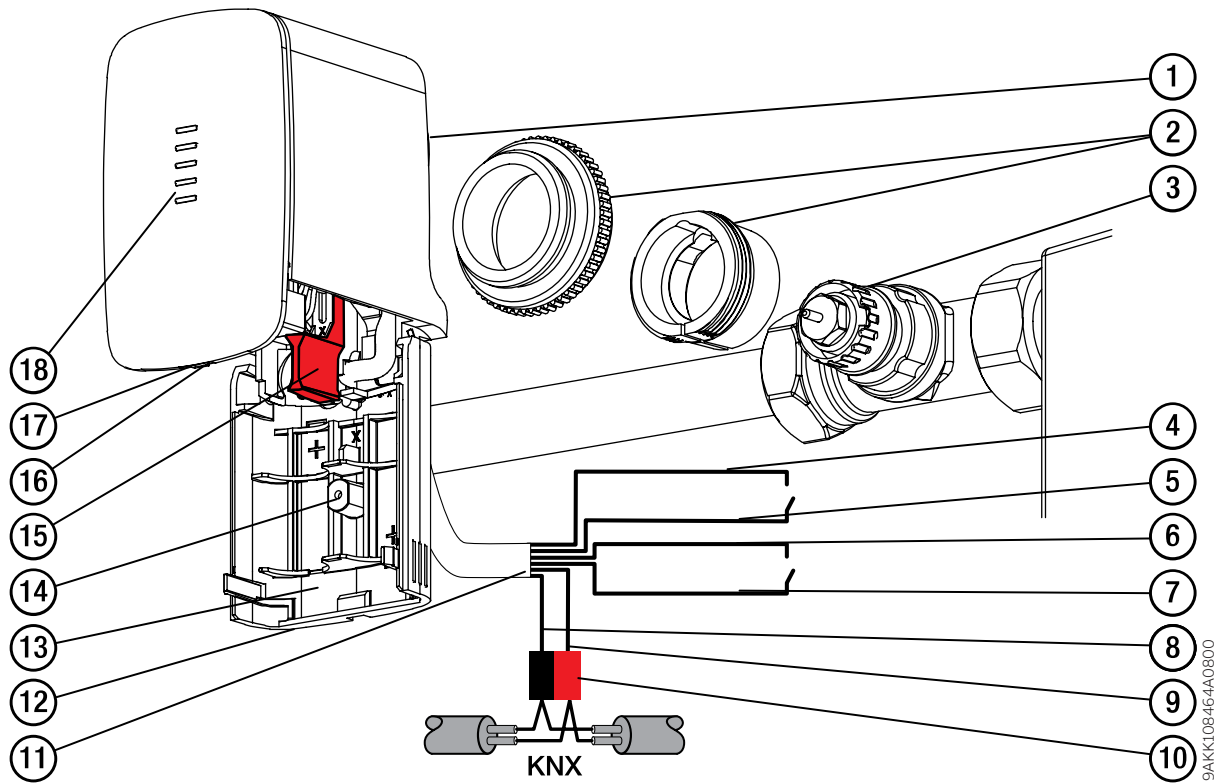



Fig. 2: Connection diagram ST/K 1.2

Legend

- | | |
|--|---|
| <ul style="list-style-type: none"> 1 Valve connection 2 Valve adapter (optional) 3 Valve 4 Binary input I1 + (yellow) 5 Binary input I1 GND (green) 6 Binary input I2 + (white) 7 Binary input I2 GND (brown) 8 KNX bus connection – (black) 9 KNX bus connection + (red) 10 KNX bus connection terminal | <ul style="list-style-type: none"> 11 Pre-assembled connecting cable 12 2D code and FDSK (sticker on underside of cover) 13 Cover 14 Screw (TX 6) 15 Assembly/disassembly lever 16 <i>Programming</i> LED (under silicone cover) 17 <i>Programming</i> button (under silicone cover) 18 Valve position/Calibration run LEDs |
|--|---|

3.4.3 Operating controls and display elements

Operating control/LED	Description/function	Display
	Assignment of the physical address	LED on: Device in programming mode
<i>Programming Button/LED</i>		

Tab. 5: Operating controls and display elements

3.4.3.1 Manual mode

 **Note**

This section is not relevant for these devices.

3.4.3.2 KNX operation

Operating control/LED	Description/function	Display
1	Display during calibration traverse	LED 3: Flashes during position calculation LED 4: Flashes while valve is scanned LED 5: Flashes as long as the spindle is in its maximum inner position
2		
3		
4		
5		
LEDs 1 - 5		
1	Valve position display	All LEDs Off: 0 % LED 5 On: 1 ... 20 % LEDs 4 and 5 On: 21 ... 40 % LEDs 3, 4 and 5 On: 41 ... 60 % LEDs 2, 3, 4 and 5 On: 61 ... 80 % All LEDs On: 81 ... 100 %
2		
3		
4		
5		
LEDs 1 - 5		

Tab. 6: Operating controls and display elements

3.4.4 Technical data

3.4.4.1 General technical data

		ST/K 1.2
Device	Dimensions	80.3 × 50 × 64 mm (H x W x D)
	Weight	0.23 kg
	Mounting position	Any
	Mounting variant	Snap mounting on valve adapter
	Valve adapter	Includes two different valve adapters for the most common valves M30x1.5 and Danfoss RA (VA 10, VA 100); other valve adapters available on request
	Operating principle	Type 1 to EN 60730-1
	Design	Surface mounting
	Degree of protection	IP 21
	Protection class	III to EN 60730-2-14
	Rated impulse-withstand voltage	0.33 kV
	Pollution degree	2
Materials	Housing	Plastic housing, white (RAL 9016)
Electronics	Operating voltage	21 ... 32 V DC, via KNX
	KNX medium	TP1-256
	Current consumption, bus	≤ 7.5 mA
Connections	Connection type, KNX bus	Cable with KNX bus terminal (black/red); 6-pole (length 1.0 m)
	Connection type, inputs	2 binary inputs (each with 2 conductors)
	Input 1 (I1)	Connection option, e.g. for window contact, presence detector or pushbuttons; conductors yellow/green
	Input 2 (I2)	Connection option, e.g. for external temperature sensors (Input 2 only), window contact, presence detector or pushbuttons; temperature sensor: NTC 100k (at 25 °C); conductors white/brown
Drive	Run time	<20 s/mm
	Maximum stroke	8 mm
	Maximum actuating force	Up to 220 N
Certificates and declarations	CE declaration of conformity	→ 9AKK108469A4251
Ambient condition	Operation	-5 ... +50 °C
	Storage	-20 ... +60 °C
	Medium temperature	≤100 °C
Temperature measuring range	Internal sensor	0 °C to +60 °C
	External sensor on I2	0°C to +60°C

4 Functional overview

4.1 Function description

- Motor-driven KNX actuator for heating and cooling valves
- KNX Data Secure for secure data communication
- Integrated temperature sensor
- Integrated controller for heating and cooling with one additional stage each
- High actuating force of up to 220 N at a maximum valve stroke of 8 mm
- 2 universal binary inputs, connection option, e.g. for external temperature sensors, window contact, presence detector or pushbuttons
- Integrated logic for up to 10 window contacts
- Can be used in heating manifolds
- Integrated bus coupler
- Automatic valve adaptation
- Universally compatible due to large range of valve adapters

4.2 Device Application

The following device applications are available for the devices described in this document:

Device type	Device Application
ST/K 1.2	Valve Drive Continuous/...

Tab. 7: Device Application

i Note

... = current version number of the application.

Observe software information on the website → www.abb.com/knx.

4.3 Special operating states

The reaction if there is a KNX voltage failure, after KNX voltage recovery and after ETS download can be set in the device parameters.

4.3.1 Reaction on KNX voltage failure

KNX voltage failure describes the failure of the KNX voltage, e.g. due to a power failure. In the event of a KNX voltage failure, the valve position is retained.

4.3.2 Reaction after KNX voltage recovery

KNX voltage recovery is the state that exists after the KNX voltage is restored. After KNX voltage recovery, the device restarts and makes an automatic adjustment (calibration traverse). The reaction after KNX voltage recovery is specified in the following parameters:

- *Valve position after reset or restoration of the bus supply*
- *Response after restoration of the bus supply* (window contact, switch object)
- *Response after restoration of the bus supply* (pushbutton object)
- *Response after restoration of the bus supply* (dimming)
- *Response after restoration of the bus supply* (blind)
- *Response after restoration of the bus supply* (double-click)

4.3.3 Reaction on ETS reset

An ETS reset restarts the ETS application in the device. ETS reset can be performed in ETS using the Commissioning menu item, in the function *Reset device* (from ETS version 6 *Restart device*). After ETS reset, the device restarts and makes an automatic adjustment (calibration traverse).

If the room temperature controller is used, the operating mode after ETS reset is specified in the following parameter:

- *Operating mode after reset*

If the room temperature controller is not used, the operating valve position after ETS reset is specified in the following parameters:

- *Valve position after reset or restoration of the bus supply*

4.3.4 Reaction during download

Downloading describes loading a modified or updated ETS application onto the device. The device is not ready to operate during a download. After a download, the device restarts and makes an automatic adjustment (calibration traverse).

If the room temperature controller is used, the reaction after a download is specified in the following parameters:

- *Operating mode after reset*
- *(Base) setpoint after loading the application*

If the room temperature controller is not used, the actuator reacts in accordance with the parameterization.

Note

The device will no longer operate after the application is uninstalled or the download is canceled.

- ▶ Download again.

5 Mounting and installation

5.1 Mounting

**CAUTION – Device damage due to electrostatic discharge**

The silicone cover protects the device electronics from electrostatic discharge.

- ▶ Do not remove the silicone cover.

Note

Only use the device with the cover closed. This is the only way to ensure reliable fixation and the required IP protection.

Note

If maintenance work is carried out on the radiator, the actuator should always be removed and the valve securely closed by an alternative method (original protective cap etc.). The valve could be opened unexpectedly by the control or by the valve protection, resulting in water damage.

Note

When downloading the device application, the device must already be mounted on the valve, otherwise no adjustment can take place.

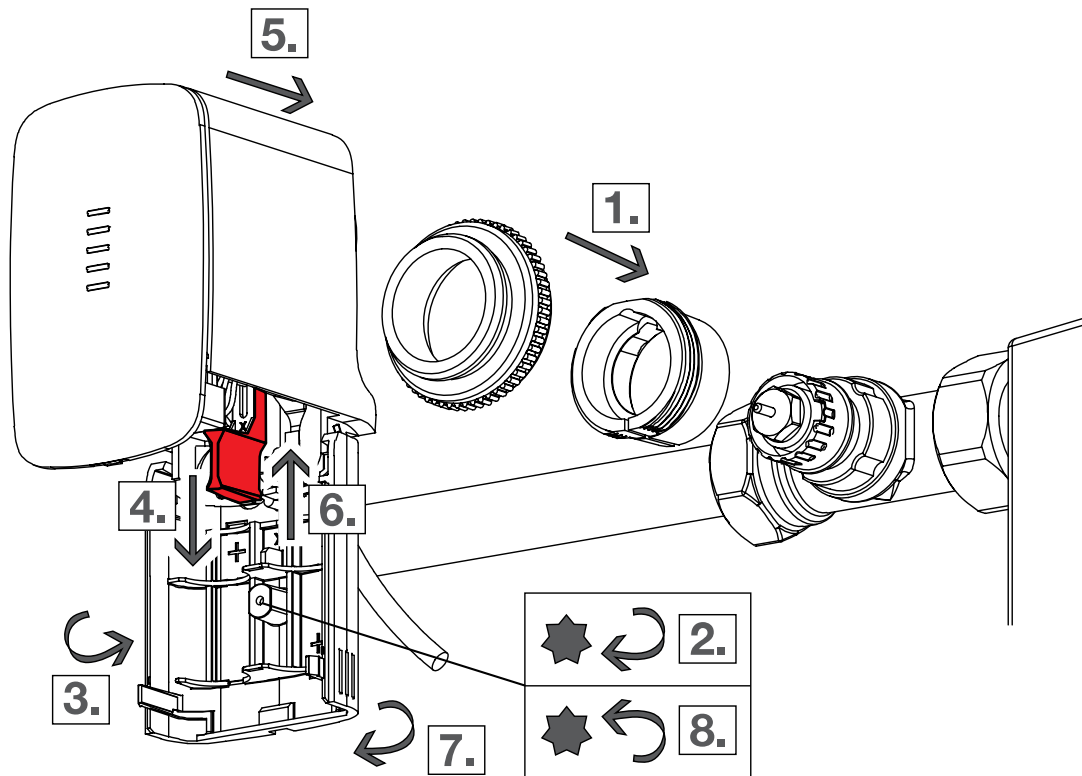


Fig. 3: ST/K 1.2 installation

1. Mount the appropriate valve adapter on the valve.
2. Loosen the screw (TX 6).
3. Fold open the cover all the way down beyond the catch.
4. Pull the assembly/disassembly lever (red slider) downward.
⇒ The lock opens.
5. Plug the device on the mounting adapter.
6. Push the assembly/disassembly lever (red slider) upward.
⇒ The device is now mounted on the valve.
7. Close the cover.
8. Tighten the screw (TX 6).

5.2 Installation and automatic adjustment (calibration traverse)

First, the device is mounted on the valve using the appropriate adapter. Then the bus voltage can be applied. This automatically starts the adjustment process (calibration traverse).

Automatic adjustment occurs for the first time after the bus voltage is applied in the Site function, and afterwards each time the application is downloaded.

To compensate for changes in the valve characteristics over time (aging of the rubber seal), a new calibration traverse is carried out after each reset and at regular intervals during the heating period. Also, a new calibration traverse can be started at any time via the Group Object *Start calibration traverse manually*.

i Note

The adjustment must always be carried out again if a device that has already been adjusted is mounted on a different valve.

i Note

The previously stored positions are deleted after a download. The calibration traverse is performed 2x due to the plausibility test

5.2.1 Calibration strategies

The calibration strategy is selected via input in the *Strategy for valve identification* parameter.

Default

With this option, only the "Open" valve position is determined during the calibration traverse. To close the valve, the actuator extends the tappet until it presses on the valve with the set force.

We always recommend using the *standard valve* setting first, as it is completely sufficient for most valves. Only if this does not close the valve, should the setting *valves with high spring force* be tried.

Power-controlled with defined valve stroke

With this variant, only the "Open" position of the valve is determined by calculating a fixed distance back from the closed position. In order to close the valve, the actuator pushes out the tappet until the set force is exerted on the valve (closing force for standard valves/valves with high spring tension).

This calibration strategy is primarily to be used if the actuator tappet touches the valve tappet, even if it is completely withdrawn, and measurements cannot be performed.

With a completely unknown valve, a value of 3 mm with closing force for standard valves value is a useful starting value.

We always recommend using the *standard valve* setting first, as it is completely sufficient for most valves. Only if this does not close the valve, should the setting *valves with high spring force* be tried.

Note

After the KNX voltage is applied, an automatic adjustment (calibration traverse) takes place. If the device is in the as-delivered state and no device application has yet been installed, the device functions in construction site mode. The device then controls with the internal sensor and uses a KNX system integrator to keep the room frost-free (6 °C) in the period between installation and commissioning.

6 Commissioning

6.1 Prerequisites for commissioning

A PC with ETS and a connection to the bus (ABB i-bus® KNX), e.g. via a KNX interface, are required to commission the device.

- Required ETS version: 5.7.7 or later
- product-specific device application: installed → [Device Application, Page 16](#)

i Note

Observe software information on the website → www.abb.com/knx.

6.2 Commissioning overview

After the KNX voltage is applied for the first time, the following factory settings will be selected automatically:

- Physical address of the device: 15.15.255

The device can be programmed only using ETS.

i Note

The device application is not preinstalled and must be downloaded. Downloads may take longer after a device application is uninstalled or when changing applications.

i Note

After the KNX voltage is applied, an automatic adjustment (calibration traverse) takes place. If the device is in the as-delivered state and no device application has yet been installed, the device functions in construction site mode. The device then controls with the internal sensor and uses a KNX system integrator to keep the room frost-free (6 °C) in the period between installation and commissioning.

6.3 General information about KNX Secure

ETS5 Version 5.5 and higher support secure communication in KNX systems. A distinction is made between secure communication via the IP medium using KNX IP Secure and secure communication via the TP and RF media using KNX Data Secure. The following information refers to KNX Data Secure.

In the ETS catalog, KNX products supporting "KNX Secure" are clearly identified.

As soon as a "KNX-Secure" device is included in the project, the ETS requests a project password. If no password is entered, the device is included with Secure Mode deactivated. However, the password can also be entered or changed later in the project overview.

6.3.1 Start-up with "KNX Data Secure"

For secure communication, the FDSK (Factory Default Setup Key) is required. If a KNX product supporting "KNX Data Secure" is included in a line, the ETS requires the input of the FDSK. Two FDSK stickers are included with delivery: one on the outside of the device's folding cover and the other on the supplied ABB security card. The sticker contains:

- The FDSK (QR code and 36 characters)
- The serial number (12 characters)

Note

For maximum security, please remove the stickers from the device and store the FDSK in a safe place.

The FDSK is required only for initial commissioning. ETS then assigns new keys. The FDSK will be required again only if the device was reset to its factory settings (e.g. if the device is to be used as a KNX DATA Secure device in a different system with a different ETS project).

The ETS generates as many runtime keys as needed for the group communication you want to protect. Via the bus, ETS sends the runtime keys to the device awaiting configuration. They are transmitted by encrypting and authenticating them via the tool key. The runtime keys are never sent in plain text via the bus.

The FDSK is saved in the project and can be viewed in the project overview.

All keys for this project can also be exported (backup).

During project planning, which functions/Group Objects are to communicate securely can be defined as follows. All Group Objects with encrypted communication are identified by the "Secure" icon in the ETS.

6.3.2 Start-up without "KNX Data Secure"

Alternatively, the device can also be put into operation without KNX Data Secure. In this case, the device is unsecured and behaves like any other KNX device without KNX Data Secure function.

To start up the device without KNX Data Secure, select the device in the 'Topology' or 'Devices' section and set the 'Secure start up' option in the 'Properties' area of the 'Settings' tab to 'Disabled'.

6.4 Putting the device into operation

1. Mount device on valve.
2. Connect the device to the bus (ABB i-bus® KNX).
3. Switch on KNX voltage.
 - ⇒ The device performs an automatic adjustment (calibration traverse).
 - ⇒ Device is ready for operation.

Note

After the KNX voltage is applied, an automatic adjustment (calibration traverse) takes place. If the device is in the as-delivered state and no device application has yet been installed, the device functions in construction site mode. The device then controls with the internal sensor and uses a KNX system integrator to keep the room frost-free (6 °C) in the period between installation and commissioning.

6.5 Assignment of the physical address

**CAUTION – Device damage due to electrostatic discharge**

The silicone cover protects the device electronics from electrostatic discharge.

- ▶ Do not remove the silicone cover.

Note

If it is set in ETS that the device application is to be downloaded during programming, the download will begin after assignment of the physical address.

Triggering assignment of the physical address via ETS:

1. Press *Programming* button.
 - ⇒ Programming mode active. *Programming* LED lights up.
2. Start programming process in ETS.
 - ⇒ Physical address is assigned. Device restarts.

i Note

The device performs an ETS reset during assignment of the physical address. All states are reset.

6.6 Software/device application

6.6.1 Download reaction

Depending on the PC, it can take up to 90 seconds for the progress bar to appear during a download.

Using an interface that supports download via "long frames" (e.g. USB/S 1.2 or IPR/S 3.5.1) can greatly shorten the download time.

6.6.2 Firmware update

The following functions can be performed with the ETS app *Firmware Update ST/K1.2*:

- *Update*: Changes the firmware to a later version

The ETS app *Firmware Update ST/K1.2* can be downloaded free of charge from the KNX Shop → www.KNX.org.

7 Parameters

7.1 General

Note

ETS (Engineering Tool Software) is used to parameterize the device.

The following sections describe the device parameters based on the parameter windows. The parameter windows have a dynamic design. Parameters are shown or hidden depending on parameterization and function.

The default values for the parameters are underlined, e.g.:

no (*checkbox cleared*)

yes (checkbox ticked)

Note

The default values in the device application can vary from the values stated in the product manual depending on the product variant.

Note

The largest and most extensive device in the product family is described below as an example.

7.1.1 Prerequisites for visibility

In the "Prerequisites for visibility" the ETS settings and product variants necessary to display a parameter window/parameter/Group Object are listed. If no "Prerequisites for visibility" are specified, parameter windows/parameters/Group Objects are always shown or the prerequisites are given by the higher-level parameter window.

