07B0 CO Room Control Unit 970101

Use of the application program

Product family: Displays

Product type: Display and operating units
Manufacturer: Siemens AG

Name: Room control unit UP 227
DELTA i-system

Order no.: 5WG1 227-2AB11

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1 Product and Feature Description

1.1 Introduction

The UP 227 room controller is available in the following colors matching the DELTA i-system range of switches:

Titanium white 5WG1 227-2AB11

The UP 227 room controller is a monoblock device. It needs no separate bus coupling and no additional power supply. The hanger and corresponding frame required for installation are not included in the kit as delivered, but must be ordered separately (see the relevant catalogs).

The UP 227 room controller combines the features of a graphic display with up to 10 room control features, an individual room thermostat with set point and mode settings, a temperature sensor and a fan coil unit controller in a bus device.

The room controller can be used as a room thermostat with control and display features for set points, modes, comfort extension, fan speeds, etc. Or the device can operate as a pure controller and display for these controller-specific values. In this application, the room thermostat must be available in the actuator.

You can configure switching, switching with force control, dimming, solar protection control, send and store scenes, send and display values, display values and text/operating messages. Features and states can be depicted with texts and symbols. Each control or display feature is shown on a separate page on the LCD display. If you do not configure all 8 room control features, then correspondingly fewer pages are displayed.
In addition, Option 2 confirms further control features operated directly via a pair of keys.

Eight alarm messages can also be displayed on special alarm pages. A tone generator and a flashing red LED (A, see Figure 1) highlight these messages in the top right corner. The room controller has an internal tone generator. This can be used as a response when a button is pressed. A LED (A, see Figure 1) in the top right corner of the room controller can also show a green light as a response when a button is pressed.

The LED (A, see Figure 1), in the top right corner also acts as an orientation light. The orientation light can also be configured so that it is constantly switched on and off when green, or can be switched by a communication object. This is how the orientation lighting can be switched individually in night mode.

The date and time can be shown on the room controller. The clock is used to control the timer program and to display the time stamp on alarm messages.
The room controller needs an external timer, which supplies the precise time and date through the corresponding KNX communication objects. Therefore, it is essential for the corresponding KNX device to be present as time master in the system. You can set the time and date manually on the LCD display, in the system settings.

The device also has a weekly timer feature for up to 40 timer jobs. These can be set directly on the LCD display. You can set weekly timer commands for each of the 8 configurable display and control features. You can also set the room thermostat mode and fan speeds via the weekly timer feature.

Special system pages on the LCD display change the settings, such as brightness, background color and time to standby.

If the device is not used for a certain time, the background lighting is switched off or moves into a dimmed state. The room controller moves into standby mode. The system settings define the time to standby mode directly on the room controller. If the background lighting is switched off, this is switched on again for the set time on pressing a button.
The display mode can be configured so that a certain feature is shown when the display is in standby. This can be the last feature used or the defined display of one of the 8 control and display features. The display pages for the room controller or for setting the fan speeds can also be selected for this.

All functional descriptions, text and alarm messages which are shown on the display can be stored in three defined control languages in the ETS configuration. This makes an individual selection of the control language possible directly on the room controller in the system settings. If this language change is activated remotely, the corresponding KNX bus communication objects related to this are available.

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The representation of the system settings and the room thermostat/fan control settings is stored in five languages: German, English, French, Italian and Spanish. This system language is set directly on the room controlled in the system settings.

Scene storage, date and time setting and configuration of timer features is only possible in administrator mode. This protects against unwanted operations and settings.

2 User Interface – Controls and Displays

The room controller has four capacitive button pairs for control. These are arranged on both sides (left and right) of the display (E, F, G, H).

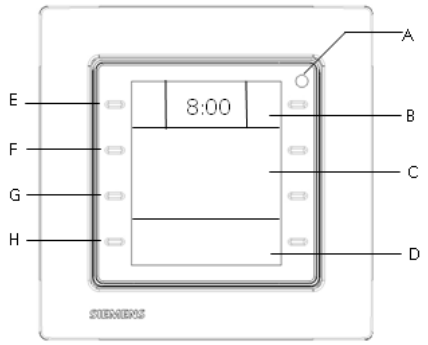

Figure: 1

The display is divided into three areas.
The top area (B) contains the feature line, with both fixed feature buttons (E) right and left. These form the top pair of buttons. Different information items, such as time, date, outside temperature, inside temperature or room mode, heating or cooling mode and fan speeds etc. are displayed between the buttons. The information display is programmed via the ETS.
A fixed room control feature is assigned to the top pair of buttons (E) to the right and left of the feature line. There is also the option to use both buttons as a pair on a room control feature. This setting is configured via the ETS. Appropriate symbols show the room control feature on the display to the right or left beside the keys. This predetermined functionality always maintains even if display settings are changed.

The central area (C) has two lines. The second line selects the feature channel, such as ceiling lights, south blind, scene presentation, messages, room thermostat settings and system settings. This is done by the second button pair (F) to the left and right of the second line. The feature name is configured via the ETS. The third line controls the selected feature, e.g. switch on/off, blind up/down or changes the settings, e.g. nominal temperature 21°C or change of language. The third button pair (G) to the left and right of the third line controls these.

The bottom area (D), with line 4, are used to browse through the different feature groups, e.g. switching, lighting, dimming, solar protection, scenes, sending or showing values, alarms, room thermostat and system settings. Depending on this selection, the relevant channels and feature names or settings for a further selection are displayed in line 2. The fourth button pair (H) to the left and right of the bottom line controls this browsing.

3 Feature line – fixed control features

The top line on the room controller is the feature line. It includes the central feature area (I) and both buttons (E and E`).

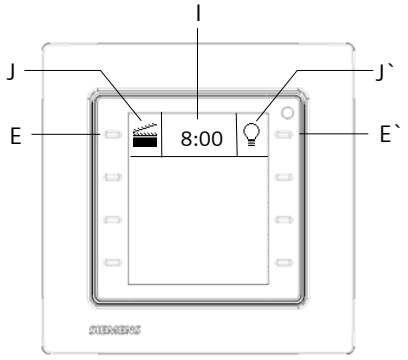

Figure: 2

If these buttons are working individually, each button can be configured separately with a control feature using the ETS. These control features are then locked to the relevant button. This gives the option of controlling important room features, e.g. ceiling lights ON/OFF, directly, without browsing through a display menu.
The symbol (J), to the right beside the individual button (E), describes the feature to be controlled to the left.
The symbol (J), to the left beside the individual button (E), describes the feature to be controlled to the right.

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The following individual features are available in each case:
a) Switching. On
b) Switching: Off
c) Switching: Toggling
d) Press On/release Off
e) Press Off/release On
f) forced controlled On
g) forced controlled Off
h) forced control inactive (On)
i) forced control inactive (Off)
j) 8-bit scene: recall
k) 1-bit scene recall/save scene 1
l) 1-bit scene: recall/save scene 2
m) Send 8-bit decimal value
n) Send 8-bit percentage value
o) Send temperature value
p) Send brightness value
q) Send wind speed
r) Send 16-bit value

For each of the two individual buttons, there is also the option to send, after a delay (delay variable from 0 seconds to 255 seconds), a second telegram via a further communication object, e.g. "ON" via object 1, "OFF" via object 2. The second telegram can also have another feature, e.g. call up 8-bit scene. If the button is pressed again before the set time has elapsed, the time delay restarts for the corresponding second telegram.

There is also the option to send two different values via two different communication objects by tapping or by holding the button down, e.g. tap "21°C" via object 1, alternatively hold down for "500 lux" via object 2). The time that differentiates between a tap and holding down is configurable (0.5 seconds - 2 seconds).