The "Prerequisites for visibility" are structured as follows:

- Parameter window: all necessary prerequisites
- Parameters: Settings in other parameter windows, higher-level parameters, product variant required
- Group Objects: all necessary prerequisites

7.2 Overview of parameter windows

The device consists of one general block and 5 main functional blocks.

Parameter windows	Description
General	LED settings, activation of room temperature controller (RTC).
RTC	
Settings	General settings for temperature control
Actual value	Source for actual value measurement, actual value monitoring etc.
Operating mode	Operating mode after reset, presence sensor etc.
Setpoints	Base setpoint, frost protection, dead zone, heat protection etc.
Heating control	Control parameters, installation type etc. for heating mode.
Additional-stage heating	Type of actuating value, proportional band, transmission behavior.
Cooling control	Control parameters, installation type etc. for cooling mode.
Additional-stage cooling	Type of actuating value, proportional band, transmission behavior.
Setpoint adjustment	Settings for setpoint adjustment at high outdoor temperatures
Emergency program	Response to failure of actuating value or actual value. Settings of the monitoring function.
Window contact	Source for window status, number of contacts, delay etc.
Actuator	
Settings	General settings for the actuator: heating/cooling, valve protection, force function, etc.
Actuating value	Minimum and maximum actuating value etc.
Valve characteristics	Specific valve settings: Valve characteristic, direction of action, calibration strategy etc.
Emergency program	Reaction on failure of actuating value. Settings of the monitoring function.
Forced	Response in forced operation.
Pump control	
Pump control	Pump settings
External inputs I1, I2	
Configuration options	Function of the input, debounce time, number of telegrams, blocking function etc. Additionally, for I2: Selection of the temperature sensor, temperature calibration, etc.
Switch object 1, 2	Object type, transmission behavior, etc. can be set for each Group Object individually.
Push button object 1, 2	Object type, transmission behavior, etc. can be set for each Group Object individually.
Dimming	Type of control.
Blind	Type of control.
Double-click	Additional telegrams for dimming and blinds.
Window contact	Direction of action, cycl. Send, etc.

Tab. 8: Overview of parameter windows

i Note

If external input I1 is used as a source for the window contact, the channel *Input I1* is hidden (→ parameter [Source for window contact](#)).

i Note

If external input I2 is used as a source for the actual value, the channel *Input I2* is hidden (→ parameter [Source for actual value](#)).

7.3 Parameter window General

7.3.1 Function of the LEDs

Option	
<i>Always off</i>	The LEDs always remain off.
<i>Position display</i>	The LEDs indicate the current valve position as follows (from bottom to top): All LEDs Off: 0 % LED 5 On: 1 ... 20 % LEDs 4 and 5 On: 21 ... 40 % LEDs 3, 4 and 5 On: 41 ... 60 % LEDs 2, 3, 4 and 5 On: 61 ... 80 % All LEDs On: 81 ... 100 %

7.3.2 Reduce brightness of the LEDs

Option	
<i>Never</i>	The LEDs should always shine at maximum brightness.
<i>Always</i>	The LEDs should always shine at the specified brightness.
<i>Via bus</i>	It should be possible to reduce or dim the LEDs via bus telegrams.

Prerequisites for visibility

- Parameter window [General](#) \ Parameter [Function of the LEDs](#) \ Option [Position display](#)

7.3.3 Object type

Option	
<i>Via switch object</i>	Brightness reducible via switch telegram.
<i>Via percentage value</i>	Brightness can be configured as required via dim telegrams.

Prerequisites for visibility

- Parameter window [General](#) \ Parameter [Reduce brightness of the LEDs](#) \ Option [Via bus](#)

7.3.4 Value for reduced brightness

Option	
<i>0 ... 30 ... 100 %</i>	

Prerequisites for visibility

- Parameter window [General](#)
 - Parameter [Reduce brightness of the LEDs](#) \ Option [Via bus](#)
 - Parameter [Object type](#) \ Option [Via switch object](#)
- Or
 - Parameter [Reduce brightness of the LEDs](#) \ Option [Always](#)

7.3.5 Time/date format

The time data are useful for diagnostic purposes and enable time-dependent execution of the valve protection function.

Option	
<i>No time/date</i>	
<i>DPT 10.001 / DPT 11.001</i>	
<i>DPT 19.001</i>	

7.3.6 Send time request after reset every minute (until reception of time/date)

Option

*No**Yes*
Prerequisites for visibility

- Parameter window *General* \ Parameter *Time/date format* \ all options except *No time/date*

7.3.7 Send time request cyclically

Synchronisation interval of the internal clock.

Option

*Do not send**Every hour**Every x hours*
Prerequisites for visibility

- Parameter window *General* \ Parameter *Time/date format* \ all options except *No time/date*

7.3.8 Activate room temperature controller (RTC)

Option

No

The actuating value for the actuator is received via the bus.

Yes

The internal room temperature controller is used and controls the actuator.

7.3.9 Activate pump control

Option

*No**Yes*

7.4 Parameter window RTC

7.4.1 Parameter window Settings

Prerequisites for visibility

- Parameter window [General](#) \ Parameter [Activate room temperature controller \(RTC\)](#) \ Option Yes

7.4.1.1 Control functions used

Only for user-defined control.

Option

[Only heating](#)

[Heating and cooling](#)

[Only cooling](#)

7.4.1.2 Changeover between heating and cooling

Option

[Automatic](#)

The controller automatically switches to cooling mode if the actual temperature is above the setpoint.

[Via object](#)

Cooling mode can only be activated on the bus by one of the Group Objects [Heating mode/cooling mode](#) (1/0) or [Heating mode/cooling mode](#) (0/1).

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#) \ Parameter [Control functions used](#) \ Option [Heating and cooling](#)

7.4.1.3 Format of heating/cooling object

Option

[DPT 1.100 \(heating=1/cooling=0\)](#)

[Inverted \(heating=0/cooling=1\)](#)

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#) \ Parameter [Control functions used](#) \ Option [Heating and cooling](#)

7.4.1.4 Output of the cooling actuating value

Option

[On separate object](#)

For 4-pipe systems: The actuating values for heating and cooling are sent separately by means of two Group Objects.

[Together with heating actuating value](#)

For 2-pipe systems: The actuating value is always sent to the Group Object [Heating and cooling actuating value](#), independent of whether heating or cooling mode is active.

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#)
 - Parameter [Control functions used](#) \ Option [Heating and cooling](#)
 - Parameter [Changeover between heating and cooling](#) \ Option [Via object](#)

7.4.1.5 Setpoint correction at high outdoor temperature

→ parameter window *Setpoint adjustment*.

Option	
<i>None</i>	The function is deactivated.
<i>Receive only</i>	The correction value is received by the bus (ABB i-bus® KNX) and the own setpoint is adjusted to the increase in outside temperature.
<i>Calculate internally and send</i>	The device calculates the correction value, sends it to other controllers and adjusts the own setpoint to the increase in outside temperature.

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Settings* \ Parameter *Control functions used* \ Option *Heating and cooling / Only cooling*

7.4.1.6 Use operating modes

Option	
<i>No</i>	The setpoint can be specified as an absolute value via the Group Object <i>Setpoint</i> . Frost/heat protection are always ensured, regardless of this.
<i>Yes</i>	The setpoint is calculated based on the operating mode, the base setpoint, the manual shift, and the presence object.

7.4.1.7 Sending of actuating value

Applies to both the heating actuating value and the cooling actuating value (if available).

Option	
<i>At change by x%</i>	

7.4.1.8 Cycl. Sending of actuating value

Applies to both the heating actuating value and the cooling actuating value (if available).

Option	
<i>Do not send cyclically</i>	
<i>Every x minutes</i>	

7.4.2 Parameter window Actual value

This parameter window is used to select the source that will be used as an actual value for the control. This can be the temperature sensor integrated in the device, an external sensor, an actual value via Group Object, or a combination of these.

Note

If external input I2 is used as a source for the actual value, the channel *Input I2* is hidden (→ parameter [Source for actual value](#)).

Prerequisites for visibility

- Parameter window [General](#) \ Parameter [Activate room temperature controller \(RTC\)](#) \ Option *Yes*

7.4.2.1 Source for actual value

Option	
<i>Internal sensor</i>	The device measures and controls the room temperature via the internal sensor (actual value for control = internally measured temperature).
<i>External actual value object</i>	The room temperature is solely acquired via the bus (ABB i-bus® KNX).
<i>Sensor at I2</i>	External sensor at I2.
<i>Average value from internal + I2</i>	Average value of the internal value and the value measured at I2.
<i>Average value from int. + ext. object Actual value</i>	Use the average of the room temperature received from the bus (ABB i-bus® KNX) and the internal measurement.
<i>Average value from int. + I2 + ext. actual value object</i>	Use average value from 3 sources: I2 + internal + bus (ABB i-bus® KNX).
<i>Average value from I2 + ext. actual value object</i>	Use average value of I2 and bus (ABB i-bus® KNX).

7.4.2.2 Temperature calibration internal sensor

Correction value (0.1 K interval) for temperature measurement if sent temperature deviates from the actual ambient temperature.

Example

Temperature = 21°C
transmitted temperature = 20.5°C
correction value = 0.5 K

Option

-5 ... 0 ... +5 K

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Actual value](#) \ Parameter [Source for actual value](#) \ Option *Internal sensor* / *Average value from internal + I2* / *Average value from int. + ext. object Actual value* / *Average value from int. + I2 + ext. actual value object*

7.4.2.3 Temperature calibration sensor at I2

Correction value for the external temperature sensor at I2.

Example

Temperature = 21 °C, transmitted temperature = 20.5 °C, correction value 0.5 K.

Option

-5 ... 0... +5 K

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Actual value* \ Parameter *Source for actual value* \ Option *Sensor at I2 / Average value from internal + I2 / Average value from int. + I2 + ext. actual value object / Average value from I2 + ext. actual value object*

7.4.2.4**Send actual value in the event of change of**

Send if the value has changed by the selected amount since the last transmission.

Option

Not due to a change

x K

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Actual value* \ Parameter *Source for actual value* \ all options except *External actual value object*

7.4.2.5**Send actual value cyclically****Option**

Do not send cyclically

Every minute

Every x minutes

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Actual value* \ Parameter *Source for actual value* \ all options except *External actual value object*

7.4.2.6**Monitor actual value**

All selected actual value sources are monitored. If there is an error, the Group Object *Actual value failure* sends error telegrams.

As long as at least one valid actual value remains available, this will be continued to be used for control. This is the case if the average value is determined from 2 or 3 sources. If no valid actual value is available, control continues according to the parameters in the parameter window *Emergency program*.

Option

No

Yes

7.4.3 Parameter window Operating mode

Prerequisites for visibility

- Parameter window *General* \ Parameter *Activate room temperature controller (RTC)* \ Option *Yes*
- Parameter window *RTC* \ Parameter window *Settings* \ Parameter *Use operating modes* \ Option *Yes*

7.4.3.1 Operating mode after reset

Operating mode after start-up or reprogramming.

Option

Frost protection

Temperature reduction at night

Standby

Comfort

7.4.3.2 Type of presence sensor

The presence sensor activates the comfort operating mode.

Option

Presence detector

Comfort operating mode as long as the presence object is set.

Presence button

If, after the presence object has been set, the Group Object *Operating mode preset* is sent again, the new operating mode is accepted and the state of the presence object will be ignored.

If the presence object is set during night/frost mode, it will be reset after the configured comfort extension finishes. Exception: If a window is opened (window object = 1), the room temperature controller switches to frost protection mode.

The presence object is not reported back on the bus (ABB i-bus® KNX).

7.4.3.3 Comfort extension by presence button in night and frost protection mode

Party switching: with this feature, the presence object can temporarily switch the thermostat back from nighttime/frost mode to comfort mode. The time limit is not applied if the device was previously in standby mode. Comfort mode is only cleared with the next manual or bus controlled change of the operating mode.

Option

30 minutes

x hours

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Operating mode* \ Parameter *Type of presence sensor* \ Option *Presence button*

7.4.3.4 Cycl. transmission of current operating mode

Option

Do not send cyclically

Every x minutes

7.4.4 Parameter window Setpoints

i Note

This parameter window contains the setpoints for both heating and cooling mode, depending on which control function is used.

Prerequisites for visibility

- Parameter window [General](#) \ Parameter [Activate room temperature controller \(RTC\)](#) \ Option Yes

7.4.4.1 (Base) setpoint after loading the application

Output setpoint for temperature control.

Option

x °C

7.4.4.2 Minimum valid (base) setpoint

If the Group Object [Basic setpoint](#) receives a base setpoint that is lower than the value set in this parameter, the base setpoint in the parameter applies.

Option

x °C

7.4.4.3 Maximum valid (base) setpoint

If the Group Object [Basic setpoint](#) receives a base setpoint that is higher than the value set in this parameter, the base setpoint in the parameter applies.

Option

x °C

7.4.4.4 Maximum valid setpoint offset

Limits the possible setting range for the setpoint offset function. Applies to values received via the Group Object [Manual setpoint offset](#).

Option

$\pm x K$

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#) \ Parameter [Use operating modes](#) \ Option Yes

7.4.4.5 Setpoint offset applies

The setpoint offset is only considered in the selected modes, and is ineffective in all other modes.

Option

Only in comfort mode

With comfort and standby mode

With comfort, standby and night mode

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#) \ Parameter [Use operating modes](#) \ Option Yes

7.4.4.6 Current setpoint (in comfort mode)

Feedback of the current setpoint via the bus (ABB i-bus® KNX).

Option

Sends actual value (heating < > cooling)

The setpoint actually being used for control (= current setpoint) has always to be sent. Example with base setpoint of 21 °C and dead zone of 2 K: During heating, 21 °C is sent, and during cooling, base setpoint + dead zone is sent (21 °C + 2 K = 23 °C).

Send average value between heating and cooling

The same value is sent in comfort mode during both heating and cooling mode (base setpoint + half dead zone). Example with base setpoint of 21 °C and dead zone of 2 K: Average = 21 °C + 1 K = 22 °C. Although control takes place at 21 °C or 23 °C.

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#)
 - Parameter [Control functions used](#) \ Option [Heating and cooling](#)
 - Parameter [Use operating modes](#) \ Option Yes

7.4.4.7 Reduction in standby mode (during heating)

Example

At a base setpoint of 21 °C in heating mode and a reduction of 2 K, the device controls with a setpoint of 21 °C – 2 K = 19 °C.

Option

x K

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#)
 - Parameter [Control functions used](#) \ Option [Only heating / Heating and cooling](#)
 - Parameter [Use operating modes](#) \ Option Yes

7.4.4.8 Reduction in night mode (during heating)

Option

x K

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#)
 - Parameter [Control functions used](#) \ Option [Only heating / Heating and cooling](#)
 - Parameter [Use operating modes](#) \ Option Yes

7.4.4.9 Setpoint for frost protection mode (during heating)

Preset temperature for frost protection mode in heating mode. (Heat protection applies in cooling mode).

Option

x °C

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Settings* \ Parameter *Control functions used* \ Option *Only heating / Heating and cooling*

7.4.4.10 Dead band between heating and cooling

Specifies the buffer zone between setpoints for heating and cooling mode.

Option

x K

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Settings* \ Parameter *Control functions used* \ Option *Heating and cooling*

7.4.4.11 Increase in standby mode (during cooling)

The standby temperature is increased in cooling mode.

Option

x K

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Settings*
 - Parameter *Control functions used* \ Option *Heating and cooling / Only cooling*
 - Parameter *Use operating modes* \ Option *Yes*

7.4.4.12 Increase in night mode (during cooling)

The standby temperature is increased in cooling mode.

Option

x K

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Settings*
 - Parameter *Control functions used* \ Option *Heating and cooling / Only cooling*
 - Parameter *Use operating modes* \ Option *Yes*

7.4.4.13 Setpoint for heat protection mode (during cooling)

Heat protection represents the maximum permitted temperature for the controlled room. It performs the same function during cooling as frost protection mode during heating, e.g. saves energy while prohibiting non-permitted temperatures.

Option

x °C

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#) \ Parameter [Control functions used](#) \ Option *Heating and cooling / Only cooling*

7.4.4.14 Cycl. transmission of current setpoint**Option**

Do not send cyclically

Every x minutes

7.4.5 Parameter window Heating control

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#) \ Parameter [Control functions used](#) \ Option [Only heating / Heating and cooling](#)

7.4.5.1 Number of heating stages

Option

[Only one heating stage](#)

[Main stage and additional stage](#)

7.4.5.2 Setting the control parameters

Option

[Via installation type](#) Standard use.

[User-defined](#) Professional use: Configure P/PI controller yourself.

7.4.5.3 Installation type

Option

[Radiator heating system](#) PI controller with integration time = 90 minutes, bandwidth = 2.5 K.

[Underfloor heating](#) PI controller with integration time = 30 h, bandwidth = 4 K.

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Heating control](#) \ Parameter [Setting the control parameters](#) \ Option [Via installation type](#)

7.4.5.4 Proportional band of heating controller

Professional setting for adapting the control response to the room. Small values cause large changes in actuating values, larger values cause finer actuating value adjustment.

Option

$x K$

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Heating control](#) \ Parameter [Setting the control parameters](#) \ Option [User-defined](#)

7.4.5.5 Integration time of the heating controller

The integration time determines the response time of the control. It establishes the increase by which the output actuating value is raised in addition to the P share. The I share remains active for as long as there is a control deviation. The I share is added to the P share.

Option

Pure P controller

x minutes

x hours

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Heating control](#) \ Parameter [Setting the control parameters](#) \ Option *User-defined*

7.4.6 Parameter window Additional-stage heating

Temperature control is done via a proportional controller.

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Heating control* \ Parameter *Number of heating stages* \ Option *Main stage and additional stage*

7.4.6.1 Type of actuating value

Option	
<i>Percent</i>	Continuous actuating value 0-100%.
<i>PWM</i>	Pulse-width modulated switching actuating value.

7.4.6.2 Difference between main stage and additional stage

Defines the negative distance between the current setpoint and the setpoint of the additional stage.

Example

Base setpoint 21 °C, difference 1 K. The main stage controls with the base setpoint and the addition stage controls with base setpoint – 1 K = 20 °C.

Option	
<i>x K</i>	

7.4.6.3 Proportional band

With continuous additional stage, professional setting for adapting the control response to the room. Large values cause finer changes to the control variables with the same control deviation and more precise control than smaller values.

Option	
<i>x K</i>	

7.4.6.4 PWM period

An actuation cycle consists of a switch-on and a switch-off process and forms a PWM period.

Example

Actuating value = 20%, PWM time= 10 min. In an actuating cycle of 10 min, 2 min switched on and 8 min switched off (i.e. 20% on, 80% off).

Option

3 ... 5 ... 30 min

Prerequisites for visibility

Parameter window [RTC](#) \ Parameter window [Additional-stage heating](#) \ Parameter [Type of actuating value](#) \ Option *PWM*

7.4.6.5**Sending of actuating value**

The change of the actuating value since the last transmission that the new value is to be sent after. Small values increase control accuracy, but also the bus load.

Option

At change by x%

Prerequisites for visibility

Parameter window [RTC](#) \ Parameter window [Additional-stage heating](#) \ Parameter [Type of actuating value](#) \ Option *Percent*

7.4.6.6**Cyclic sending****Option**

Do not send cyclically

Every minute

Every x minutes

7.4.7 Parameter window Cooling control

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#) \ Parameter [Control functions used](#) \ Option [Heating and cooling / Only cooling](#)

7.4.7.1 Number of cooling stages

Option

[Only one cooling stage](#)

[Main stage and additional stage](#)

7.4.7.2 Setting the control parameters

Option

[Via installation type](#)

Standard use.

[User-defined](#)

Professional use: Configure P/PI controller yourself.

7.4.7.3 Installation type

Option

[Cooling ceiling](#)

PI controller with integration time = 240 minutes, bandwidth = 5 K.

[Fan coil unit](#)

PI controller with integration time = 180 minutes, bandwidth = 4 K.

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Cooling control](#) \ Parameter [Setting the control parameters](#) \ Option [Via installation type](#)

7.4.7.4 Proportional band of the cooling controller

Professional setting for adapting the control response to the room. Large values cause finer changes to the actuating value with the same control deviation and more precise control than smaller values.

Option

$x K$

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Cooling control](#) \ Parameter [Setting the control parameters](#) \ Option [User-defined](#)

7.4.7.5 Integration time of the cooling controller

The integration time determines the response time of the control. It establishes the increase by which the output actuating value is raised in addition to the P share. The I share remains active for as long as there is a control deviation. The I share is added to the P share.

Option

Pure P controller

x minutes

x hours

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Cooling control](#) \ Parameter [Setting the control parameters](#) \ Option *User-defined*

7.4.8 Parameter window Additional-stage cooling

Temperature control is done via a proportional controller.