These further individual features can be selected:
a) Switching. On
b) Switching: Off
c) forced controlled On
d) forced controlled Off
e) forced control inactive (On)
f) forced control inactive (Off)
g) 8-bit scene: recall
h) 8-bit scene: save
i) 1-bit scene recall/save scene 1
j) 1-bit scene: recall/save scene 2
k) Send 8-bit percentage value
l) Send 8-bit decimal value
m) Send temperature value
n) Send brightness value
o) Send wind speed value
p) Send 16-bit value

If both buttons (E and E`) are configured for use as a button pair, these co-operate on a single feature. This control feature is then locked to the relevant button. There is the option to control important room features, e.g. dim ceiling light (left button: on/brighter, right button: off/darker) directly, without browsing through a display menu. The symbols (J and J`) then describe the feature to be controlled overall.

The following features are available for control with the button pair:
a) Dimming On/Off (left Off, darker/right On, brighter)
b) Shutters (left Down, Stop/right Up, Stop)
c) Blind (left Down, Stop, slats Closed/right Up, Stop, slats Open)

When controlling with a button pair, the control strategy can be changed to:
a) Dimming On/Off (left On, brighter/right Off, darker)
b) Shutters (left Up, Stop/right Down, Stop)
c) Blind (left Up, Stop, slats Open/right Down, Stop, slats Closed)

The use of each feature button or of the button pair can be locked or released via a special communication object.
You set whether the button or button pair control is always to be released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0.
A special display page signals blocking of the command.

3.1 Individual button features

3.1.1 Switching

By pushing the button, the corresponding command message (ON/OFF/TOGGLE) is sent immediately.
With the ring feature, you press the button to send the command "ON" or "OFF" and release it to send the reverse command in each case.

3.1.2 Switching with forced control

Pressing the key sends the set command (forced controlled ON/forced controlled OFF/forced control inactive and simultaneously switch ON/forced control inactive and simultaneously switch OFF) immediately.

Actuators with override input allow an override of certain actuator outputs by central control interventions. In this way, you can, say, in energy saving or night mode override the switching on of certain lights or loads.

3.1.3 Recall 8-bit scenes

Pressing the button recall the scene with the set number (1...64). Additionally an appropriate telegram is sent to the actuator via the object.

3.1.4 Recall/save 1-bit scene 1
Recall/save 1-bit scene 2

With the "Recall/save 1-bit scene" feature, the user can independently, without changing the scheduling with the ETS, reprogram a device for 1-bit scene control, i.e. assign different brightness values or switching states to the individual groups of the relevant scene.
A scene is recall with a 1-bit switching command via another object, in which scene 1 is recall with a "0" telegram and scene 2 with a "1" telegram.
A scene is also saved with a 1-bit switching command, in which scene 1 is saved with a "0" telegram and scene 2 with a "1" telegram.
A 1-bit status object is available with this feature. This gives the choice of recalling the corresponding 1-bit switching object for scenes 1 or 2 with the link or saving the corresponding 1-bit switching object for scenes 1 or 2 with the link .
Before saving a scene, the relevant actuators must be set to the wanted brightness or switching states with the buttons/sensors provided for this purpose. Receiving a saving telegram prompts the contacted scene modules to demand the currently set brightness values and switching states from the actuators and save them in the relevant scene.

3.1.5 Send 8-bit decimal value,
Send 8-bit percentage value

This feature is used to send 8-bit values in the range from 0...255 or 0...100%. An 8-bit value is assigned to the button, e.g. to dim the associated lights to the set value by pressing the button or to use this button to control the speed of a fan.

3.1.6 Send temperature value,
Send brightness value,
Send wind speed value,
Send 16-bit value

This feature is used to send 2-byte floating point temperature values (-30...48°C), illumination values (0...100,000 lux), wind speed (0...35 m/s) or any 2-byte counter values in the range from 0...65535.
A 16-bit floating point value is assigned to the button, e.g. press the button set the nominal temperature of a room thermostat to a set value.

3.2 Button pair features

3.2.1 Dimming On/Off

Tapping a button pair in a defined manner switches on or off, and holding a button down dims or brightens. You can set which button (E or E') is to be used for switching off and darkening or switching on and brightening. When "Dimming with Stop telegram", as soon as a button is detected as held down, a "brighter" or "darker" dimming telegram is sent and, when the button is released, a stop telegram is sent. The time that differentiates between a tap and holding down is configurable for the dimming/solar protection ("General" settings card).

3.2.2 Shutters

Holding down a button pair can define moving the shutters down or up, and tapping a button ends the movement. You can set which button (E or E`) moves the shutter up or down. The time that differentiates between a tap and holding down is generally configurable for the dimming/solar protection ("General" settings card).

3.2.3 Blind

Holding down a button pair can define moving the solar protection down or up, and tapping a button ends the movement or adjusts the slats by one step. You can configure with which button the solar protection is to be moved up. Additionally and if necessary, the slats are to be opened by one step or the solar protection is moved down and, if necessary, the slats are to be closed by one step. The time that differentiates between a tap

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and holding down is generally configurable for the dimming/solar protection ("General" settings card).

4 Display area – Display features

The lines (C, C` and D) represent the display area. In each case, these include the button pairs (F/F`, G/G` and H/H`) to the left and right.

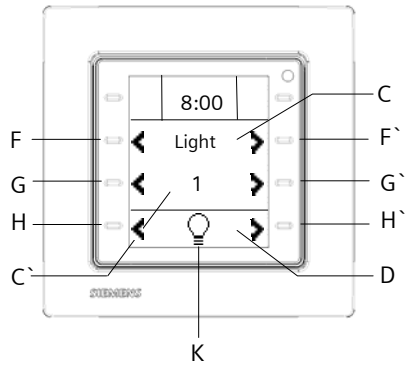

Figure 3

You use the button pair (H and H`) to browse through the different feature groups (K). The selected feature group (K) is shown symbolically in the center of line (D). The following feature groups are possible:

- Switching, Switching with forced control

- Dimming

- Blind

- Shutters

- Scenes

- Send values

- Show values

- Show text

- Alarms

- Room thermostat/fan controller

- System settings

These feature groups divide the eight display features into feature types, sections (lighting, solar protection, HLK, etc.) and applications. The feature groups are partitioned automatically with configuration of the actual display features and alarms.
The room thermostat and system settings selections are always available.

4.1 Display feature: Switching

The button pair (H and H`) selects the "Switching" feature group in the bottom line.
You now use the button pair (F and F`) to select the different switching channels (C), corresponding to the "Switching" features group, e.g. "Ceiling light", "Wall light", "Standard lamp".
The switching channel (C) labeling can be set in up to 3 languages at random.

If all display features have been programmed as "Switching", the maximum possible number of switching channels is 8.
Depending on the "Switching" display feature, the control symbols (L) and the status (C`) of the switching channel are shown in the third line.

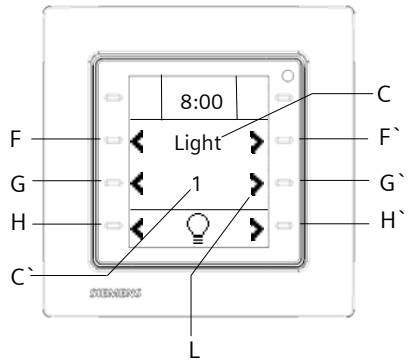

Figure 4

4.1.1 Switching, Off/On
Pressing the button (G') sends the corresponding command telegram (ON) immediately.
Pressing the button (G) sends the corresponding command telegram (OFF) immediately.
The received status is reflected with the display "0" or "1".