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Cooling control* \ Parameter *Number of cooling stages* \ Option *Main stage and additional stage*

7.4.8.1 Type of actuating value

Option	
<i>Percent</i>	Continuous actuating value 0-100%.
<i>PWM</i>	Pulse-width modulated switching actuating value.

7.4.8.2 Difference between main stage and additional stage

Defines the positive distance between the current setpoint and the setpoint of the additional stage.

Example

Base setpoint 21 °C, difference 1 K. The main stage controls with the base setpoint and the additional stage controls with base setpoint + 1 K = 22 °C.

Option	
<i>x K</i>	

7.4.8.3 Proportional band

With continuous additional stage, professional setting for adapting the control response to the room. Large values cause finer changes to the control variables with the same control deviation and more precise control than smaller values.

Option	
<i>x K</i>	

7.4.8.4 PWM period

An actuation cycle consists of a switch-on and a switch-off process and forms a PWM period.

Example

Actuating value = 20%, PWM time= 10 min. In an actuating cycle of 10 min, 2 min switched on and 8 min switched off (i.e. 20% on, 80% off).

Option

3 ... 5 ... 30 min

Prerequisites for visibility

Parameter window [RTC](#) \ Parameter window [Additional-stage cooling](#) \ Parameter [Type of actuating value](#) \ Option *PWM*

7.4.8.5**Sending of actuating value**

The change of the actuating value since the last transmission that the new value is to be sent after. Small values increase control accuracy, but also the bus load.

Option

At change by x%

Prerequisites for visibility

Parameter window [RTC](#) \ Parameter window [Additional-stage cooling](#) \ Parameter [Type of actuating value](#) \ Option *Percent*

7.4.8.6**Cyclic sending****Option**

Do not send cyclically

Every minute

Every x minutes

7.4.9 Parameter window Setpoint adjustment

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Settings*
 - Parameter *Control functions used* \ Option *Heating and cooling / Only cooling*
 - Parameter *Setpoint correction at high outdoor temperature* \ all options except *None*

7.4.9.1 Setpoint correction in cooling mode from outside temperature

Activation threshold for setpoint correction.

Option

x °C

7.4.9.2 Adjustment

Strength of setpoint correction: At which change of the outdoor temperature should the setpoint be adjusted by 1 K?

Option

1 K per x K outdoor temperature

7.4.9.3 Setpoint adjustment format

Option

Relative

The Group Object *Outdoor temperature compensation* sends a temperature difference in K, depending on the outdoor temperature. This value can be used as a setpoint offset for additional room temperature controllers.

Absolute

The Group Object *Outdoor temperature compensation* sends a setpoint in °C (base setpoint without correction). This is increased depending on the outdoor temperature and serves as setpoint for additional temperature controllers.

7.4.9.4 Start setpoint

This is the base setpoint for the external controller. If correction is required, it is added to this and the result is sent as a new, adjusted setpoint

Option

15 ... 21 ... 30 °C

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Setpoint adjustment* \ Parameter *Setpoint adjustment format* \ Option *Absolute*

7.4.9.5 Maximum adjustment

Option

Unlimited

When *Setpoint correction at high outdoor temperature* = *Calculate internally and send*. The setpoint continues to increase as long as the outside temperature increases.

Until heat protection temp. reached

When *Setpoint correction at high outdoor temperature* = *Receive only*. The setpoint is only increased up to the configured heat protection temperature.

$+ x$ K

The setpoint increase ends as soon as the adjustment has achieved the set value.

7.4.9.6

Send setpoint adjustment

Option
<i>Do not send cyclically</i>
<i>Every minute</i>
<i>Every x minutes</i>

7.4.10 Parameter window Emergency program

In case of actual value failure, the valve can be moved to a fixed position.

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Actual value* \ Parameter *Monitor actual value* \ Option *Yes*

7.4.10.1 Behavior during emergency program

Option	
<i>Fixed valve position</i>	The valve is moved to a predefined position.
<i>Continue regulation with internal sensor</i>	The measurement value of the integrated temperature sensor is used as the actual value for the control.

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Actual value* \ Parameter *Source for actual value* \ Option *External actual value object / Sensor at I2 / Average value from I2 + ext. actual value object*

7.4.10.2 Fixed valve position

Fixed valve setting if no actual value could be received.

Option	
<i>0 ... 20 ... 25 %</i>	

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Emergency program* \ Parameter *Behavior during emergency program* \ Option *Fixed valve position*

Or

- Parameter window *RTC* \ Parameter window *Actual value* \ Parameter *Source for actual value* \ Option *Internal sensor / Average value from internal + I2 / Average value from int. + ext. object Actual value / Average value from int. + I2 + ext. actual value object*

7.4.10.3 Monitoring time

Only for the Group Object *External actual value*. If no value is received within the configured time and the Group Object is the only selected source, the emergency program will be activated. As long as at least one valid actual value remains available, this will be continued to be used for control, and the emergency program remains inactive. This is the case if the average value is determined from 2 or 3 sources.

Option	
<i>Every minute</i>	
<i>Every x minutes</i>	

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Actual value* \ Parameter *Source for actual value* \ Option *External actual value object / Average value from int. + ext. object Actual value / Average value from int. + I2 + ext. actual value object / Average value from int. + ext. object Actual value*

7.4.10.4 Send status cyclically

Option	
<i>No</i>	Send status once on change.
<i>Only in the event of an error</i>	Only sends in the event of an error, cyclically and in the event of a change: error = 1.
<i>Always</i>	The Group Object sends the current status, even if there is no error. Error = 1, no error = 0

7.4.10.5 Cycle time

Only available if cyclic sending is parameterized.

Option	
<i>Every x minutes</i>	

7.4.11 Parameter window Window contact

i Note

If external input I1 is used as a source for the window contact, the channel *Input I1* is hidden (→ parameter [Source for window contact](#)).

Prerequisites for visibility

- Parameter window [General](#) \ Parameter [Activate room temperature controller \(RTC\)](#) \ Option [Yes](#)

7.4.11.1 Source for window contact

Option

<u>Via object</u>	Up to 10 Group Objects are available for window contacts. The status of several window contacts can be received via these Group Objects. All Group Objects are connected via an OR link. As soon as one of these Group Objects receives a 1, the window status = <i>window open</i> applies, and frost/heat protection mode is activated.
<u>External input I1 (direct)</u>	A window contact is connected to the external input I1.

7.4.11.2 Delay of setpoint switching when opening

Option

<u>No Delay</u>	The frost/heat protection mode is activated immediately when the <i>Window open</i> status is detected.
<u>x s</u>	Frost/heat protection is not activated until the set time has elapsed. Opening the window for a short time has no effect. When closing the window, the previous mode will immediately be reactivated.
<u>x min</u>	Frost/heat protection is not activated until the set time has elapsed. Opening the window for a short time has no effect. When closing the window, the previous mode will immediately be reactivated.

7.4.11.3 Number of window contacts

Desired number of window contact objects.

Option

1 ... 10

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Window contact](#) \ Parameter [Source for window contact](#) \ Option [Via object](#)

7.4.11.4 Type of connected window contact

Option

Window open = contact closed

Window open = contact open

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Window contact](#) \ Parameter [Source for window contact](#) \ Option [External input I1 \(direct\)](#)

7.4.11.5 Activate block function

Option	
<u>No</u>	
Yes	

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Window contact](#) \ Parameter [Source for window contact](#) \ Option [External input I1 \(direct\)](#)
- or
- Parameter window [Input Ix](#) \ Parameter window [Configuration options](#) \ Parameter [Function](#) \ Option [Switch / Pushbutton / Dimming / Blind / Window contact](#)

7.4.11.6 Block telegram

Option	
<u>Block with 1 (standard)</u>	0 = cancel block, 1 = block
Block with 0	0 = block, 1 = cancel block

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Window contact](#) \ Parameter [Activate block function](#) \ Option [Yes](#)
- or
- Parameter window [Input Ix](#) \ Parameter window [Configuration options](#) \ Parameter [Activate block function](#) \ Option [Yes](#)

7.4.11.7 Response when the block is set

Option	
<u>Ignore block</u>	The block function is ineffective with this telegram.
No response	Do not respond when the block is set.
As with closed window	Respond as with window status = closed.
As with open window	Respond as with window status = open.

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Window contact](#) \ Parameter [Activate block function](#) \ Option [Yes](#)

7.4.11.8 Response when cancelling the block

Only available if a reaction when setting a block is parameterized.

Option	
<u>No response</u>	Do not respond when the block is cancelled.
Update	Send update telegram.

7.4.11.9 Send window status cyclically**Option**No

Yes, always

Only with closed window

Only with open window

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Window contact*
 - Parameter *Source for window contact* \ Option *External input I1 (direct)*
 - Or
 - Parameter *Source for window contact* \ \ Option *Via object*
 - Parameter *Number of window contacts* \ Option *> 1*

7.4.11.10 Cycle time

Only available if cyclic sending is parameterized.

OptionEvery minute

Every x minutes

7.4.11.11 Response after restoration of the bus supply**Option**None

The function is deactivated.

Update (after approx. x s)

Send update telegram.

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Window contact*
 - Parameter *Source for window contact* \ Option *External input I1 (direct)*
 - Or
 - Parameter *Source for window contact* \ \ Option *Via object*
 - Parameter *Number of window contacts* \ Option *> 1*

7.5 Parameter window Actuator

7.5.1 Parameter window Settings

7.5.1.1 Actuator processes actuating value for

Option	
<u>Heating</u>	Actuator only responds to the heating actuating value.
<u>Cooling</u>	Actuator only responds to the cooling actuating value.
<u>Heating/cooling</u>	Setting for 2-pipe system when changeover between heating and cooling takes place via object → parameter Changeover between heating and cooling .

Prerequisites for visibility

- Parameter window [RTC](#) \ Parameter window [Settings](#) \ Parameter [Control functions used](#) \ Option [Heating and cooling](#)

7.5.1.2 Activate valve protection

This function prevents the valve from seizing and is executed if the valve position has not changed for 7 days. The valve is moved once over the entire travel path.

Option
<u>No</u>
<u>Yes</u>

7.5.1.3 Time slot

Time period in which the valve protection function is to be active.

Note

A time/date format must be set → parameter [Time/date format](#).

Option
<u>00:00-4:00</u>
<u>4:00-8:00</u>
<u>8:00-12:00</u>
<u>12:00-16:00</u>
<u>16:00-20:00</u>
<u>20:00-0:00</u>

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Settings](#) \ Parameter [Activate valve protection](#) \ Option [Yes](#)

7.5.1.4 Activate force function

Option
<u>No</u>
<u>Yes</u>

7.5.1.5 Activate diagnostic messages

Only for diagnostics and maintenance; unhides diagnosis objects.

Option

No

Yes

7.5.2 Parameter window Actuating value

7.5.2.1 Minimum actuating value

Lowest permissible actuating value.

Option

x %

7.5.2.2 Maximum actuating value

Highest permissible actuating value.

Option

x %

7.5.2.3 Actuating value when value violates the min./max. actuating value

Restriction when the controller receives an actuating value that is less than the minimum actuating value.

More information: → [Restriction of actuating value, Page 110](#).

Option

0% or 100%

Actuate channel with 0% or 100%.

0 = 0%, otherwise use set actuating values

If the received actuating value is = 0, accept this value and close the valve. Other values are restricted according to the configured minimum and maximum actuating value. Received values > 0% and < min. actuating value are replaced by the minimum actuating value. In the same way, values > max. actuating value are replaced by the set maximum actuating value.

Use set actuating values

Restrict values to maximum and minimum actuating value. For example, maintaining a minimum actuating value of 10% can be practical for the correct base temperature of underfloor heating.

< min. actuating val. = 0%, otherwise scale

Actuating values below the minimum actuating value are executed at 0%. Values above are scaled in proportion to the range between min. actuating value and 100%.

7.5.2.4 Monitor actuating value

If the actuating value via the bus (ABB i-bus® KNX) is not received within the time set in the parameter [Monitoring time](#), an emergency program starts (→ parameter window [Emergency program](#)).

Option

No

Yes

Prerequisites for visibility

- Parameter window [General](#) \ Parameter [Activate room temperature controller \(RTC\)](#) \ Option *No*

7.5.2.5 Send highest actuating value

Option

Only if own actuating value is greater

Only send the own actuating value if all other actuators have a lower actuating value.

Cyclic sending

The own actuating value is sent cyclically and thus starts a new actuating value comparison.

7.5.2.6

Cycle time

Only available if cyclic sending is parameterized.

Option

Every x minutes

7.5.3 Parameter window Valve characteristics

7.5.3.1 Valve settings

Option

Standard

User-defined

7.5.3.2 Direction of action of valve

Option

Normal, closed when pressed For all common valves.

Inverted, open when pressed Adaptation to inverted valves.

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Valve characteristics](#) \ Parameter [Valve settings](#) \ Option *User-defined*

7.5.3.3 Strategy for valve identification

Option

Standard The valve is closed with a pre-defined force → parameter [Closing force for](#). The 0% position is checked at the valve with every run, and the "100% open" position is measured at the valve.

Power-controlled with defined valve stroke The 0% position is checked at the valve with every run, and the 100% (open) position is determined from the set stroke.

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Valve characteristics](#) \ Parameter [Valve settings](#) \ Option *User-defined*

7.5.3.4 Closing force for

This parameter determines the closing force for the 0% position.

Option

Standard valves

Valves with high spring tension

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Valve characteristics](#) \ Parameter [Valve settings](#) \ Option *User-defined*

7.5.3.5 Valve stroke

Here, the traverse from the 0% to the 100 % position is set manually.

Option

2 ... 3 ... 8 mm

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Valve characteristics](#) \ Parameter [Strategy for valve identification](#) \ Option *Power-controlled with defined valve stroke*

7.5.3.6 Type of valve seal

This parameter should only be changed if the valve does not open at low actuating values.

Option

<u>Standard valve seal</u>	
Valve with hard seal	
Valve with soft seal	
Valve with medium-soft seal	

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Valve characteristics](#) \ Parameter [Valve settings](#) \ Option *User-defined*

7.5.3.7 Valve characteristic

Option

<u>Linear characteristic curve</u>	For high quality valves where the flow is proportional to the travel of the valve tappet.
<u>Own characteristic curve</u>	For special valves with known characteristic curve or for special applications.
<u>Typical characteristic curve</u>	For all common valve types.

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Valve characteristics](#) \ Parameter [Valve settings](#) \ Option *User-defined*

7.5.3.8 Move to new valve position

Option

<u>Always position exactly</u>	The valve will be repositioned at each change of the actuating value.
<u>With change of actuating value > x%</u>	The valve will only be repositioned if the actuating value has changed by more than the set value, compared to the last positioning. This enables frequent, small positioning increments to be suppressed. Important: Too high a value can affect the temperature control.

7.5.3.9 Send when valve position changes

Option

<u>When reaching the end position</u>	Only send when the required valve position is reached.
<u>At change by x%</u>	Send new valve position at the configured distance, during positioning and when the required valve position is reached.

7.5.3.10 Cycl. Sending of valve position

Option

<u>Do not send cyclically</u>	
<u>Every x minutes</u>	

7.5.3.11 Valve position after reset or restoration of the bus supply

Option

<u>As before reset</u>	
<u>x %</u>	

Prerequisites for visibility

- Parameter window [General](#) \ Parameter [Activate room temperature controller \(RTC\)](#) \ Option *No*

7.5.3.12 Send calibration error object cyclically

Option
<i>No</i>
<i>Only in the event of an error</i>
<i>Always</i>

7.5.3.13 Cycle time

Only available if cyclic sending is parameterized.

Option
<i>Every x minutes</i>

7.5.4 Parameter window Linear valve characteristic

The linear valve characteristic setting is only to be used for valves that are explicitly marked as linear.

In this parameter window, the values are only displayed and cannot be changed.

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Valve characteristics](#) \ Parameter [Valve characteristic](#) \ Option *Linear characteristic curve*

7.5.5 Parameter window Own valve characteristic

Professional setting for special valves.

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Valve characteristics](#) \ Parameter [Valve characteristic](#) \ Option *Own characteristic curve*

7.5.5.1 Valve stroke in % for x% volume flow

Using the characteristic curve of the valve (manufacturer's documentation), the behavior of the actuator can be precisely adjusted here. These parameters allow you to adapt to a valve via 9 points of the characteristic curve (10%...90% volume flow). At how many % valve stroke a certain flow rate is achieved is set for each point.

Option

0 ... 100 %

7.5.6 Parameter window Emergency program

Prerequisites for visibility

- Parameter window [General](#) \ Parameter [Activate room temperature controller \(RTC\)](#) \ Option [No](#)
- Parameter window [Actuator](#) \ Parameter window [Actuating value](#) \ Parameter [Monitor actuating value](#) \ Option [Yes](#)

7.5.6.1 Behavior during emergency program

Option	
Fixed valve position	The valve is moved to a predefined position.
Continue regulation with internal sensor	The room temperature is controlled to a fixed value by means of the integrated temperature sensor.

7.5.6.2 Fixed valve position

Fixed valve setting if no actuating value could be received.

Option	
0 ... 20 ... 25 %	

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Emergency program](#) \ Parameter [Behavior during emergency program](#) \ Option [Fixed valve position](#)

7.5.6.3 Setpoint for emergency program

Continue to control to this temperature with the internal sensor.

Option	
6 ... 25 °C	

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Emergency program](#) \ Parameter [Behavior during emergency program](#) \ Option [Continue regulation with internal sensor](#)

7.5.6.4 Monitoring time

Only for the Group Object [Move to position](#). If no actuating value is received within the configured time, the emergency program will be activated.

Option	
Every minute	
Every x minutes	

7.5.6.5 Send status cyclically

Option	
No	Send status once on change.
Only in the event of an error	Only sends in the event of an error, cyclically and in the event of a change: error = 1.
Always	The Group Object sends the current status, even if there is no error. Error = 1, no error = 0

7.5.6.6

Cycle time

Only available if cyclic sending is parameterized.

Option

Every x minutes

7.5.7 Parameter window Forced

Prerequisites for visibility

- Parameter window [Actuator](#) \ Parameter window [Settings](#) \ Parameter [Activate force function](#) \ Option Yes

7.5.7.1 Valve position in forced operation

Fixed actuating value to control the valve in forced operation. This is not restricted by the minimum or the maximum actuating value.

Option

0 ... 100 %

7.5.7.2 Forced telegram

Option

1 = Force (standard)

Forced operation is activated with an ON telegram.

0 = Force

Inverted: Forced operation is activated with an OFF telegram.

7.6 Parameter window Pump control

Prerequisites for visibility

- Parameter window [General](#) \ Parameter [Activate pump control](#) \ Option Yes

7.6.1 Delay for switching off

Option

No delay for switching off

x minutes

7.6.2 Delay for switching on

Option

No Delay

x seconds

x minutes

7.6.3 Send pump control cyclically

Option

No, only in the event of change

Cyclically and at change

7.6.4 Cycle time

Only available if cyclic sending is parameterized.

Option

Every x minutes

7.7 Parameter window Input Ix

i Note

If external input I1 is used as a source for the window contact, the channel *Input I1* is hidden (→ parameter [Source for window contact](#)).

i Note

If external input I2 is used as a source for the actual value, the channel *Input I2* is hidden (→ parameter [Source for actual value](#)).

i Note

The *temperature input* function is only possible with input I2.
Applicable sensor types: NTC 100k (at 25 °C).

7.7.1 Parameter window Configuration options

7.7.1.1 Function

Option

Switch

Pushbutton

Dimming

Blind

Window contact

Temperature input (I2 only)

7.7.1.2 Debounce time

In order to avoid disruptive switching due to bouncing of the contact connected to the input, the new status of the input is only accepted after a delay time. Values > 1 s can be used as a delay for switching on.

Option

30 ms

50 ms

80 ms

100 ms

200 ms

1 s

5 s

10 s

Prerequisites for visibility

- Parameter window [Input Ix](#) \ Parameter window [Configuration options](#) \ Parameter [Function](#) \ Option [Switch](#) / [Pushbutton](#) / [Dimming](#) / [Blind](#) / [Window contact](#)

7.7.1.3 Connected button is

Option

NO contact

NC contact

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Function* \ Option *Pushbutton*

7.7.1.4 Long button push starting at

Serves to clearly differentiate between long and short button push. If the button is pressed for at least as long as the set time, then a long button push will be registered.

Option

300 ... 1000 ms

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Function* \ Option *Pushbutton / Dimming / Blind*

7.7.1.5 Time for double-click

Serves to differentiate between a double-click and 2 single clicks. Time period in which the second click must begin, in order to recognise a double-click.