4.1.2 Switching, Toggling/Toggling
Pressing the button (G) or (G') sends the corresponding command telegram alternately (ON/OFF) immediately.
The received status is reflected with the display "0" or "1".

4.1.3 Bell feature: Press On/Release Off
With the bell feature, you press the button (G) or (G') to send the "ON" command and release it to send the "OFF" command.
The status is reflected with the display of a bell symbol.

4.1.4 Bell feature: Press Off/Release On
With the bell feature, you press the button (G) or (G') to send the "OFF" command and release it to send the "ON" command.
The status is reflected with the display of a bell symbol.
A separate communication object blocks and releases operation of the buttons (G and G`).
You set whether the button control is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals blocking of the command.

4.2 Display feature: Switching, dimming

The button pair (H and H`) selects the "Switching, dimming" feature group in the bottom line.
You now use the button pair (F and F`) to select the different dimming channels (C), corresponding to the "Dimming" features group, e.g. "Ceiling light", "Wall light", "Standard lamp".
The dimming channel (C) labeling can be set in up to 3 languages at random.
If all display features have been programmed as "Switching, dimming", the maximum possible number of dimming channels is 8.
Depending on the "Switching, dimming" display feature, the control symbols (L) and the status in % (C`) of the dimming channel are shown in the third line.

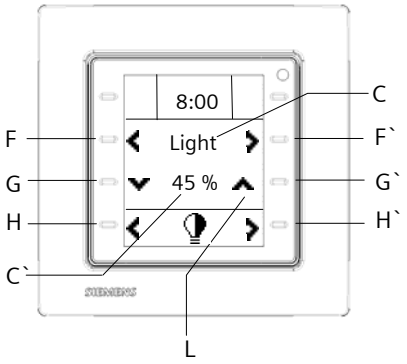

Figure: 5

Tap the button (G`) to switch on and hold it down to brighten the lighting.
Tap the button (G`) to switch off and hold it down to dim the lighting.
The time, which differs between tapping and holding down the button, is generally configurable for the dimming/solar protection function by holding the button down ("General" settings card).
When "Dimming with Stop telegram" is set, as soon as a button being held down is detected, a "brighter" or "darker" dimming telegram is sent and a stop telegram on releasing the button.
The 8-bit dimming value which is received from the dimming actuator is set as a percentage from 0...100.
A separate communication object blocks and releases operation of the buttons (G and G`).

You set whether the button control is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals blocking of the command.

4.3 Display feature: Switching with forced control

The button pair (H and H`) selects the "Switching" feature group in the bottom line.
You now use the button pair (F and F`) to select the different switching channels (C) for "Switching with forced control" corresponding to the "Switching" features group, e.g. "Night mode", "Night lighting".
The switching channel (C) labeling can be set in up to three languages at random.
If all display features have been programmed as "Switching with forced control", the maximum possible number of switching channels for this is 8.
Depending on the "Switching with forced control" display feature, the status symbol (L) for the actuator and the settings "forced controlled On", "forced controlled", "forced control inactive" are shown symbolically in the third line (C`).

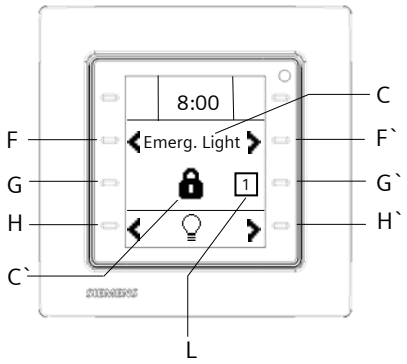

Figure 6

Actuators with an forced control input allow certain actuator outputs to be overridden by central control interventions. This is how, for example, in Economy or night mode, switching on of certain lights or loads can be forcibly prevented. The room controller can activate forced control manually or disable automatically enabled forced control.
Tapping the button (G`) sends the "forced controlled ON" command via a 2-bit communication object immediately. Holding the button (G`) down sends a command disabling forced control.
Tapping the button (G) sends the "forced controlled OFF" command via a second 2-bit communication object immediately. Holding the button (G) down sends a command disabling forced control.
The time which differs between tapping and holding down the button is generally configurable for the Disable forced control feature ("General" settings card).
The current actuator output status (L) is analyzed separately and shown to the right or left beside the "Lock" symbol (C`) for forced control.

A special communication object blocks and releases operation of the buttons (G and G`).
You set whether the button control is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals blocking of the command.

4.4 Display feature: Shutters

The button pair (H and H`) selects the "Shutter" feature group in the bottom line.
You now use the button pair (F and F`) to select the different shutter channels (C), corresponding to the "Shutter" features group, e.g. "South shutter", "West shutter", "East shutter".
The shutter channel (C) labeling can be set in up to 3 languages at random.
If all display features have been programmed as "Shutter", the maximum possible number of shutter channels is 8.
Depending on the "Shutter" display feature, the control symbols (L) and the status in % (C`) of the shutter channel are shown in the third line.

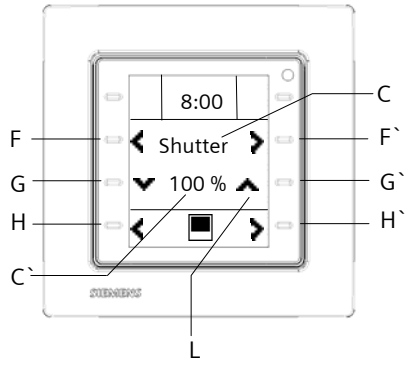

Figure 7

Hold the button (G`) down to move the shutter up in a defined manner and tap it to stop the movement.
Hold the button (G) down to move the shutter down in a defined manner and tap it to stop the movement.
The time, which differs between tapping and holding down the button, is generally configurable for the dimming/solar protection function by holding the button down ("General" settings card).
The received status of the hanging height is set as a percentage from 0...100. 0% means the shutter is fully open, 100% means the shutter is fully closed.

A separate communication object blocks and releases operation of the buttons (G and G`).
You set whether the button control is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals blocking of the command. The status display is independent of the blocking.

4.5 Display feature: Venetian Blind

The button pair (H and H`) selects the "Blind" feature group in the bottom line.
You now use the button pair (F and F`) to select the different blind channels (C), corresponding to the "Shutter" features group, e.g. "South blind", "West blind", "East blind".
The blind channel (C) labeling can be set in up to 3 languages at random.
If all display features have been programmed as "Blind", the maximum possible number of blind channels is 8.
Depending on the "Blind" display feature, the control symbols (L) and the status in % (C`) of the blind channel are shown in the third line.

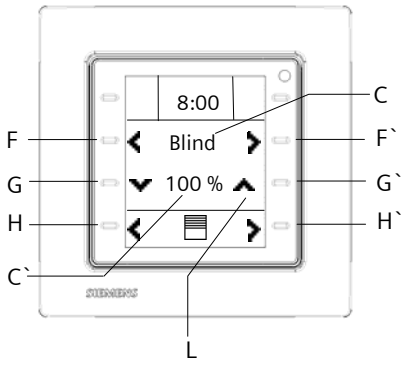

Figure 8

Hold the button (G`) down to move the blind up in a defined manner and tap it to stop the movement or to vary the slats by one step.
Hold the button (G) down to move the blind down in a defined manner and tap it to stop the movement or to vary the slats by one step.
The time, which differs between tapping and holding down the button, is generally configurable for the dimming/solar protection function by holding the button down ("General" settings card).
The received status of the hanging height is set as a percentage from 0...100. 0% means the blind is fully open, 100% means the blind is fully closed.

A separate communication object blocks and releases operation of the buttons (G and G`).
You set whether the button control is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals blocking of the command. The status display is independent of the blocking.