Option

300 ... 1000 ms

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Function* \ Option *Pushbutton*

or

- Parameter window *Input Ix* \ Parameter window *Configuration options*
 - Parameter *Function* \ Option *Dimming / Blind*
 - Parameter *Double-click additional function* \ Option *Yes*

7.7.1.6 Cycle time for cyclic sending

Common cycle time for all output objects of the channel.

Option

Every minute

Every x minutes

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Function* \ Option *Switch / Pushbutton / Window contact*

7.7.1.7 How many telegrams should be sent

Each channel has 2 output objects and can thus send up to 2 different telegrams.

Option

One telegram

Two telegrams

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Function* \ Option *Switch / Pushbutton*

7.7.1.8 Double-click additional function

Unhides the parameter window *Double-click*.

Option

No

Yes

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Function* \ Option *Dimming / Blind*

7.7.1.9 Activate block function

Option

No

Yes

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Window contact* \ Parameter *Source for window contact* \ Option *External input I1 (direct)*

or

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Function* \ Option *Switch / Pushbutton / Dimming / Blind / Window contact*

7.7.1.10 Block telegram

Option

Block with 1 (standard) 0 = cancel block, 1 = block

Block with 0 0 = block, 1 = cancel block

Prerequisites for visibility

- Parameter window *RTC* \ Parameter window *Window contact* \ Parameter *Activate block function* \ Option *Yes*

or

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Activate block function* \ Option *Yes*

7.7.2 Parameter window Switch object x

Each of the 2 output objects can be configured individually in its own parameter window.

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Function* \ Option *Switch*

7.7.2.1 Object type

Option
<i>Switching (1 bit)</i>
<i>Priority (2 bit)</i>
<i>Value 0-255</i>
<i>Percentage value (1 byte)</i>

7.7.2.2 Send if input = 1

Send with rising edge.

Option
<i>No</i>
<i>Yes</i>

7.7.2.3 Telegram

Option	
<i>On</i>	With object type = switching (1 bit): Send switch-on command.
<i>Off</i>	With object type = switching (1 bit): Send switch-off command.
<i>Changeover</i>	With object type = switching (1 bit): Invert current state.
<i>No priority</i>	With object type = priority (2 bit): Priority inactive, value 0 (00 _{bin}).
<i>Priority On</i>	With object type = priority (2 bit): Priority On, value 3 (11 _{bin}).
<i>Priority Off</i>	With object type = priority (2 bit): Priority Off, value 2 (10 _{bin}).
<i>0 ... 255</i>	With object type = value 0-255: Any value between 0 and 255 can be sent.
<i>0 ... 100 %</i>	With object type = percentage value (1 byte): Any percentage value between 0 and 100% can be sent.

7.7.2.4 Send if input = 0

Send with falling edge.

Option
<i>No</i>
<i>Yes</i>

7.7.2.5 Telegram

Option	
<i>On</i>	With object type = switching (1 bit): Send switch-on command.
<i>Off</i>	With object type = switching (1 bit): Send switch-off command.
<i>Changeover</i>	With object type = switching (1 bit): Invert current state.
<i>No priority</i>	With object type = priority (2 bit): Priority inactive, value 0 (00 _{bin}).
<i>Priority On</i>	With object type = priority (2 bit): Priority On, value 3 (11 _{bin}).
<i>Priority Off</i>	With object type = priority (2 bit): Priority Off, value 2 (10 _{bin}).
<i>0 ... 255</i>	With object type = value 0–255: Any value between 0 and 255 can be sent.
<i>0 ... 100 %</i>	With object type = percentage value (1 byte): Any percentage value between 0 and 100% can be sent.

7.7.2.6 Cyclic sending

The cycle time is set in the parameter window [Configuration options](#).

Option	
<i>No</i>	
<i>Yes, always</i>	
<i>Only if input = 1</i>	
<i>Only if input = 0</i>	

7.7.2.7 Response after restoration of the bus supply

Option	
<i>None</i>	The function is deactivated.
<i>Update (after approx. x s)</i>	Send update telegram.

7.7.2.8 Response when the block is set

Option	
<i>Ignore block</i>	The block function is ineffective with this telegram.
<i>No response</i>	Do not respond when the block is set.
<i>As with input = 1</i>	Respond as with rising edge.
<i>As with input = 0</i>	Respond as with falling edge.

Prerequisites for visibility

- Parameter window [Input Ix](#) \ Parameter window [Configuration options](#) \ Parameter [Activate block function](#) \ Option [Yes](#)

7.7.2.9 Response when cancelling the block

Only available if a reaction when setting a block is parameterized.

Option	
<i>No response</i>	Do not respond when the block is cancelled.
<i>Update</i>	Send update telegram.

7.7.3 Parameter window Pushbutton object x

Each of the 2 output objects can be configured individually in its own parameter window.

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Function* \ Option *Pushbutton*

7.7.3.1 Object type

Option
<i>Switching (1 bit)</i>
<i>Priority (2 bit)</i>
<i>Value 0-255</i>
<i>Percentage value (1 byte)</i>

7.7.3.2 Send after short operation

Option
<i>Do not send</i>
<i>Send telegram</i>

7.7.3.3 Telegram

Option	
<i>On</i>	With object type = switching (1 bit): Send switch-on command.
<i>Off</i>	With object type = switching (1 bit): Send switch-off command.
<i>Changeover</i>	With object type = switching (1 bit): Invert current state.
<i>No priority</i>	With object type = priority (2 bit): Priority inactive, value 0 (00 _{bin}).
<i>Priority On</i>	With object type = priority (2 bit): Priority On, value 3 (11 _{bin}).
<i>Priority Off</i>	With object type = priority (2 bit): Priority Off, value 2 (10 _{bin}).
<i>0 ... 255</i>	With object type = value 0–255: Any value between 0 and 255 can be sent.
<i>0 ... 100 %</i>	With object type = percentage value (1 byte): Any percentage value between 0 and 100% can be sent.

7.7.3.4 Send after long operation

Option	
<i>Do not send</i>	Each button push is treated as a short button push.
<i>Send telegram</i>	After a long button push, the telegram configured for this purpose is sent.

7.7.3.5 Telegram

Option	
<i>On</i>	With object type = switching (1 bit): Send switch-on command.
<i>Off</i>	With object type = switching (1 bit): Send switch-off command.
<i>Changeover</i>	With object type = switching (1 bit): Invert current state.
<i>No priority</i>	With object type = priority (2 bit): Priority inactive, value 0 (00 _{bin}).
<i>Priority On</i>	With object type = priority (2 bit): Priority On, value 3 (11 _{bin}).
<i>Priority Off</i>	With object type = priority (2 bit): Priority Off, value 2 (10 _{bin}).
<i>0 ... 255</i>	With object type = value 0–255: Any value between 0 and 255 can be sent.
<i>0 ... 100 %</i>	With object type = percentage value (1 byte): Any percentage value between 0 and 100% can be sent.

7.7.3.6 Send after double-click

Option	
<i>Do not send</i>	No double-click function. Double clicks are treated as 2 single clicks.
<i>Send telegram</i>	After double-click, the telegram configured for this purpose is sent.

7.7.3.7 Telegram

Option	
<i>On</i>	With object type = switching (1 bit): Send switch-on command.
<i>Off</i>	With object type = switching (1 bit): Send switch-off command.
<i>Changeover</i>	With object type = switching (1 bit): Invert current state.
<i>No priority</i>	With object type = priority (2 bit): Priority inactive, value 0 (00 _{bin}).
<i>Priority On</i>	With object type = priority (2 bit): Priority On, value 3 (11 _{bin}).
<i>Priority Off</i>	With object type = priority (2 bit): Priority Off, value 2 (10 _{bin}).
<i>0 ... 255</i>	With object type = value 0–255: Any value between 0 and 255 can be sent.
<i>0 ... 100 %</i>	With object type = percentage value (1 byte): Any percentage value between 0 and 100% can be sent.

7.7.3.8 Cyclic sending

The cycle time is set in the parameter window [Configuration options](#).

Option	
<i>No</i>	
<i>Yes</i>	

7.7.3.9 Response after restoration of the bus supply

Option	
<i>None</i>	The function is deactivated.
<i>As after short (after approx. x s)</i>	Send update telegram.
<i>As after long (after approx. x s)</i>	Send update telegram.
<i>As with double-click (after approx. x s)</i>	Send update telegram.

7.7.3.10 Response when the block is set

Option	
<i>Ignore block</i>	The block function is ineffective with this telegram.
<i>No response</i>	Do not respond when the block is set.
<i>As with short</i>	Respond as with short button push.
<i>As with long</i>	Respond as with long button push.
<i>As with double-click</i>	Respond as with double-click.

Prerequisites for visibility

- Parameter window [Input Ix](#) \ Parameter window [Configuration options](#) \ Parameter [Activate block function](#) \ Option [Yes](#)

7.7.3.11 Response when cancelling the block

Only available if a reaction when setting a block is parameterized.

Option	
<i>No response</i>	Do not respond when the block is cancelled.
<i>As with short</i>	Respond as with short button push.
<i>As with long</i>	Respond as with long button push.
<i>As with double-click</i>	Respond as with double-click.

7.7.4 Parameter window Dimming

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Function* \ Option *Dimming*

7.7.4.1 Reaction on long/short

The input distinguishes between a long and a short button push, and can thus carry out 2 functions.

Option	
<i>One button operation</i>	The dimmer is operated with a single button. <ul style="list-style-type: none"> Short button push = On/Off Long button push = brighter/darker Release = stop
<i>Brighter / On</i>	The dimmer is operated with two buttons. <ul style="list-style-type: none"> Short button push = On Long button push = brighter Release = stop
<i>brighter / change over</i>	The dimmer is operated with two buttons. <ul style="list-style-type: none"> Short button push = On / Off Long button push = brighter Release = stop
<i>Darker / Off</i>	The dimmer is operated with two buttons. <ul style="list-style-type: none"> Short button push = Off Long button push = darker Release = stop
<i>Darker / change over</i>	The dimmer is operated with two buttons. <ul style="list-style-type: none"> Short button push = On / Off Long button push = darker Release = stop

7.7.4.2 Increment for dimming

Option	
<i>100 %</i>	With a long button push, the dimming value is increased or decreased until the button is released.
<i>50 %</i>	With a long button push, the dimming value is increased or decreased by the selected value.
<i>25 %</i>	With a long button push, the dimming value is increased or decreased by the selected value.
<i>12.5 %</i>	With a long button push, the dimming value is increased or decreased by the selected value.
<i>6 %</i>	With a long button push, the dimming value is increased or decreased by the selected value.
<i>3 %</i>	With a long button push, the dimming value is increased or decreased by the selected value.
<i>1.5 %</i>	With a long button push, the dimming value is increased or decreased by the selected value.

7.7.4.3 Response after restoration of the bus supply

Option	
<i>None</i>	The function is deactivated.
<i>After approx. x s On</i>	Switch on dimmer.
<i>After approx. x s Off</i>	Switch off dimmer.

7.7.4.4 Response when the block is set

Option	
<i>Ignore block</i>	The block function is ineffective with this telegram.
<i>No response</i>	Do not respond when the block is set.
<i>On</i>	Switch on dimmer.
<i>Off</i>	Switch off dimmer.

Prerequisites for visibility

- Parameter window [Input lx](#) \ Parameter window [Configuration options](#) \ Parameter [Activate block function](#) \ Option *Yes*

7.7.4.5 Response when cancelling the block

Only available if a reaction when setting a block is parameterized.

Option	
<i>No response</i>	Do not respond when the block is cancelled.
<i>On</i>	Switch on dimmer.
<i>Off</i>	Switch off dimmer.

7.7.5 Parameter window Blind

Prerequisites for visibility

- Parameter window [Input Ix](#) \ Parameter window [Configuration options](#) \ Parameter [Function](#) \ Option [Blind](#)

7.7.5.1 Operation

The input distinguishes between a long and a short button push, and can thus carry out 2 functions.

Option	
<u>One button operation</u>	The blinds are operated with a single button. <ul style="list-style-type: none"> Short button push = step Long button push = move
<u>Down</u>	<ul style="list-style-type: none"> Short button push = step Long button push = lower
<u>Up</u>	<ul style="list-style-type: none"> Short button push = step Long button push = raise

7.7.5.2 Movement is stopped by

Option	
<u>Releasing the button</u>	
<u>Short operation</u>	

7.7.5.3 Response after restoration of the bus supply

Option	
<u>None</u>	The function is deactivated.
<u>After approx. x s Up</u>	Raise blind with delay.
<u>After approx. x s Down</u>	Lower blind with delay.

7.7.5.4 Response when the block is set

Option	
<u>Ignore block</u>	The block function is ineffective with this telegram.
<u>No response</u>	Do not respond when the block is set.
<u>Up</u>	Raise blind.
<u>Down</u>	Lower blind.

Prerequisites for visibility

- Parameter window [Input Ix](#) \ Parameter window [Configuration options](#) \ Parameter [Activate block function](#) \ Option [Yes](#)

7.7.5.5 Response when cancelling the block

Only available if a reaction when setting a block is parameterized.

Option	
<u>No response</u>	Do not respond when the block is cancelled.
<u>Up</u>	Raise blind.
<u>Down</u>	Lower blind.

7.7.6 Parameter window Double-click

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options*
 - Parameter *Function* \ Option *Dimming / Blind*
 - Parameter *Double-click additional function* \ Option *Yes*

7.7.6.1 Object type

Option

Switching (1 bit)

Priority (2 bit)

Value 0-255

Percentage value (1 byte)

Height % + slat % (blind function only)

7.7.6.2 Telegram

Option

On With object type = switching (1 bit): Send switch-on command.

Off With object type = switching (1 bit): Send switch-off command.

Changeover With object type = switching (1 bit): Invert current state.

No priority With object type = priority (2 bit): Priority inactive, value 0 (00_{bin}).

Priority On With object type = priority (2 bit): Priority On, value 3 (11_{bin}).

Priority Off With object type = priority (2 bit): Priority Off, value 2 (10_{bin}).

0 ... 255 With object type = value 0–255: Any value between 0 and 255 can be sent.

0 ... 100 % With object type = percentage value (1 byte): Any percentage value between 0 and 100% can be sent.

7.7.6.3 Height

Upon double-click, 2 telegrams are sent simultaneously:

- Required blind height
- Required slat position

Option

0 ... 100 %

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options*
 - Parameter *Function* \ Option *Blind*
 - Parameter *Double-click additional function* \ Option *Yes*

7.7.6.4 Slat

Upon double-click, 2 telegrams are sent simultaneously:

- Required blind height
- Required slat position

Option

0 ... 100 %

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options*
 - Parameter *Function* \ Option *Blind*
 - Parameter *Double-click additional function* \ Option *Yes*

7.7.6.5 Cyclic sending

Option	
<i>Do not send cyclically</i>	
<i>Every minute</i>	
<i>Every x minutes</i>	

7.7.6.6 Response after restoration of the bus supply

Option	
<i>None</i>	The function is deactivated.
<i>As with double-click (after approx. x s)</i>	Send update telegram.

7.7.6.7 Response when the block is set

Option	
<i>Ignore block</i>	The block function is ineffective with this telegram.
<i>No response</i>	Do not respond when the block is set.
<i>As with double-click</i>	Respond as with double-click.

Prerequisites for visibility

- Parameter window [Input Ix](#) \ Parameter window [Configuration options](#) \ Parameter [Activate block function](#) \ Option [Yes](#)

7.7.6.8 Response when cancelling the block

Only available if a reaction when setting a block is parameterized.

Option	
<i>No response</i>	Do not respond when the block is cancelled.
<i>As with double-click</i>	Respond as with double-click.

7.7.7 Parameter window Window contact

Prerequisites for visibility

- Parameter window [Input Ix](#) \ Parameter window [Configuration options](#) \ Parameter [Function](#) \ Option [Window contact](#)

7.7.7.1 Telegram when contact closed

Option
<u>On</u>
Off

7.7.7.2 Telegram when contact open

Option
<u>On</u>
Off

7.7.7.3 Cyclic sending

The cycle time is set in the parameter window [Configuration options](#).

Option
<u>No</u>
Yes, always
Only if input = 1
Only if input = 0

7.7.7.4 Response after restoration of the bus supply

Option	
<u>None</u>	The function is deactivated.
Update (after approx. x s)	Send update telegram.

7.7.7.5 Response when the block is set

Option	
<u>Ignore block</u>	The block function is ineffective with this telegram.
No response	Do not respond when the block is set.
As with input = 1	Respond as with rising edge.
As with input = 0	Respond as with falling edge.

Prerequisites for visibility

- Parameter window [Input Ix](#) \ Parameter window [Configuration options](#) \ Parameter [Activate block function](#) \ Option [Yes](#)

7.7.7.6 Response when cancelling the block

Only available if a reaction when setting a block is parameterized.

Option	
<i>No response</i>	Do not respond when the block is cancelled.
<i>Update</i>	Send update telegram.

7.7.8 Parameter window Temperature input

i Note

The *temperature input* function is only possible with input I2.
Applicable sensor types: NTC 100k (at 25 °C).

Prerequisites for visibility

- Parameter window *Input Ix* \ Parameter window *Configuration options* \ Parameter *Function* \ Option *Temperature input (I2 only)*

7.7.8.1 Temperature calibration sensor at I2

Correction value for the external temperature sensor at I2.

Example

Temperature = 21 °C, transmitted temperature = 20.5 °C, correction value 0.5 K.

Option

-5 ... 0 ... +5 K

7.7.8.2 Send actual value in the event of change of

Send if the value has changed by the selected amount since the last transmission.

Option

Not due to a change

x K

7.7.8.3 Send actual value cyclically

Option

Do not send cyclically

Every minute

Every x minutes

8 Group Objects

8.1 Overview of Group Objects

Function	Group Object name	Data point type	Length	Flags
Actual value failure	Sending	DPT 1.005	1 bit	C R T
Actuating value additional stage cooling	Sending	DPT 5.001	1 byte	C R T
Actuating value additional stage heating	Sending	DPT 5.001	1 byte	C T
Actuating value loss	Sending	DPT 1.001	1 bit	C R T
Basic setpoint	Receive comfort temperature	DPT 9.001	2 bytes	C W
Calibration traverse (calibration error)	Sending	DPT 1.005	1 bit	C R T
Channel I2	Actual value for temperature	DPT 9.001	2 bytes	C R T
Channel Ix	AB	DPT 1.008	1 bit	C T
Channel Ix	Block = 0	DPT 1.003	1 bit	C W
Channel Ix	Block = 0	DPT 1.003	1 bit	C W
Channel Ix	Block = 0	DPT 1.003	1 bit	C W
Channel Ix	Block = 0	DPT 1.003	1 bit	C W
Channel Ix	Block = 0	DPT 1.003	1 bit	C W
Channel Ix	Block = 1	DPT 1.001	1 bit	C W
Channel Ix	Block = 1	DPT 1.001	1 bit	C W
Channel Ix	Block = 1	DPT 1.001	1 bit	C W
Channel Ix	Block = 1	DPT 1.001	1 bit	C W
Channel Ix	Brighter	DPT 3.007	4 bit	C T
Channel Ix	Brighter/darker	DPT 3.007	4 bit	C T
Channel Ix	Darker	DPT 3.007	4 bit	C T
Channel Ix	Step/stop	DPT 1.010	1 bit	C T
Channel Ix	Switch	DPT 1.001	1 bit	C W T
Channel Ix	UP	DPT 1.008	1 bit	C T
Channel Ix	UP/DOWN	DPT 1.008	1 bit	C W T
Channel Ix	Window contact	DPT 1.001	1 bit	C R T
Channel Ix.1	Height %	DPT 5.001	1 byte	C T
Channel Ix.1	Priority	DPT 2.001	2 bit	C R T
Channel Ix.1	Priority	DPT 2.001	2 bit	C R T
Channel Ix.1	Priority	DPT 2.001	2 bit	C T
Channel Ix.1	Priority	DPT 2.001	2 bit	C T
Channel Ix.1	Send percentage value	DPT 5.001	1 byte	C R T
Channel Ix.1	Send percentage value	DPT 5.001	1 byte	C R T
Channel Ix.1	Send percentage value	DPT 5.001	1 byte	C T
Channel Ix.1	Send percentage value	DPT 5.001	1 byte	C T
Channel Ix.1	Send value	DPT 5.010	1 byte	C R T
Channel Ix.1	Send value	DPT 5.010	1 byte	C R T
Channel Ix.1	Send value	DPT 5.010	1 byte	C T
Channel Ix.1	Send value	DPT 5.010	1 byte	C T
Channel Ix.1	Switch	DPT 1.001	1 bit	C R W T
Channel Ix.1	Switch	DPT 1.001	1 bit	C R W T
Channel Ix.1	Switch	DPT 1.001	1 bit	C W T
Channel Ix.1	Switch	DPT 1.001	1 bit	C W T
Channel Ix.2	Priority	DPT 2.001	2 bit	C R T
Channel Ix.2	Priority	DPT 2.001	2 bit	C R T
Channel Ix.2	Send percentage value	DPT 5.001	1 byte	C R T
Channel Ix.2	Send percentage value	DPT 5.001	1 byte	C R T
Channel Ix.2	Send value	DPT 5.010	1 byte	C R T
Channel Ix.2	Send value	DPT 5.010	1 byte	C R T
Channel Ix.2	Slat %	DPT 5.001	1 byte	C T
Channel Ix.2	Switch	DPT 1.001	1 bit	C R W T
Channel Ix.2	Switch	DPT 1.001	1 bit	C R W T
Close valve (heating or cooling interruption)	Receive	DPT 1.003	1 bit	C W
Control actual value	Sending	DPT 9.001	2 bytes	C R T
Cooling actuating value	Sending	DPT 5.001	1 byte	C R T
Current operating mode	Sending	DPT 20.102	1 byte	C R T
Current setpoint	Sending	DPT 9.001	2 bytes	C R T
Current valve position	Sending	DPT 5.001	1 byte	C R T
Date	Receive	DPT 11.001	3 bytes	C W
Date/time	Receive	DPT 19.001	8 bytes	C W
Device LEDs	Brightness	DPT 5.001	1 byte	C W
Device LEDs	Reduced	DPT 1.001	1 bit	C W