4.6 Display feature: Recall/save 8-bit scenes

The button pair (H and H`) selects the "Scenes" feature group in the bottom line.
You now use the button pair (F and F`) to select the different scenes (C), corresponding to the "Scenes" features group, e.g. "Presentation", "Conference", "Eco".
The scene (C) labeling can be set in up to 3 languages at random.
If all display features have been programmed as "8-bit scenes", the maximum possible number of scenes is 8.
Depending on the "Scenes" display feature, the control symbol (L) and the configured scene symbol are shown in the third row. The following representative scene symbols are available:

- Presentation

- Conference

- Eco

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- Leave room

- Universal

- Party

- Holiday

- Standby mode

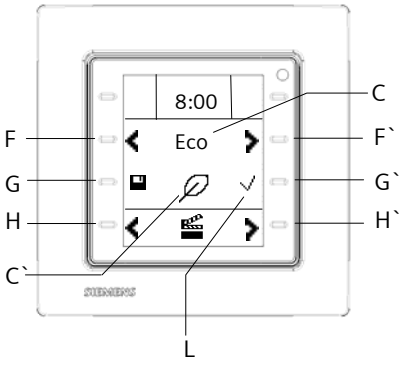

Figure 9

The "Recall/Save 8-bit scene" feature allows the user, without changing the scheduling with the ETS, to reprogram scene modules for 8-bit scene control or reprogram actuators with integrated 8-bit scene control, i.e. assign different brightness values or switching states to the relevant scene independently. Use the (G`) button to recall the scene with the set numbers (1...64). Hold the (G) button down to save the scene.

Note:
Saving scenes is only possible in administrator mode, see Section 7.8

The time, which differs between tapping and holding down the button, is generally configurable for the "save scene feature by holding the button down" ("General" settings card).
In this feature, a single communication object transfers both the command to save a scene and the command to recall a saved scene and the number of the wanted scene via a unique communication object.
Before saving a scene, the relevant actuators must be set to the wanted brightness or switching states with the buttons/sensors provided for this purpose. Receipt of a saving telegram prompts the contacted scene modules and actuators with integrated scene control to demand the currently set brightness values and switching states from the actuators and save them in the relevant scene.

A separate communication object blocks and releases operation of the buttons (G and G`).
You set whether the button control is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals blocking of the command.

4.7 Display feature: Recall/save 1-bit scenes

The button pair (H and H`) selects the "Scenes" feature group in the bottom line.
You now use the button pair (F and F`) to select the different scenes (C), corresponding to the "Scenes" features group, e.g. "Presentation", "Conference", "Eco".
The scene (C) labeling can be set in up to 3 languages at random.
If all display features have been programmed as "1-bit scenes", the maximum possible number of scenes is 8.
Depending on the "Scenes" display feature, the control symbol (L) and the configured scene symbol are shown in the third row. The 8-bit scene symbols are available, see Section 4.5.

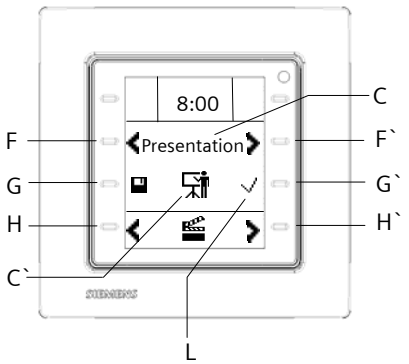

Figure 10

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This feature provides two 1-bit communication objects , one to recall the scene and another to save the scene.
Before saving a scene, the relevant actuators must be set to the wanted brightness or switching states with the buttons/sensors provided for this purpose. Receiving a saving telegram prompts the contacted scene modules to demand the currently set brightness values and switching states from the actuators and save them in the relevant scene.
With the "Recall/save 1-bit scene" feature, the user can independently, without changing the scheduling with the ETS, reprogram a device for 1-bit scene control, i.e. assign different brightness values or switching states to the individual groups of the relevant scene.
A scene is recalled with a 1-bit switching command, in which scene 1 is recalled with a "0" telegram and scene 2 with a "1" telegram.
A scene is also saved with a 1-bit switching command via another object, in which scene 1 is saved with a "0" telegram and scene 2 with a "1" telegram. Sending or saving scene 1 or scene 2 is configurable.
Use the (G`) button to recall the scene with the set number (1 or 2). Hold the (G) button down to save the scene.