Function	Group Object name	Data point type	Length	Flags
Diagnosis - info text	Sending	DPT 16.001	14 bytes	C T
Diagnosis - info text	Sending	DPT 19.001	8 bytes	C T
Diagnosis - motor AD value	Sending	DPT 7.001	2 bytes	C T
Diagnosis - position	Sending	DPT 7.001	2 bytes	C T
Diagnosis – position: Valve closed	Sending	DPT 7.001	2 bytes	C T
Diagnosis – position: Valve completely closed	Sending	DPT 7.001	2 bytes	C T
Diagnosis – position: Valve open	Sending	DPT 7.001	2 bytes	C T
External actual value	Receive	DPT 9.001	2 bytes	C W
Forced operation	Force = 0	DPT 1.003	1 bit	C W
Forced operation	Force = 1	DPT 1.003	1 bit	C W
Heating actuating value	Sending	DPT 5.001	1 byte	C R T
Heating and cooling actuating value	Sending	DPT 5.001	1 byte	C R T
Heating mode/cooling mode	Heating = 0, cooling = 1	DPT 1.100	1 bit	C W
Heating mode/cooling mode	Heating = 0, cooling = 1	DPT 1.100	1 bit	C R T
Heating mode/cooling mode	Heating = 1, cooling = 0	DPT 1.100	1 bit	C W
Heating mode/cooling mode	Heating = 1, cooling = 0	DPT 1.100	1 bit	C R T
Highest actuating value	Receive	DPT 5.001	1 byte	C W
Highest actuating value	Sending	DPT 5.001	1 byte	C R T
Manual setpoint offset	Receive	DPT 9.002	2 bytes	C R W
Move to position	Receive	DPT 5.001	1 byte	C W
Operating mode preset	Receive	DPT 20.102	1 byte	C R W
Outdoor temperature compensation	Send (°C)	DPT 9.001	2 bytes	C R T
Outdoor temperature compensation	Send (K)	DPT 9.002	2 bytes	C R T
Outdoor temperature compensation	Shift setpoint (K)	DPT 9.002	2 bytes	C W
Outside temperature	Receive	DPT 9.001	2 bytes	C W
Presence	Receive	DPT 1.018	1 bit	C R W
Pump ON/OFF	Sending	DPT 1.001	1 bit	C R T
PWM cooling additional stage	Sending	DPT 1.001	1 bit	C R T
PWM heating additional stage	Sending	DPT 1.001	1 bit	C T
Setpoint	Receive set temperature	DPT 9.001	2 bytes	C W
Start calibration traverse manually	Receive	DPT 1.015	1 bit	C W
Time query	Sending	DPT 1.002	1 bit	C T
Time	Receive	DPT 10.001	3 bytes	C W
Window contact x (1 = window open)	Receive	DPT 1.019	1 bit	C W
Window status	Sending	DPT 1.019	1 bit	C R T

8.2 General

Function	Group Object name	Data point type	Length	Flags
Device LEDs	Reduced	DPT 1.001	1 bit	C W
Telegram value:				
<ul style="list-style-type: none"> • 1 = reduce brightness • 0 = normal brightness 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window General <ul style="list-style-type: none"> – Parameter Function of the LEDs \ Option <i>Position display</i> – Parameter Reduce brightness of the LEDs \ Option <i>Via bus</i> – Parameter Object type \ Option <i>Via switch object</i> 				
Device LEDs	Brightness	DPT 5.001	1 byte	C W
Telegram value:				
<ul style="list-style-type: none"> • 0 ... 100 % 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window General <ul style="list-style-type: none"> – Parameter Function of the LEDs \ Option <i>Position display</i> – Parameter Reduce brightness of the LEDs \ Option <i>Via bus</i> – Parameter Object type \ Option <i>Via percentage value</i> 				
Date	Receive	DPT 11.001	3 bytes	C W
Receives the current date.				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window General \ Parameter Time/date format \ Option <i>DPT 10.001 / DPT 11.001</i> 				
Time	Receive	DPT 10.001	3 bytes	C W
Receives the current time.				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window General \ Parameter Time/date format \ Option <i>DPT 10.001 / DPT 11.001</i> 				

Function	Group Object name	Data point type	Length	Flags
Date/time	Receive	DPT 19.001	8 bytes	C W
Receives the current date and time together. Prerequisites for visibility <ul style="list-style-type: none"> Parameter window General \ Parameter Time/date format \ Option DPT 19.001 				
Time query	Sending	DPT 1.002	1 bit	C T
Sends time query to bus clock to receive the current time. Prerequisites for visibility <ul style="list-style-type: none"> Parameter window General <ul style="list-style-type: none"> Parameter Time/date format \ all options except <i>No time/date</i> Parameter Send time request after reset every minute (until reception of time/date) \ Option <i>Yes</i> Or <ul style="list-style-type: none"> Parameter Send time request cyclically \ all options except <i>Do not send</i> 				

8.3 Actuator

Function	Group Object name	Data point type	Length	Flags
Move to position	Receive	DPT 5.001	1 byte	C W
Receives the actuating value specified by the room temperature controller. The valve is positioned accordingly. Telegram value: <ul style="list-style-type: none"> 0 ... 100 % Prerequisites for visibility <ul style="list-style-type: none"> Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>No</i> 				
Current valve position	Sending	DPT 5.001	1 byte	C R T
Sends the actual valve position on the bus. Telegram value: <ul style="list-style-type: none"> 0 ... 100 % 				
Actuating value loss	Sending	DPT 1.001	1 bit	C R T
If monitoring is selected, the room thermostat must receive an actuating value telegram regularly. If no new actuating value is received within the configured monitoring time, failure of the room thermostat is assumed and an emergency program is started → parameter window Emergency program .				
Note To ensure trouble-free operation, the cyclical transmission time to the room thermostat should be no longer than half the monitoring time. Example: Monitoring time 30 min, cyclical transmission time to thermostat less than or equal to 15 min.				
Prerequisites for visibility <ul style="list-style-type: none"> Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>No</i> Parameter window Actuator \ Parameter window Actuating value \ Parameter Monitor actuating value \ Option <i>Yes</i> 				
Forced operation	Force = 1	DPT 1.003	1 bit	C W
Note After download or reset, forced operation is always deactivated.				
The direction of action of the force telegram is adjustable. Telegram value: <ul style="list-style-type: none"> 1 = activate force 0 = end force Prerequisites for visibility <ul style="list-style-type: none"> Parameter window Actuator <ul style="list-style-type: none"> Parameter window Settings \ Parameter Activate force function \ Option <i>Yes</i> Parameter window Forced \ Parameter Forced telegram \ Option <i>1 = Force (standard)</i> 				
Forced operation	Force = 0	DPT 1.003	1 bit	C W
Note After download or reset, forced operation is always deactivated.				
The direction of action of the force telegram is adjustable. Telegram value: <ul style="list-style-type: none"> 1 = end force 0 = activate force Prerequisites for visibility <ul style="list-style-type: none"> Parameter window Actuator <ul style="list-style-type: none"> Parameter window Settings \ Parameter Activate force function \ Option <i>Yes</i> Parameter window Forced \ Parameter Forced telegram \ Option <i>0 = Force</i> 				
Highest actuating value	Sending	DPT 5.001	1 byte	C R T
Sends its own actuating value to the other actuators to start a comparison. Telegram value: <ul style="list-style-type: none"> 0 ... 100 % 				

Function	Group Object name	Data point type	Length	Flags
Highest actuating value	Receive	DPT 5.001	1 byte	C W
<p>Receives the actuating values of the other actuators (other rooms) in order to compare them with the own actuating value and send the own actuating value to the heating boiler if it is higher than the other values.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 0 ... 100 % 				
Calibration traverse (calibration error)	Sending	DPT 1.005	1 bit	C R T
<p>Error message: The motor is too heavily loaded. Possible causes: Installation error, incorrect or defective valve, device defect.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 1 = Error • 0 = No error 				
Close valve (heating or cooling interruption)	Receive	DPT 1.003	1 bit	C W
<p>A 1 on this Group Object starts the heating or cooling interruption, i.e. the actuating value is no longer taken into account and the valve is permanently closed. If the valve protection is activated, it is also executed during the heating or cooling interruption. The valve remains in the 0% position until the heating or cooling interruption is canceled by a 0. Afterwards, the actuating value sent before or during the heating or cooling interruption is approached. This position is only changed when an actuating value other than the actuating value valid before the heating or cooling interruption is received.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 1 = activate heating or cooling interruption • 0 = deactivate heating or cooling interruption 				
Start calibration traverse manually	Receive	DPT 1.015	1 bit	C W
<p>A new calibration process can be started with a 1 on this Group Object. The valve is opened and closed several times in succession. This causes the end positions of the valve (fully open/fully closed) to be captured and stored anew.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 1 = start calibration process • 0 = not defined 				

8.4 Room temperature controller (RTC)

Function	Group Object name	Data point type	Length	Flags
Setpoint	Receive set temperature	DPT 9.001	2 bytes	C W
<p>The setpoint is first specified via the application at start-up. Afterwards, it can be specified again at any time via this Group Object (limited by the minimum or maximum valid setpoint).</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • -273 ... 670760 °C <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Settings \ Parameter Use operating modes \ Option <i>No</i> 				
Basic setpoint	Receive comfort temperature	DPT 9.001	2 bytes	C W
<p>The base setpoint is first specified via the application at start-up and stored in the base setpoint Group Object. Afterwards, it can be specified again at any time via this Group Object (limited by the minimum or maximum valid setpoint).</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • -273 ... 670760 °C <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Settings \ Parameter Use operating modes \ Option <i>Yes</i> 				
Current setpoint	Sending	DPT 9.001	2 bytes	C R T
<p>Sends the current temperature setpoint as DPT 9.001.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • -273 ... 670760 °C <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> 				
Manual setpoint offset	Receive	DPT 9.002	2 bytes	C R W
<p>Offsetting set temperature: The Group Object receives a temperature difference as DPT 9.002. The desired room temperature (current setpoint) can be adjusted against the base setpoint by this difference.</p> <p>The following applies in comfort mode (heating): Current setpoint = base setpoint + manual setpoint offset Values outside the configured range (min/max basic setpoint or max valid setpoint offset) are limited to the highest or lowest value.</p> <p>The offset always refers to the set base setpoint and not to the current setpoint. Exception: If no operating modes are used → parameter Use operating modes.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • -670760 ... 670760 K <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Settings \ Parameter Use operating modes \ Option <i>Yes</i> 				

Function	Group Object name	Data point type	Length	Flags
Outdoor temperature compensation	Shift setpoint (K)	DPT 9.002	2 bytes	C W
Receives setpoint correction for outdoor temperature compensation.				
Telegram value:				
<ul style="list-style-type: none"> -670760 ... 670760 K 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Settings</i> <ul style="list-style-type: none"> Parameter <i>Control functions used</i> \ Option <i>Heating and cooling / Only cooling</i> Parameter <i>Setpoint correction at high outdoor temperature</i> \ Option <i>Receive only</i> 				
Outdoor temperature compensation	Send (K)	DPT 9.002	2 bytes	C R T
Sends the calculated setpoint correction based on outdoor temperature. Example:				
Unadjusted base setpoint = 20 °C				
Setpoint correction = + 2 K				
The Group Object sends: 2 K				
Telegram value:				
<ul style="list-style-type: none"> -670760 ... 670760 K 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Settings</i> <ul style="list-style-type: none"> Parameter <i>Control functions used</i> \ Option <i>Heating and cooling / Only cooling</i> Parameter <i>Setpoint correction at high outdoor temperature</i> \ Option <i>Calculate internally and send</i> Parameter window <i>RTC</i> \ Parameter window <i>Setpoint adjustment</i> \ Parameter <i>Setpoint adjustment format</i> \ Option <i>Relative</i> 				
Outdoor temperature compensation	Send (°C)	DPT 9.001	2 bytes	C R T
Sends the setpoint correction as an amount. Example:				
Unadjusted base setpoint = 20 °C				
Setpoint correction = + 2 K				
The Group Object sends: 22 °C				
Telegram value:				
<ul style="list-style-type: none"> -273 ... 670760 °C 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Settings</i> <ul style="list-style-type: none"> Parameter <i>Control functions used</i> \ Option <i>Heating and cooling / Only cooling</i> Parameter <i>Setpoint correction at high outdoor temperature</i> \ Option <i>Calculate internally and send</i> Parameter window <i>RTC</i> \ Parameter window <i>Setpoint adjustment</i> \ Parameter <i>Setpoint adjustment format</i> \ Option <i>Absolute</i> 				
Control actual value	Sending	DPT 9.001	2 bytes	C R T
Sends the actual value actually used by the room temperature controller.				
Telegram value:				
<ul style="list-style-type: none"> -273 ... 670760 °C 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Actual value</i> \ Parameter <i>Source for actual value</i> \ Option <i>Internal sensor / Sensor at I2 / Average value from internal + I2 / Average value from int. + ext. object Actual value / Average value from int. + I2 + ext. actual value object / Average value from I2 + ext. actual value object</i> 				
External actual value	Receive	DPT 9.001	2 bytes	C W
Receives the room temperature from another measurement point via the bus (ABB i-bus® KNX).				
Telegram value:				
<ul style="list-style-type: none"> -273 ... 670760 °C 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Actual value</i> \ Parameter <i>Source for actual value</i> \ Option <i>External actual value object / Average value from int. + ext. object Actual value / Average value from int. + I2 + ext. actual value object / Average value from I2 + ext. actual value object</i> 				
Operating mode preset	Receive	DPT 20.102	1 byte	C R W
Can be used to directly activate one of 4 operating modes.				
The configured <i>operating mode after reset</i> is active until a new valid operating mode is received or changed at the device by the user.				
Telegram value:				
<ul style="list-style-type: none"> 1 = Comfort 2 = Standby 3 = Night 4 = Frost protection (heat protection) 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Settings</i> \ Parameter <i>Use operating modes</i> \ Option <i>Yes</i> 				

Function	Group Object name	Data point type	Length	Flags
Presence	Receive	DPT 1.018	1 bit	C R W
<p>The status of a presence detector (e.g. push button, motion detector) can be received via this Group Object. A 1 on this Group Object activates comfort operating mode.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 1 = presence • 0 = no presence <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Settings \ Parameter Use operating modes \ Option <i>Yes</i> 				
Window status	Sending	DPT 1.019	1 bit	C R T
<p>The device can obtain the window status from different sources. The Group Object sends the currently valid status from all window contacts (OR-linked). As soon as at least 1 window is open, the window = open status applies. The status is always sent without a delay.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 1 = Window open • 0 = Window closed 				
Current operating mode	Sending	DPT 20.102	1 byte	C R T
<p>Sends the current HVAC operating mode. The transmission behavior can be defined in the <i>Operating mode</i> parameter window.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 1 = Comfort • 2 = Standby • 3 = Night • 4 = Frost protection (heat protection) <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Settings \ Parameter Use operating modes \ Option <i>Yes</i> 				
Heating and cooling actuating value	Sending	DPT 5.001	1 byte	C R T
<p>Sends the current heating and cooling actuating value.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 0 ... 100 % <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Settings <ul style="list-style-type: none"> – Parameter Control functions used \ Option <i>Heating and cooling</i> – Parameter Changeover between heating and cooling \ Option <i>Via object</i> – Parameter Output of the cooling actuating value \ Option <i>Together with heating actuating value</i> 				
Heating actuating value	Sending	DPT 5.001	1 byte	C R T
<p>Sends the current heating actuating value.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 0 ... 100 % <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Settings <ul style="list-style-type: none"> – Parameter Control functions used \ Option <i>Only heating</i> Or <ul style="list-style-type: none"> – Parameter Control functions used \ Option <i>Heating and cooling</i> – Parameter Changeover between heating and cooling \ Option <i>Via object</i> – Parameter Output of the cooling actuating value \ Option <i>On separate object</i> 				
Actuating value additional stage heating	Sending	DPT 5.001	1 byte	C T
<p>Sends the actuating value for additional-stage heating.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 0 ... 100 % <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Settings \ Parameter Control functions used \ Option <i>Only heating / Heating and cooling</i> • Parameter window RTC \ Parameter window Heating control \ Parameter Number of heating stages \ Option <i>Main stage and additional stage</i> • Parameter window RTC \ Parameter window Additional-stage heating \ Parameter Type of actuating value \ Option <i>Percent</i> 				
PWM heating additional stage	Sending	DPT 1.001	1 bit	C T
<p>Sends the actuating value for additional-stage heating as 1 bit PWM.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 1 = Switch on additional stage • 0 = Switch off additional stage <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Settings \ Parameter Control functions used \ Option <i>Only heating / Heating and cooling</i> • Parameter window RTC \ Parameter window Heating control \ Parameter Number of heating stages \ Option <i>Main stage and additional stage</i> • Parameter window RTC \ Parameter window Additional-stage heating \ Parameter Type of actuating value \ Option <i>PWM</i> 				

Function	Group Object name	Data point type	Length	Flags
Cooling actuating value	Sending	DPT 5.001	1 byte	C R T
Sends the current cooling actuating value or switch command.				
Telegram value:				
<ul style="list-style-type: none"> 0 ... 100 % 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Settings</i> <ul style="list-style-type: none"> Parameter <i>Control functions used</i> \ Option <i>Only cooling</i> Or <ul style="list-style-type: none"> Parameter <i>Control functions used</i> \ Option <i>Heating and cooling</i> Parameter <i>Changeover between heating and cooling</i> \ Option <i>Via object</i> Parameter <i>Output of the cooling actuating value</i> \ Option <i>On separate object</i> 				
Actuating value additional stage cooling	Sending	DPT 5.001	1 byte	C R T
Sends the actuating value for additional-stage cooling.				
Telegram value:				
<ul style="list-style-type: none"> 0 ... 100 % 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Settings</i> \ Parameter <i>Control functions used</i> \ Option <i>Heating and cooling / Only cooling</i> Parameter window <i>RTC</i> \ Parameter window <i>Cooling control</i> \ Parameter <i>Number of cooling stages</i> \ Option <i>Main stage and additional stage</i> Parameter window <i>RTC</i> \ Parameter window <i>Additional-stage cooling</i> \ Parameter <i>Type of actuating value</i> \ Option <i>Percent</i> 				
PWM cooling additional stage	Sending	DPT 1.001	1 bit	C R T
Sends the actuating value for additional-stage cooling as 1 bit PWM.				
Telegram value:				
<ul style="list-style-type: none"> 1 = Switch on additional stage 0 = Switch off additional stage 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Settings</i> \ Parameter <i>Control functions used</i> \ Option <i>Heating and cooling / Only cooling</i> Parameter window <i>RTC</i> \ Parameter window <i>Cooling control</i> \ Parameter <i>Number of cooling stages</i> \ Option <i>Main stage and additional stage</i> Parameter window <i>RTC</i> \ Parameter window <i>Additional-stage cooling</i> \ Parameter <i>Type of actuating value</i> \ Option <i>PWM</i> 				
Heating mode/cooling mode	Heating = 1, cooling = 0	DPT 1.100	1 bit	C W
Receives the switch command for changeover between heating and cooling mode.				
Telegram value:				
<ul style="list-style-type: none"> 1 = Heating 0 = Cooling 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Settings</i> <ul style="list-style-type: none"> Parameter <i>Control functions used</i> \ Option <i>Heating and cooling</i> Parameter <i>Changeover between heating and cooling</i> \ Option <i>Via object</i> Parameter <i>Format of heating/cooling object</i> \ Option <i>DPT 1.100 (heating=1/cooling=0)</i> 				
Heating mode/cooling mode	Heating = 0, cooling = 1	DPT 1.100	1 bit	C W
Receives the switch command for changeover between heating and cooling mode.				
Telegram value:				
<ul style="list-style-type: none"> 1 = Cooling 0 = Heating 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Settings</i> <ul style="list-style-type: none"> Parameter <i>Control functions used</i> \ Option <i>Heating and cooling</i> Parameter <i>Changeover between heating and cooling</i> \ Option <i>Via object</i> Parameter <i>Format of heating/cooling object</i> \ Option <i>Inverted (heating=0/cooling=1)</i> 				
Heating mode/cooling mode	Heating = 1, cooling = 0	DPT 1.100	1 bit	C R T
Reports whether the room thermostat is currently operating in heating or cooling mode.				
Telegram value:				
<ul style="list-style-type: none"> 1 = Heating 0 = Cooling 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window <i>General</i> \ Parameter <i>Activate room temperature controller (RTC)</i> \ Option <i>Yes</i> Parameter window <i>RTC</i> \ Parameter window <i>Settings</i> <ul style="list-style-type: none"> Parameter <i>Control functions used</i> \ Option <i>Heating and cooling</i> Parameter <i>Changeover between heating and cooling</i> \ Option <i>Automatic</i> Parameter <i>Format of heating/cooling object</i> \ Option <i>DPT 1.100 (heating=1/cooling=0)</i> 				

Function	Group Object name	Data point type	Length	Flags
Heating mode/cooling mode	Heating = 0, cooling = 1	DPT 1.100	1 bit	C R T
<p>Reports whether the room thermostat is currently operating in heating or cooling mode.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 1 = Cooling • 0 = Heating <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Settings <ul style="list-style-type: none"> – Parameter Control functions used \ Option <i>Heating and cooling</i> – Parameter Changeover between heating and cooling \ Option <i>Automatic</i> – Parameter Format of heating/cooling object \ Option <i>Inverted (heating=0/cooling=1)</i> 				
Actual value failure	Sending	DPT 1.005	1 bit	C R T
<p>Sends a 1 as soon as one of the selected sources for the actual value provides an unusable value, or (if selected) if no new actual value telegram has been received by the Group Object External actual value within the actual value monitoring time.</p> <p>Unusable temperature values might occur if a temperature sensor is mechanically damaged, or if the electrical connection is interrupted or short-circuited.</p>				
<p>Note</p> <p>If the average value is determined from several sources and actual values fail, control continues as long as at least one valid actual value is available.</p>				
<p>Telegram value:</p> <ul style="list-style-type: none"> • 1 = actual value failure • 0 = no actual value failure <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Actual value \ Parameter Monitor actual value \ Option <i>Yes</i> 				
Outside temperature	Receive	DPT 9.001	2 bytes	C W
<p>Receives the outdoor temperature for internal calculation of the setpoint adjustment in cooling mode.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • -273 ... 670760 °C <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Settings <ul style="list-style-type: none"> – Parameter Control functions used \ Option <i>Heating and cooling / Only cooling</i> – Parameter Setpoint correction at high outdoor temperature \ Option <i>Calculate internally and send</i> 				
Window contact x (1 = window open)	Receive	DPT 1.019	1 bit	C W
<p>Up to 10 Group Objects are available for window contacts → parameter Number of window contacts.</p> <p>The status of several window contacts can be received via these Group Objects. All Group Objects are connected via an OR link: As soon as one of these Group Objects receives a 1, the window status = window open applies, and frost/heat protection mode is activated. Feedback via Group Object Window status.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 1 = Window open • 0 = Window closed <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate room temperature controller (RTC) \ Option <i>Yes</i> • Parameter window RTC \ Parameter window Window contact \ Parameter Source for window contact \ Option <i>Via object</i> 				
Pump ON/OFF	Sending	DPT 1.001	1 bit	C R T
<p>Control of the supply pump depending on the actuating value: 0 % = OFF, > 0 % = ON.</p> <p>Telegram value:</p> <ul style="list-style-type: none"> • 1 = Pump ON • 0 = Pump OFF <p>Prerequisites for visibility</p> <ul style="list-style-type: none"> • Parameter window General \ Parameter Activate pump control \ Option <i>Yes</i> 				

8.5 Input Ix: Function Switch

Note

If external input I1 is used as a source for the window contact, the channel *Input I1* is hidden (→ parameter [Source for window contact](#)).

Note

If external input I2 is used as a source for the actual value, the channel *Input I2* is hidden (→ parameter *Source for actual value*).

Function	Group Object name	Data point type	Length	Flags
Channel Ix.1	Switch	DPT 1.001	1 bit	C R W T
First output object of the channel (first telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 1 = On • 0 = Off 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> \ Parameter <i>Function</i> \ Option <i>Switch</i> • Parameter window <i>Input Ix</i> \ Parameter window <i>Switch object x</i> \ Parameter <i>Object type</i> \ Option <i>Switching (1 bit)</i> 				
Channel Ix.1	Priority	DPT 2.001	2 bit	C R T
First output object of the channel (first telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 00 = no priority • 01 = no priority • 02 = priority, Off • 03 = priority, On 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> \ Parameter <i>Function</i> \ Option <i>Switch</i> • Parameter window <i>Input Ix</i> \ Parameter window <i>Switch object x</i> \ Parameter <i>Object type</i> \ Option <i>Priority (2 bit)</i> 				
Channel Ix.1	Send value	DPT 5.010	1 byte	C R T
First output object of the channel (first telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 0 ... 255 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> \ Parameter <i>Function</i> \ Option <i>Switch</i> • Parameter window <i>Input Ix</i> \ Parameter window <i>Switch object x</i> \ Parameter <i>Object type</i> \ Option <i>Value 0-255</i> 				
Channel Ix.1	Send percentage value	DPT 5.001	1 byte	C R T
First output object of the channel (first telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 0 ... 100 % 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> \ Parameter <i>Function</i> \ Option <i>Switch</i> • Parameter window <i>Input Ix</i> \ Parameter window <i>Switch object x</i> \ Parameter <i>Object type</i> \ Option <i>Percentage value (1 byte)</i> 				
Channel Ix.2	Switch	DPT 1.001	1 bit	C R W T
Second output object of the channel (second telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 1 = On • 0 = Off 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> <ul style="list-style-type: none"> – Parameter <i>Function</i> \ Option <i>Switch</i> – Parameter <i>How many telegrams should be sent</i> \ Option <i>Two telegrams</i> • Parameter window <i>Input Ix</i> \ Parameter window <i>Switch object x</i> \ Parameter <i>Object type</i> \ Option <i>Switching (1 bit)</i> 				
Channel Ix.2	Priority	DPT 2.001	2 bit	C R T
Second output object of the channel (second telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 00 = no priority • 01 = no priority • 02 = priority, Off • 03 = priority, On 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> <ul style="list-style-type: none"> – Parameter <i>Function</i> \ Option <i>Switch</i> – Parameter <i>How many telegrams should be sent</i> \ Option <i>Two telegrams</i> • Parameter window <i>Input Ix</i> \ Parameter window <i>Switch object x</i> \ Parameter <i>Object type</i> \ Option <i>Priority (2 bit)</i> 				
Channel Ix.2	Send value	DPT 5.010	1 byte	C R T
Second output object of the channel (second telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 0 ... 255 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> <ul style="list-style-type: none"> – Parameter <i>Function</i> \ Option <i>Switch</i> – Parameter <i>How many telegrams should be sent</i> \ Option <i>Two telegrams</i> • Parameter window <i>Input Ix</i> \ Parameter window <i>Switch object x</i> \ Parameter <i>Object type</i> \ Option <i>Value 0-255</i> 				

Function	Group Object name	Data point type	Length	Flags
Channel Ix.2	Send percentage value	DPT 5.001	1 byte	C R T
Second output object of the channel (second telegram).				
Telegram value:				
<ul style="list-style-type: none"> 0 ... 100 % 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> Parameter Function \ Option Switch Parameter How many telegrams should be sent \ Option Two telegrams Parameter window Input Ix \ Parameter window Switch object x \ Parameter Object type \ Option Percentage value (1 byte) 				
Channel Ix	Block = 1	DPT 1.001	1 bit	C W
This Group Object blocks the channel. The acting direction of the block object and behavior when the block is set or canceled can be configured.				
Telegram value:				
<ul style="list-style-type: none"> 1 = set block 0 = cancel block 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> Parameter Activate block function \ Option Yes Parameter Block telegram \ Option Block with 1 (standard) 				
Channel Ix	Block = 0	DPT 1.003	1 bit	C W
This Group Object blocks the channel. The acting direction of the block object and behavior when the block is set or canceled can be configured.				
Telegram value:				
<ul style="list-style-type: none"> 1 = cancel block 0 = set block 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> Parameter Activate block function \ Option Yes Parameter Block telegram \ Option Block with 0 				

8.6 Input Ix: Push button function

i Note

If external input I1 is used as a source for the window contact, the channel *Input I1* is hidden (→ parameter [Source for window contact](#)).

i Note

If external input I2 is used as a source for the actual value, the channel *Input I2* is hidden (→ parameter [Source for actual value](#)).

Function	Group Object name	Data point type	Length	Flags
Channel Ix.1	Switch	DPT 1.001	1 bit	C R W T
First output object of the channel (first telegram).				
Telegram value:				
<ul style="list-style-type: none"> 1 = On 0 = Off 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options \ Parameter Function \ Option Pushbutton Parameter window Input Ix \ Parameter window Pushbutton object x \ Parameter Object type \ Option Switching (1 bit) 				
Channel Ix.1	Priority	DPT 2.001	2 bit	C R T
First output object of the channel (first telegram).				
Telegram value:				
<ul style="list-style-type: none"> 00 = no priority 01 = no priority 02 = priority, Off 03 = priority, On 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options \ Parameter Function \ Option Pushbutton Parameter window Input Ix \ Parameter window Pushbutton object x \ Parameter Object type \ Option Priority (2 bit) 				
Channel Ix.1	Send value	DPT 5.010	1 byte	C R T
First output object of the channel (first telegram).				
Telegram value:				
<ul style="list-style-type: none"> 0 ... 255 				
Prerequisites for visibility				
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options \ Parameter Function \ Option Pushbutton Parameter window Input Ix \ Parameter window Pushbutton object x \ Parameter Object type \ Option Value 0-255 				

Function	Group Object name	Data point type	Length	Flags
Channel Ix.1	Send percentage value	DPT 5.001	1 byte	C R T
First output object of the channel (first telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 0 ... 100 % 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options \ Parameter Function \ Option Pushbutton • Parameter window Input Ix \ Parameter window Pushbutton object x \ Parameter Object type \ Option Percentage value (1 byte) 				
Channel Ix.2	Switch	DPT 1.001	1 bit	C R W T
Second output object of the channel (second telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 1 = On • 0 = Off 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Function \ Option Pushbutton – Parameter How many telegrams should be sent \ Option Two telegrams • Parameter window Input Ix \ Parameter window Pushbutton object x \ Parameter Object type \ Option Switching (1 bit) 				
Channel Ix.2	Priority	DPT 2.001	2 bit	C R T
Second output object of the channel (second telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 00 = no priority • 01 = no priority • 02 = priority, Off • 03 = priority, On 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Function \ Option Pushbutton – Parameter How many telegrams should be sent \ Option Two telegrams • Parameter window Input Ix \ Parameter window Pushbutton object x \ Parameter Object type \ Option Priority (2 bit) 				
Channel Ix.2	Send value	DPT 5.010	1 byte	C R T
Second output object of the channel (second telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 0 ... 255 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Function \ Option Pushbutton – Parameter How many telegrams should be sent \ Option Two telegrams • Parameter window Input Ix \ Parameter window Pushbutton object x \ Parameter Object type \ Option Value 0-255 				
Channel Ix.2	Send percentage value	DPT 5.001	1 byte	C R T
Second output object of the channel (second telegram).				
Telegram value:				
<ul style="list-style-type: none"> • 0 ... 100 % 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Function \ Option Pushbutton – Parameter How many telegrams should be sent \ Option Two telegrams • Parameter window Input Ix \ Parameter window Pushbutton object x \ Parameter Object type \ Option Percentage value (1 byte) 				
Channel Ix	Block = 1	DPT 1.001	1 bit	C W
This Group Object blocks the channel. The acting direction of the block object and behavior when the block is set or canceled can be configured.				
Telegram value:				
<ul style="list-style-type: none"> • 1 = set block • 0 = cancel block 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Activate block function \ Option Yes – Parameter Block telegram \ Option Block with 1 (standard) 				
Channel Ix	Block = 0	DPT 1.003	1 bit	C W
This Group Object blocks the channel. The acting direction of the block object and behavior when the block is set or canceled can be configured.				
Telegram value:				
<ul style="list-style-type: none"> • 1 = cancel block • 0 = set block 				
Prerequisites for visibility				
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Activate block function \ Option Yes – Parameter Block telegram \ Option Block with 0 				

8.7 Input Ix: Dimming function

Note

If external input I1 is used as a source for the window contact, the channel *Input I1* is hidden (→ parameter *Source for window contact*).

Note

If external input I2 is used as a source for the actual value, the channel *Input I2* is hidden (→ parameter *Source for actual value*).

Function	Group Object name	Data point type	Length	Flags
Channel Ix Switches the dimmer on and off. Telegram value: <ul style="list-style-type: none"> 1 = On 0 = Off Prerequisites for visibility <ul style="list-style-type: none"> Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> \ Parameter <i>Function</i> \ Option <i>Dimming</i> 	Switch	DPT 1.001	1 bit	C W T
Channel Ix 4-bit dimming commands Prerequisites for visibility <ul style="list-style-type: none"> Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> \ Parameter <i>Function</i> \ Option <i>Dimming</i> Parameter window <i>Input Ix</i> \ Parameter window <i>Dimming</i> \ Parameter <i>Reaction on long/short</i> \ Option <i>One button operation</i> 	Brighter/darker	DPT 3.007	4 bit	C T
Channel Ix 4-bit dimming commands Prerequisites for visibility <ul style="list-style-type: none"> Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> \ Parameter <i>Function</i> \ Option <i>Dimming</i> Parameter window <i>Input Ix</i> \ Parameter window <i>Dimming</i> \ Parameter <i>Reaction on long/short</i> \ Option <i>Brighter / On / brighter / change over</i> 	Brighter	DPT 3.007	4 bit	C T
Channel Ix 4-bit dimming commands Prerequisites for visibility <ul style="list-style-type: none"> Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> \ Parameter <i>Function</i> \ Option <i>Dimming</i> Parameter window <i>Input Ix</i> \ Parameter window <i>Dimming</i> \ Parameter <i>Reaction on long/short</i> \ Option <i>Darker / Off / Darker / change over</i> 	Darker	DPT 3.007	4 bit	C T
Channel Ix.1 Output object for the additional function with double-click. Telegram value: <ul style="list-style-type: none"> 1 = On 0 = Off Prerequisites for visibility <ul style="list-style-type: none"> Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> <ul style="list-style-type: none"> Parameter <i>Function</i> \ Option <i>Dimming</i> Parameter <i>Double-click additional function</i> \ Option Yes Parameter window <i>Input Ix</i> \ Parameter window <i>Double-click</i> \ Parameter <i>Object type</i> \ Option <i>Switching (1 bit)</i> 	Switch	DPT 1.001	1 bit	C W T
Channel Ix.1 Output object for the additional function with double-click. Telegram value: <ul style="list-style-type: none"> 00 = no priority 01 = no priority 02 = priority, Off 03 = priority, On Prerequisites for visibility <ul style="list-style-type: none"> Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> <ul style="list-style-type: none"> Parameter <i>Function</i> \ Option <i>Dimming</i> Parameter <i>Double-click additional function</i> \ Option Yes Parameter window <i>Input Ix</i> \ Parameter window <i>Double-click</i> \ Parameter <i>Object type</i> \ Option <i>Priority (2 bit)</i> 	Priority	DPT 2.001	2 bit	C T
Channel Ix.1 Output object for the additional function with double-click. Telegram value: <ul style="list-style-type: none"> 0 ... 255 Prerequisites for visibility <ul style="list-style-type: none"> Parameter window <i>Input Ix</i> \ Parameter window <i>Configuration options</i> <ul style="list-style-type: none"> Parameter <i>Function</i> \ Option <i>Dimming</i> Parameter <i>Double-click additional function</i> \ Option Yes Parameter window <i>Input Ix</i> \ Parameter window <i>Double-click</i> \ Parameter <i>Object type</i> \ Option <i>Value 0-255</i> 	Send value	DPT 5.010	1 byte	C T

Function	Group Object name	Data point type	Length	Flags	
Channel Ix.1	Send percentage value	DPT 5.001	1 byte	C	T
Output object for the additional function with double-click.					
Telegram value:					
<ul style="list-style-type: none"> 0 ... 100 % 					
Prerequisites for visibility					
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> Parameter Function \ Option Dimming Parameter Double-click additional function \ Option Yes Parameter window Input Ix \ Parameter window Double-click \ Parameter Object type \ Option Percentage value (1 byte) 					
Channel Ix	Block = 1	DPT 1.001	1 bit	C	W
This Group Object blocks the channel. The acting direction of the block object and behavior when the block is set or canceled can be configured.					
Telegram value:					
<ul style="list-style-type: none"> 1 = set block 0 = cancel block 					
Prerequisites for visibility					
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> Parameter Activate block function \ Option Yes Parameter Block telegram \ Option Block with 1 (standard) 					
Channel Ix	Block = 0	DPT 1.003	1 bit	C	W
This Group Object blocks the channel. The acting direction of the block object and behavior when the block is set or canceled can be configured.					
Telegram value:					
<ul style="list-style-type: none"> 1 = cancel block 0 = set block 					
Prerequisites for visibility					
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> Parameter Activate block function \ Option Yes Parameter Block telegram \ Option Block with 0 					

8.8 Input Ix: Function Shutter

i Note

If external input I1 is used as a source for the window contact, the channel *Input I1* is hidden (→ parameter [Source for window contact](#)).

i Note

If external input I2 is used as a source for the actual value, the channel *Input I2* is hidden (→ parameter [Source for actual value](#)).

Function	Group Object name	Data point type	Length	Flags	
Channel Ix	Step/stop	DPT 1.010	1 bit	C	T
Sends step/stop commands to the blind actuator.					
Telegram value:					
<ul style="list-style-type: none"> 1 = Step 0 = Stop 					
Prerequisites for visibility					
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options \ Parameter Function \ Option Blind 					
Channel Ix	UP/DOWN	DPT 1.008	1 bit	C	W T
Sends operating commands to the blind actuator.					
Telegram value:					
<ul style="list-style-type: none"> 1 = Down 0 = Up 					
Prerequisites for visibility					
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options \ Parameter Function \ Option Blind Parameter window Input Ix \ Parameter window Blind \ Parameter Operation \ Option One button operation 					
Channel Ix	AB	DPT 1.008	1 bit	C	T
Sends operating commands to the blind actuator.					
Telegram value:					
<ul style="list-style-type: none"> 1 = Down 0 = Stop 					
Prerequisites for visibility					
<ul style="list-style-type: none"> Parameter window Input Ix \ Parameter window Configuration options \ Parameter Function \ Option Blind Parameter window Input Ix \ Parameter window Blind \ Parameter Operation \ Option Down 					

Function	Group Object name	Data point type	Length	Flags	
Channel Ix	UP	DPT 1.008	1 bit	C	T
Sends operating commands to the blind actuator.					
Telegram value:					
<ul style="list-style-type: none"> • 1 = Up • 0 = Stop 					
Prerequisites for visibility					
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options \ Parameter Function \ Option Blind • Parameter window Input Ix \ Parameter window Blind \ Parameter Operation \ Option Up 					
Channel Ix.1	Switch	DPT 1.001	1 bit	C	W T
Output object for the additional function with double-click.					
Telegram value:					
<ul style="list-style-type: none"> • 1 = On • 0 = Off 					
Prerequisites for visibility					
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Function \ Option Blind – Parameter Double-click additional function \ Option Yes • Parameter window Input Ix \ Parameter window Double-click \ Parameter Object type \ Option Switching (1 bit) 					
Channel Ix.1	Priority	DPT 2.001	2 bit	C	T
Output object for the additional function with double-click.					
Telegram value:					
<ul style="list-style-type: none"> • 00 = no priority • 01 = no priority • 02 = priority, Off • 03 = priority, On 					
Prerequisites for visibility					
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Function \ Option Blind – Parameter Double-click additional function \ Option Yes • Parameter window Input Ix \ Parameter window Double-click \ Parameter Object type \ Option Priority (2 bit) 					
Channel Ix.1	Send value	DPT 5.010	1 byte	C	T
Output object for the additional function with double-click.					
Telegram value:					
<ul style="list-style-type: none"> • 0 ... 255 					
Prerequisites for visibility					
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Function \ Option Blind – Parameter Double-click additional function \ Option Yes • Parameter window Input Ix \ Parameter window Double-click \ Parameter Object type \ Option Value 0-255 					
Channel Ix.1	Send percentage value	DPT 5.001	1 byte	C	T
Output object for the additional function with double-click.					
Telegram value:					
<ul style="list-style-type: none"> • 0 ... 100 % 					
Prerequisites for visibility					
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Function \ Option Blind – Parameter Double-click additional function \ Option Yes • Parameter window Input Ix \ Parameter window Double-click \ Parameter Object type \ Option Percentage value (1 byte) 					
Channel Ix.1	Height %	DPT 5.001	1 byte	C	T
Telegram for positioning the blinds upon double-click.					
Telegram value:					
<ul style="list-style-type: none"> • 0 ... 100 % 					
Prerequisites for visibility					
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Function \ Option Blind – Parameter Double-click additional function \ Option Yes • Parameter window Input Ix \ Parameter window Double-click \ Parameter Object type \ Option Height % + slat % (blind function only) 					
Channel Ix.2	Slat %	DPT 5.001	1 byte	C	T
Telegram for positioning slats upon double-click.					
Telegram value:					
<ul style="list-style-type: none"> • 0 ... 100 % 					
Prerequisites for visibility					
<ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Function \ Option Blind – Parameter Double-click additional function \ Option Yes • Parameter window Input Ix \ Parameter window Double-click \ Parameter Object type \ Option Height % + slat % (blind function only) 					

Function	Group Object name	Data point type	Length	Flags
Channel Ix	Block = 1	DPT 1.001	1 bit	C W
This Group Object blocks the channel. The acting direction of the block object and behavior when the block is set or canceled can be configured. Telegram value: <ul style="list-style-type: none"> • 1 = set block • 0 = cancel block Prerequisites for visibility <ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Activate block function \ Option Yes – Parameter Block telegram \ Option <i>Block with 1 (standard)</i> 				
Channel Ix	Block = 0	DPT 1.003	1 bit	C W
This Group Object blocks the channel. The acting direction of the block object and behavior when the block is set or canceled can be configured. Telegram value: <ul style="list-style-type: none"> • 1 = cancel block • 0 = set block Prerequisites for visibility <ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Activate block function \ Option Yes – Parameter Block telegram \ Option <i>Block with 0</i> 				

8.9 Input Ix: Window contact function

Note
 If external input I1 is used as a source for the window contact, the channel *Input I1* is hidden (→ parameter [Source for window contact](#)).

Note
 If external input I2 is used as a source for the actual value, the channel *Input I2* is hidden (→ parameter [Source for actual value](#)).

Function	Group Object name	Data point type	Length	Flags
Channel Ix	Window contact	DPT 1.001	1 bit	C R T
Output object of the channel. Telegram value: <ul style="list-style-type: none"> • Depends on the setting in the parameter Telegram when contact closed Prerequisites for visibility <ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options \ Parameter Function \ Option <i>Window contact</i> 				
Channel Ix	Block = 1	DPT 1.001	1 bit	C W
This Group Object blocks the channel. The acting direction of the block object and behavior when the block is set or canceled can be configured. Telegram value: <ul style="list-style-type: none"> • 1 = set block • 0 = cancel block Prerequisites for visibility <ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Activate block function \ Option Yes – Parameter Block telegram \ Option <i>Block with 1 (standard)</i> 				
Channel Ix	Block = 0	DPT 1.003	1 bit	C W
This Group Object blocks the channel. The acting direction of the block object and behavior when the block is set or canceled can be configured. Telegram value: <ul style="list-style-type: none"> • 1 = cancel block • 0 = set block Prerequisites for visibility <ul style="list-style-type: none"> • Parameter window Input Ix \ Parameter window Configuration options <ul style="list-style-type: none"> – Parameter Activate block function \ Option Yes – Parameter Block telegram \ Option <i>Block with 0</i> 				

8.10 Input Ix: Temperature input function

Note
 The *temperature input* function is only possible with input I2.
 Applicable sensor types: NTC 100k (at 25 °C).

Note

If external input I2 is used as a source for the actual value, the channel *Input I2* is hidden (→ parameter [Source for actual value](#)).

Function	Group Object name	Data point type	Length	Flags
Channel I2	Actual value for temperature	DPT 9.001	2 bytes	C R T
Sends the temperature measured at input I2 (remote sensor or floor temperature sensor).				
Telegram value:				
• -273 ... 670760 °C				
Prerequisites for visibility				
• Parameter window Input Ix \ Parameter window Configuration options \ Parameter Function \ Option Temperature input (I2 only)				

8.11 Diagnostics and maintenance

Note


This Group Object provides diagnostic data for our support staff in the event of a problem. Activation:

- Parameter window [Actuator](#) \ Parameter window [Settings](#) \ Parameter [Activate diagnostic messages](#) \ Option [Yes](#)

Function	Group Object name	Data point type	Length	Flags
Diagnosis - motor AD value	Sending	DPT 7.001	2 bytes	C T
Sends raw data about motor load.				
Telegram value:				
• 0 ... 65535				
Diagnosis - position	Sending	DPT 7.001	2 bytes	C T
Sends the current position.				
Telegram value:				
• 0 ... 65535				
Diagnosis - info text	Sending	DPT 16.001	14 bytes	C T
Sends a dialog text for evaluation by a support staff member.				
Diagnosis - info text	Sending	DPT 19.001	8 bytes	C T
Sends time and date of the internal clock.				
Diagnosis – position: Valve open	Sending	DPT 7.001	2 bytes	C T
Sends the position at which the valve was detected as open.				
Telegram value:				
• 0 ... 65535				
Diagnosis – position: Valve closed	Sending	DPT 7.001	2 bytes	C T
Sends the position at which the valve was detected as closed.				
Telegram value:				
• 0 ... 65535				
Diagnosis – position: Valve completely closed	Sending	DPT 7.001	2 bytes	C T
Sends the detected maximum possible closing position.				
Telegram value:				
• 0 ... 65535				

9

Operation

 **Note**

The devices cannot be operated manually.

10 Maintenance and cleaning

10.1 Maintenance

The devices are maintenance-free if used properly. In the event of damage, e.g. during transport and/or storage, repairs are not allowed to be made.

10.2 Cleaning

1. Disconnect devices from the electrical power supply before cleaning.
2. Clean dirty devices using a dry cloth or a slightly damp cloth.

11 Removal and disposal

11.1 Removal



CAUTION – Device damage due to electrostatic discharge

The silicone cover protects the device electronics from electrostatic discharge.

- ▶ Do not remove the silicone cover.

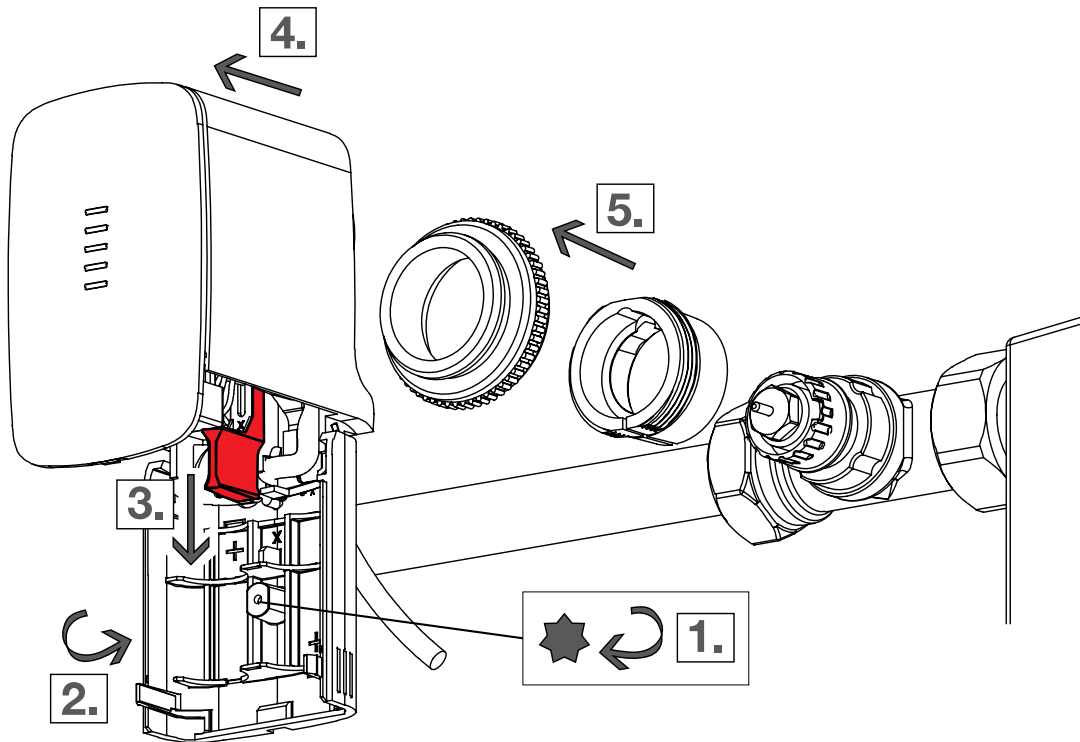


Fig. 4: ST/K 1.2 removal

1. Loosen the screw (TX 6).
2. Fold open the cover all the way down beyond the catch.
3. Pull the assembly/disassembly lever (red slider) downward.
⇒ The lock opens.
4. Pull the device off the valve adapter.
5. Remove the valve adapter from the valve.

11.2 Environment

Consider environmental protection.

Electrical and electronic devices must not be disposed of as domestic waste.



The device contains valuable resources that can be recycled. Therefore, please take the device to a suitable recycling center. All packaging materials and devices are provided with markings and test seals for proper disposal. Always dispose of packaging material and electrical devices or their components at collection points or disposal companies authorized for this purpose. The products comply with the statutory requirements, particularly the law on electrical and electronic equipment and the REACH regulation. (EU directive 2012/19/EU WEEE and 2011/65/EU RoHS) (EU REACH regulation and the law implementing the regulation (EC) no.1907/2006)

12 Planning and application

12.1 Typical applications

12.1.1 ST/K 1.2 as an actuator only

application example

The device only operates as an actuator, the integrated room temperature controller is deactivated. Control is accomplished by an ABB Tenton® SBR/U6.0.1-84 room temperature controller with 6-fold operating function.

Valve closure is triggered by a switch; presence is captured via the presence detector. Window status is captured via the actuator and a window contact.

Pushbutton 1 of the room temperature controller is used for switching. External input I1 in the actuator is used for the window contact.

The heating pump is controlled with a switch command to the SA/S 2.10.2.2, Switch Actuator, 2-fold, 10 A, MDRC.

In practice, all actuators should send their switch command for the pump to their own group address. All switch commands must be linked via an OR logic function and the result must be forwarded to the switch actuator for the pump.

Devices:

- ST/K 1.2 Electromotor Valve Drive (Order No. 2CDG120092R0011)
- SBR/U 6.0.1-84 Room Temperature Controller with 6-fold control function (Order No. 2CK-A006330A0004)
- SA/S 2.10.2.2 Switch Actuator, 2-fold, 10 A, MDRC (Order No. 2CDG110257R0011)
- 6131/30-24-508 KNX Presence Normal WS (Order No. 2CKA006131A0056)

Objects and links

No.	6131/30-24-508 Object name	No.	SBR/U6.0.1-84 Object name	Comment
10	P1:Motion (master) - output	31	RTC: Presence detector: - Input	Presence signal. Starts comfort mode.

No.	SBR/U6.0.1-84 Object name	No.	ST/K1.2 Object name	Comment
17	RTC – Heating actuating value: - Output	10	Move to position	Actuating value
86	S1 – Switch: - In/Output	17	Close valve (heating or cooling interruption)	Close valve

No.	ST/K1.2 Object name	No.	SBR/U6.0.1-84 Object name	Comment
81	Channel I1.1 – window contact	30	Window contact – Input	Connect status of window contact at ST/K 1.2 - I1 with RTC window status input object.

No.	ST/K1.2 Object name	No.	SA/S2.10.2.2 1 Object name	Comment
63	Pump ON/OFF	132	Channel A – Switch: - Switch	Controls the supply pump.

Important parameter settings

Standard or customer-defined parameter settings apply to unlisted parameters.

6131/30-24-508 Parameter window	Parameters	Option
Presence 1	Application	Detector

SBR/U6.0.1-84 Parameter window	Parameters	Option
RTC / General	Additional functions/objects	Yes (checkbox)
RTC / Heating control	Type of actuating value	2-point 1 byte, 0/100 %
Function block 1	Application	1-button switching
Function block 1 / Pushbutton 1 / Common parameters	Reaction on rising edge	Alternating on/off

ST/K1.2 Parameter window	Parameters	Option
Input I1 / Configuration options	Function I1	Window contact
General	Activate room temperature controller (RTC)	No
General	Activate pump control	Yes

SA/S2.10.2.2 1 – Channel A Parameter window	Parameters	Option
Configuration	Enable outputs	Output A: Yes (checkbox)
Switch Actuator A / Basic settings	Parameter setting	Individual
Switch Actuator A	Reaction of output	NO contact
Switch Actuator A	Value of Group Object "Status Switch"	1: closed, 0: open

12.1.2

ST/K 1.2 as a heating controller with actual value via object

Application example

In one room there are 4 radiators, each equipped with an ST/K 1.2. The integrated room temperature controller is activated on one ST/K 1.2 (a). All others (b, c, d) are controlled by it and function purely as actuators.

The room temperature is transmitted by an ABB Trevion® Keypad, 1-4-fold (70 mm) – Busch-art linear®.

The external input I1 of the device is used for the window contact and is directly internally connected to the controller.

Presence is sensed by a presence detector.

The ABB Trevion® Keypad sends the comfort and standby modes via keys 1 and 3.

Devices:

- ST/K 1.2 Electromotor Valve Drive (Order No. 2CDG120092R0011)
- BA/U 1.0.11-FX Bus Coupler KNX flex, FM (Order No. 2CKA006120A0080) + KK/U 4.70.1 Keypad white – Busch-art linear® (Order No. 2CKA006115A0510) + LFW/A.0.70.1-CK Cover Plate Studio white – Busch-art linear® (Order No. 2CKA006199A0025)
- 6131/30-24-508 KNX Presence Normal WS (Order No. 2CKA006131A0056)

Objects and links

No.	6131/30-24-508 Object name	No.	ST/K1.2 Object name	Comment
10	P1:Motion (master) - output	38	Presence – Receive	Presence signal. Starts comfort mode.

No.	KK/U4.70.1 Object name	No.	ST/K1.2 Object name	Comment
14	Operating area 1 – Send value: - Value 1: HVAC mode	37	Operating mode preset – receive	1 = Comfort
113	Operating area 3 – Send value: - Value 1: HVAC mode	37	Operating mode preset – receive	2 = Standby

No.	KK/U4.70.1 Object name	No.	ST/K 1.2 Object name	Comment
146	Sensor – Temperature sensor: - Temperature	36	External actual value – Receive	Room temperature for control.

No.	ST/K1.2 (as room temperature controller a) Object name	No.	ST/K1.2 (as actuators, b, c, d) Object name	Comment
41	Heating actuating value	10	Move to position	Actuating value

Important parameter settings

Standard or customer-defined parameter settings apply to unlisted parameters.

6131/30-24-508 Parameter window	Parameters	Option
Presence 1	Application	Detector

KK/U4.70.1 Parameter window	Parameters	Option
Configuration	Assignment	Layout 9
Configuration	Operating area 1	Send value/multiple operation
Configuration	Operating area 2	Send value/multiple operation
Configuration	Sensor	Temperature sensor
Operating area 1	Send value on	Single operation
Operating area 1	Value 1/Send on	Touch
Operating area 1	Value 1/Data type	HVAC mode [DPT 20.102]
Operating area 1	Value 1/Value	Comfort
Operating area 3	Send value on	Single operation
Operating area 3	Value 1/Send on	Touch
Operating area 3	Value 1/Data type	HVAC mode [DPT 20.102]
Operating area 3	Value 1/Value	Standby
Sensor/temperature sensor	Send temperature	Cyclically
Sensor/temperature sensor	Sending cycle	00:00:25 hh:mm:ss

ST/K1.2 (as room temperature controller, a) Parameter window	Parameters	Option
General	Activate room temperature controller	Yes
RTC/Actual value	Source for actual value	External actual value object
RTC/Actual value	Monitor actual value	Yes
Operating mode	Type of presence sensor	Presence detector
Window contact	Source for window contact	External input I1 (direct)

ST/K1.2 (as actuators, b, c, d) Parameter window	Parameters	Option
General	Activate room temperature controller	No

12.2 Determining the current operating mode

The current setpoint can be adjusted to the relevant requirements by selecting the operating mode. The operating mode can be specified via the following Group Objects:

- [Operating mode preset](#)
- [Presence](#)
- [Window status](#)

The current operating mode can be determined as follows:

Group Object <i>Operating mode preset</i>	Group Object <i>Presence</i>	Group Object <i>Window status</i>	Current operating mode
Any	Any	1	Frost/heat protection
Any	1	0	Comfort
Comfort	0	0	Comfort
Standby	0	0	Standby
Night	0	0	Night
Frost/heat protection	0	0	Frost/heat protection

Tab. 9: Determining the current operating mode

12.3 Priorities for operating mode selection

In principle the following applies: The last instruction overwrites the previous one.

i Note

Exception: Frost protection via window contact has priority in all operating modes.

When the option *Presence button* is selected in parameter *Type of presence sensor*, the following also applies:

When the Group Object *Presence* is set, if a new operating mode is then received on the Group Object *Operating mode preset*, it will be accepted and the Group Object *Presence* will be reset.

Reception of the same operating mode as prior to the presence status (e.g. via cycl. sending) is ignored. Senden) wird ignoriert.

If the Group Object *Presence* is set during night or frost mode, it will be reset after the configured comfort extension finishes (→ parameter *Comfort extension by presence button in night and frost protection mode*).

If the Group Object *Presence* is set during standby mode, the comfort operating mode is accepted without time restriction.

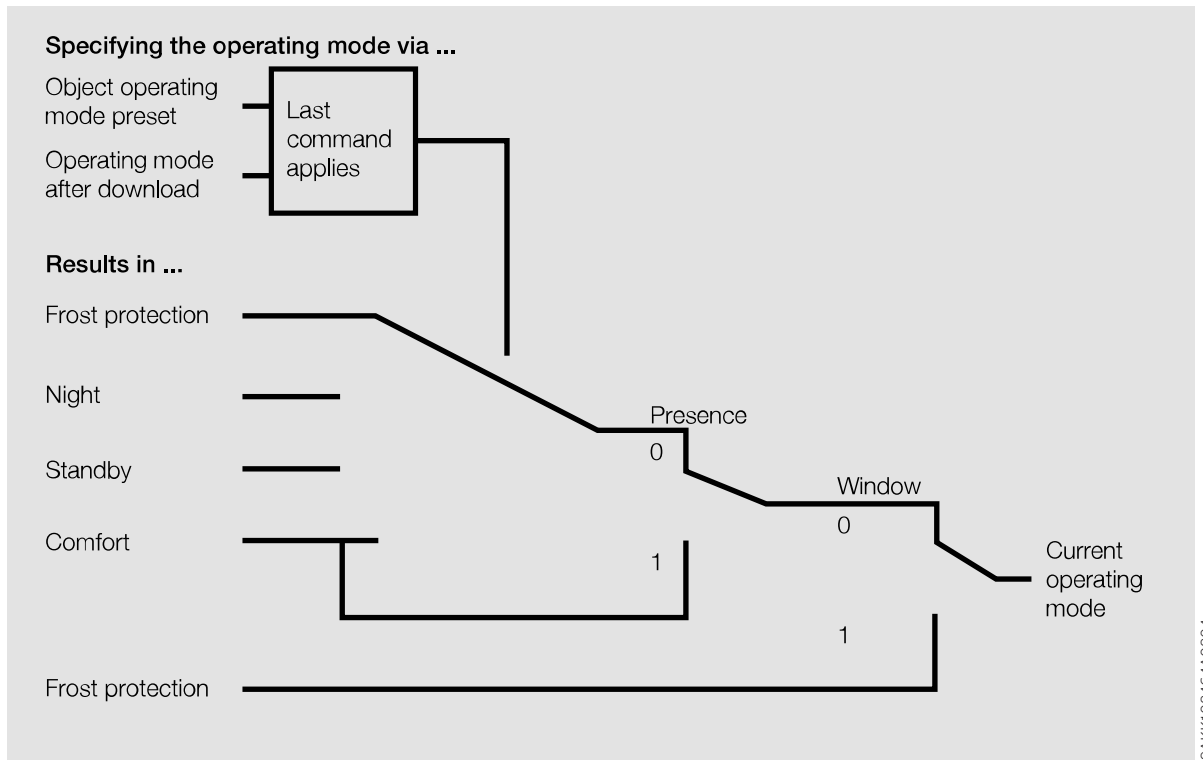


Fig. 5: Determining the operating mode when using a presence detector

12.4 Base setpoint and current setpoint

The base setpoint is the standard temperature for comfort mode and the reference temperature for reduction in standby and night modes.

The parameterized base setpoint value is stored in the Group Object *Basic setpoint* and can be changed at any time via the bus (ABB i-bus® KNX).

The current setpoint is the setpoint that is actually used for control. It is the result of all the reductions or increases associated with the operating mode and control function → [Setpoint calculation, Page 107](#).

Example

At a base setpoint of 22 °C and a reduction in night mode of 4 K, the current setpoint (in night mode) is: 22 °C – 4 K = 18 °C. During the day (in comfort mode), the current setpoint is 22 °C (provided that cooling mode is not active).

The current setpoint depends on the operating mode and on the selected control function. If the setpoint, because of a setpoint offset, is outside the programmed values for frost and heat protection, it is restricted to these values by the safety limits.

12.4.1 Determination of the setpoint

12.4.1.1 Setpoint calculation in heating mode

Operating mode	Current setpoint
Comfort	Base setpoint ± setpoint offset
Standby	Base setpoint ± setpoint offset - reduction in standby mode
Night	Base setpoint ± setpoint offset - reduction in night mode
Frost/heat protection	Configured setpoint for frost protection mode

Tab. 10: Current setpoint during heating

Example

The setpoint was previously increased by 1 K via the Group Object *Manual setpoint offset*.

Parameter windows	Parameters	Setting
Setpoints	Base setpoint after loading the application	21 °C
Setpoints	Reduction in standby mode (during heating)	2 K
Setpoints	Maximum valid setpoint offset	± 2 K

Tab. 11: Example: Heating in comfort mode.

Calculation:

Current setpoint
 = base setpoint + setpoint offset
 = 21 °C + 1 K
 = 22 °C

If operation is switched to standby mode, the current setpoint is calculated as follows:

Current setpoint
 = base setpoint + setpoint offset – reduction in standby mode
 = 21 °C + 1 K – 2 K
 = 20 °C

12.4.1.2

Setpoint calculation in cooling mode

Operating mode	Current setpoint
Comfort	Base setpoint + setpoint offset + dead zone
Standby	Base setpoint + setpoint offset + dead zone + increase in standby mode
Night	Base setpoint + setpoint offset + dead zone + increase in night mode
Frost/heat protection	Configured setpoint for heat protection mode

Tab. 12: Current setpoint during cooling

Example

The room temperature is too high, the controller has switched to cooling mode.
 The setpoint was previously lowered by 1 K via the Group Object *Manual setpoint offset*.

Parameter windows	Parameters	Setting
Setpoints	Base setpoint after loading the application	21 °C
Setpoints	Maximum valid setpoint offset	± 2 K
Cooling setpoints	Dead zone between heating and cooling	2 K
Cooling setpoints	Increase in standby mode (during cooling)	2 K

Tab. 13: Example: Cooling in comfort mode

Calculation:

Current setpoint
 = base setpoint + setpoint offset + dead zone
 = 21 °C – 1 K + 2 K
 = 22 °C

Changing to standby mode causes a further increase of the setpoint (energy saving), which results in the following setpoint:

Setpoint

= base setpoint + setpoint offset + dead zone + increase in standby mode

= 21 °C – 1 K + 2 K + 2 K

= 24 °C

12.4.2 Setpoint offset

The current setpoint can be adjusted via the Group Object *Manual setpoint offset*. In this case, the setpoint is changed by sending the desired offset to the Group Object. For this, the difference (may be preceded by a minus sign) is sent as DPT 9.002.

The offset limits are defined in the parameter *Maximum valid setpoint offset*.

The offset is always in relation to the base setpoint and not to the current setpoint.

Example

Base setpoint = 21 °C

If a value of 2 is received by the Group Object *Manual setpoint offset*, the new setpoint is calculated as follows:

21 °C + 2 K = 23 °C.

In order to subsequently bring the setpoint to 22 °C, the difference to the programmed base setpoint (here 21 °C) is resent, in this case 1 K (21 °C + 1 K = 22 °C).

12.4.3 Setpoint calculation

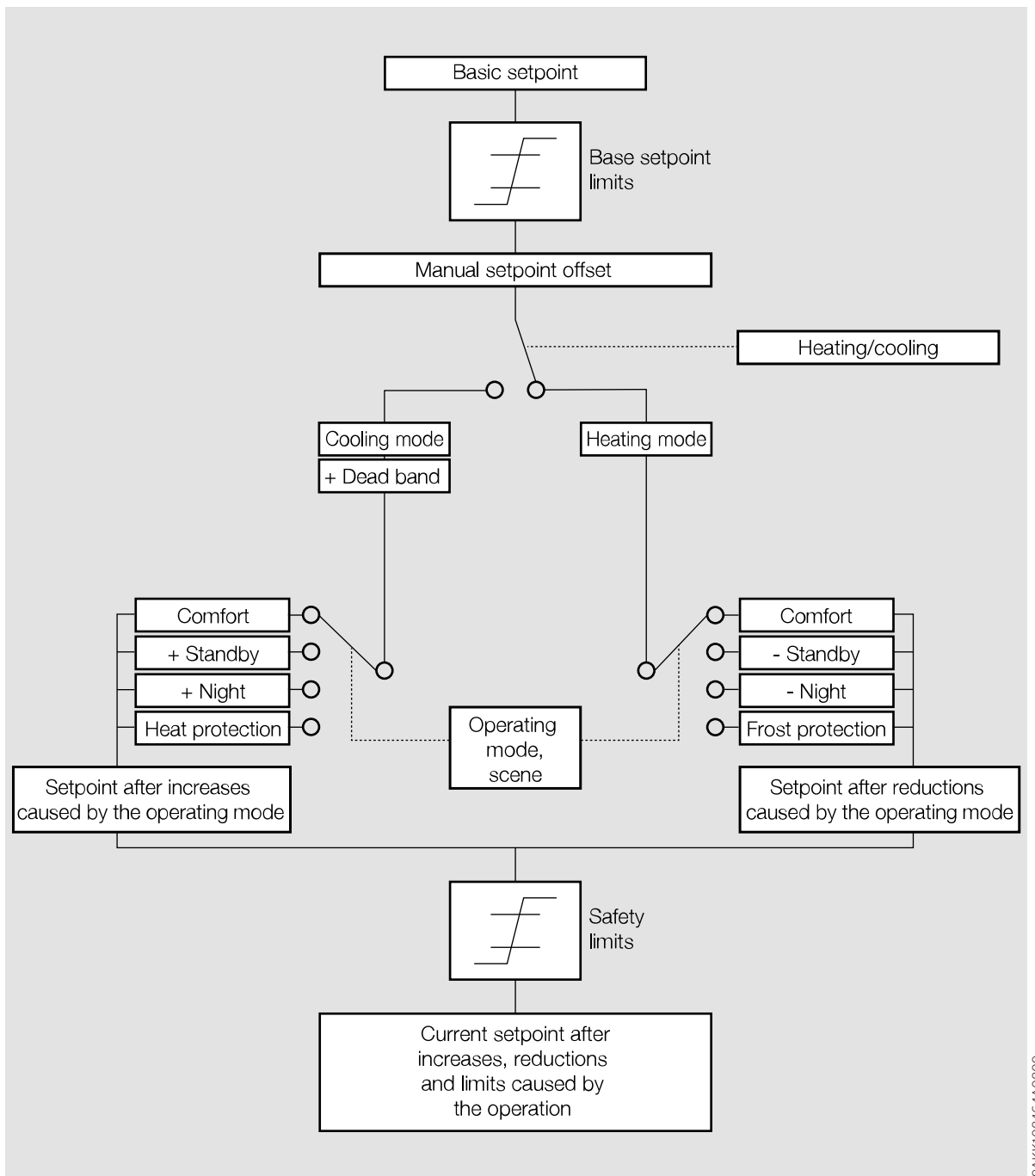
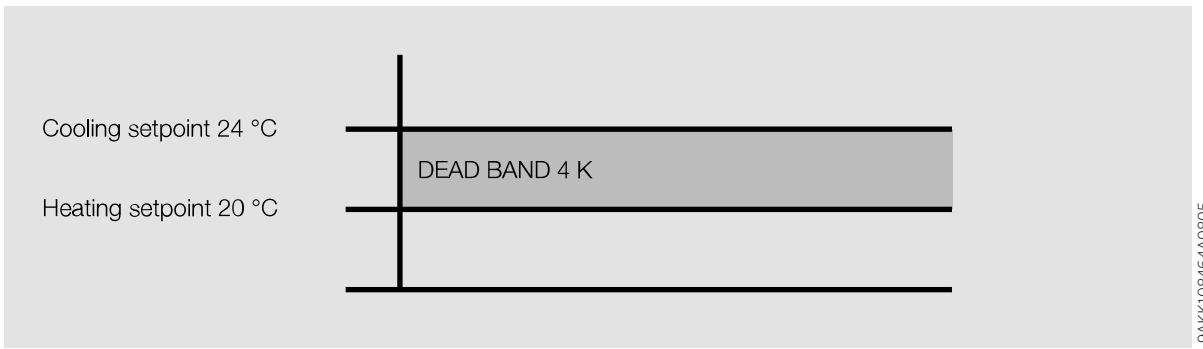


Fig. 6: Setpoint calculation

12.5 Dead band

The dead zone is a buffer area between heating and cooling mode. Within this dead zone, neither heating nor cooling occurs.

Without this buffer area, the system would permanently switch between heating and cooling. As soon as the setpoint was fallen below, the heating would be activated. After hardly reaching the setpoint, the cooling would immediately start, the temperature would fall below the setpoint and switch on the heating again.



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Fig. 7: Heating and cooling with continuous control

Note

In a 2-pipe system, the dead zone can be set to 0 K.

12.6 Valves and valve seals

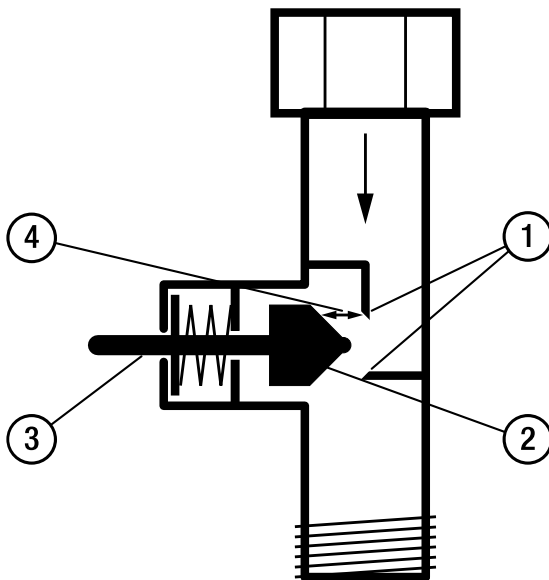


Fig. 8: Valve design

Legend

- 1 Valve seat
- 2 Rubber seal
- 3 Tappet
- 4 Valve stroke

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In the idle state, i.e. when the tappet is not actuated, it is pressed outwards by the spring and the valve is open (100% position with normal direction of action).

When the tappet is pressed, the rubber seal is pressed into the valve seat and the valve is closed (0% position with normal direction of action).

The valve does not close immediately when the rubber seal touches the valve seat, the tappet may have to travel several 1/10 mm further until the valve is actually closed, depending on the characteristics of the seal. This behavior is determined by the hardness, shape, ageing, or any damage of the valve seal.

12.7 Valve protection

This function prevents the valve from seizing and is executed if the valve position has not changed for 7 days. The valve is completely opened once and closed again, and then the current position is approached again.

12.8 Determining the highest actuating value

Application

If, in a system, all actuators are opened only slightly, e.g. one at 5%, one at 12%, another at 7% etc., the boiler could decrease its output, because not much heating energy is needed.

In order to do so, the boiler has to be informed about the actual energy demand of the system. This task is implemented via the highest actuating value.

This highest actuating value can also be used to control the flow pump.

Principle

The actuators are continuously compared with each other. Those with a higher actuating value may send it; those with a smaller one do not send.

In order to accelerate this process, the greater the difference between its own and the received actuating value, the higher the speed at which the actuator sends. Thus, the actuator with the highest actuating value sends first and outperforms all others.

In practice

The actuating values are compared with each other via the following Group Objects:

- *Highest actuating value* (Send)
- *Highest actuating value* (Receive)

For this purpose, all actuators are connected via these Group Objects with a common group address.

In order to start the actuating value comparison among the participants, one of the participants must send its actuating value to this group address cyclically → parameter *Send highest actuating value*. This actuator then regularly sends its own actuating value, while the others can respond to it. Irrespective of which device acts as a trigger, the parameter *Send highest actuating value* must be set to the default value *Only if own actuating value is greater* for all other actuators.

Actuating value dependent pump control

The common flow pump should only be switched on when at least one valve is actually open. Otherwise it is switched off.

This is implemented with the help of the following Group Objects:

- *Highest actuating value* (Send)
- *Highest actuating value* (Receive)

One of the actuators sends its current valve position (e.g. 10%) cyclically to the group address Highest actuating value.

All other devices receive it and compare it with their own position. If the own position is lower, no telegram is sent. If a device has a higher actuating value, it will be sent to this group address as the new highest actuating value.

Result:

- If all valves are closed, the highest actuating value is = 0%
- If a valve is open, the highest actuating value is > 0%

Switch actuator:

If this group address is assigned to a threshold input of the switch actuator, the pump control is ready. The switch actuator channel must be configured as a threshold input for percentage values. With a threshold and a hysteresis of 1%, the pump switches on if required and switches off again as soon as the last valve is completely closed.

12.9 Restriction of actuating value

This setting determines how far the valve should be maximally opened or closed.

To prevent the valve from whistling in the lower actuating value range, the minimum actuating value can be limited to e.g. 5%.

A valve that has the same flow rate between 90% and 100% can be restricted to 90%.

The reaction to actuating values outside the restrictions can be set in the parameter *Actuating value when value violates the min./max. actuating value*.

Example where minimum actuating value = 5%; maximum actuating value:

Parameter <i>Actuating value when value violates the min./max. actuating value</i>	Valve position with actuating value 0%	Valve position with actuating value below 5%	Valve position with actuating value above 90%
0% or 100%	0 %	0 %	100 %
Use set actuating values	5 %	5 %	90 %
0 = 0%, otherwise use set actuating values	0 %	5 %	90 %
< min. act. value = 0%, otherwise scale	0 %	0 % Actual mechanical position corresponds to the minimum actuating value (5%).	100 % Actual mechanical position corresponds to the minimum actuating value (90%).

Tab. 14: Valve positions with actuating value x

Note

With the setting < min act. value = 0%, otherwise scale, the range between minimum and maximum actuating value is considered a virtual 100% setting range. With a required actuating value of 50% (in the example), the valve is positioned in the middle of the range 5 ... 90%, i.e. at 53%.

12.10 PWM cycle

In order to achieve e.g. a heating output of 50%, the 50% actuating value is converted into switch-on/switch-off cycles.

The actuator is switched on for 50% of the time and switched off for 50% of the time over a fixed period (10 minutes in the example).

Example

2 different turn-on times of 2 and 7 minutes indicate the implementation of 2 different actuating values, that is once 20% and once 70% during a PWM period of 10 minutes.

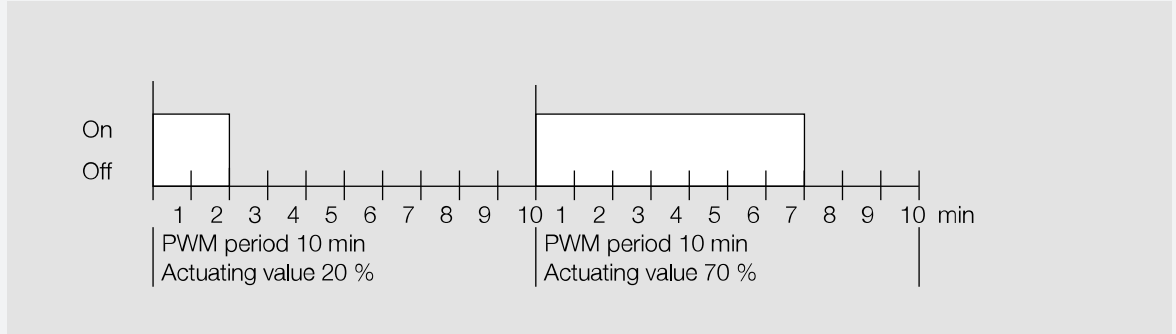


Fig. 9: Basic principle of PWM cycle

Response to changes in the actuating value

Every change in the actuating value is immediately transferred to the PWM cycle, in order to respond to changes in the quickest possible time.

Example

The last actuating value was 20% (A). A new actuating value of 50% is received during the cycle (B). The output is immediately switched on and the missing 30% turn-on time is added. The next cycle is executed with 50% (C).

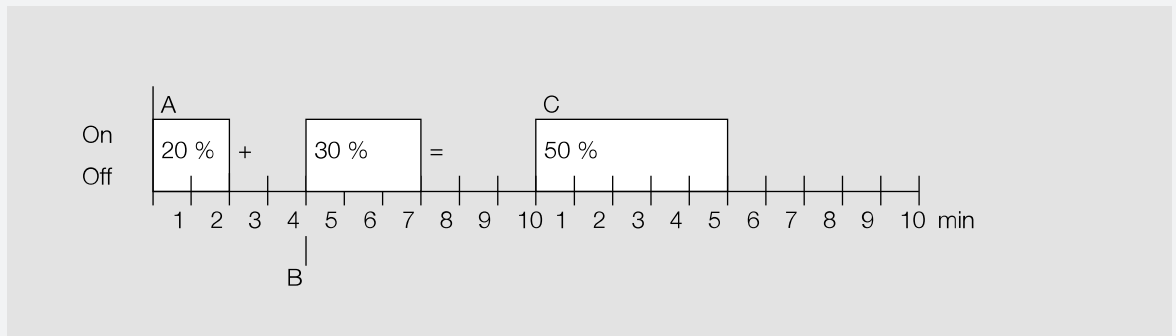


Fig. 10: Response to a change in the actuating value – example 1

If the rated turn-on time for the current cycle has already been exceeded while receiving the new actuating value, the output is immediately switched off and the new actuating value is executed during the next cycle.

Example

The last actuating value was 50% (A). A new actuating value of 30% is received during the cycle (B). The output is switched off after completing 30% of the PWM cycle and thus the new actuating value is already executed.

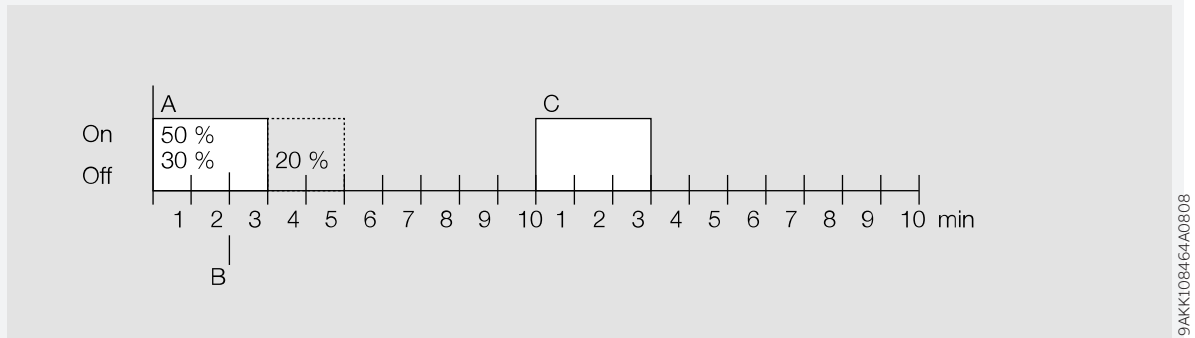


Fig. 11: Response to a change in the actuating value – example 2

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13 Appendix

13.1 Scope of delivery

The device is supplied together with the following components:

- 1 x Electromotor Valve Drive with pre-assembled connecting cable
- 2 x valve adapter (M30x1.5 and Danfoss RA. Other adapters available on request)
- 1 x installation and operating instructions
- 1 x KNX bus connection terminal (red/black)
- 1 x ABB security card with FDSK



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