Note:
Saving scenes is only possible in administrator mode, see section 7.8

The time, which differs between tapping and holding down the button, is generally configurable for the "save scene feature by holding the button down" ("General" settings card).

A special communication object blocks and releases operation of the buttons (G and G`).
You set whether the button control is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals blocking of the command.

4.8 Display feature: Send fixed values

The button pair (H and H`) selects the "Send values" feature group in the bottom line.
The button pair (F and F`) now select the various values or value types (C) to be sent, e.g. "45%", "22°C", "10000 lux".
The value labeling (C) can be set in up to 3 languages at random.

If all display features have been configured as "Send fixed values", there are 8 available channels for sending fixed values. Up to 4 values can be sent over each of the 8 channels.
Depending on the "Send fixed values" display feature, the control symbols (L) and the configured value (C`) to be sent are displayed in the third line. Depending on the value format, the appropriate unit appears behind the value, e.g. % for percentages, °C for temperatures, kLux for brightness values or m/s for wind speeds.

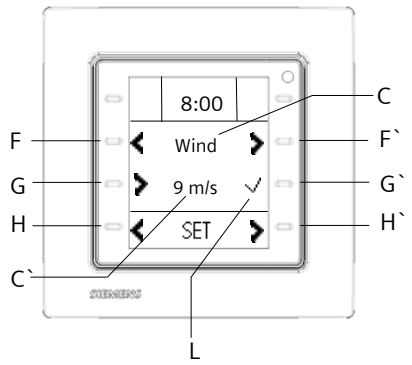

Figure 11

The (G) button selects one from a maximum of 4 values. All 4 values in a "Send fixed values" channel are of the same data type. This is how, for example, four different wind speeds, 3 m/s, 5 m/s, 10 m/s and 15 m/s for configuring a weather station are sent over a single channel. The button (G`) is used for this. The following value types are configurable:

- 8-bit decimal,
- 8-bit percent,
- 16-bit decimal,
- Temperature,
- Brightness,
- Wind speed

A special communication object blocks and releases operation of the buttons (G and G`).
You set whether the button control is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals blocking of the command.

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4.9 Display feature: Send variable values

The button pair (H and H`) selects the "Send values" feature group in the bottom line.
The button pair (F and F`) now select the various values or value types (C) to be sent, e.g. "%", "°C", "lux", in order to set these as variables in the following.
The value labeling (C) can be set in up to three languages at random.
If all display features have been configured as "Send variable values", there are 8 available channels for sending variable values.
Depending on the "Send variable values" display feature, the control symbols (L) and the locally configured value (C`) to be sent are displayed in the third line. Depending on the value format, the appropriate unit appears behind the value, e.g. % for percentages, °C for temperatures, kLux for brightness values or m/s for wind speeds.
The (G`) button increments the value to be sent.
The (G) button decrements the value to be sent.
The values are sent immediately with each step. The interval can be set.
Each time the button is held down, the value is incremented or decremented cyclic for the time held down. The time, which differs between tapping and holding down the button, is generally configurable for the variable value adjustment function by holding the button down ("General" settings card).
If the values are sent by holding the button down, a telegram repeat rate ("General" settings card") must be configured in advance.
There is also the option to set configurable minimum and maximum values for the value range relevant to the appropriate data type. Only the values for the value range configured accordingly can be sent.
Display of values out of the defined range of values is possible. Pressing the button (G or G`) causes a correction for sending this value afterwards.

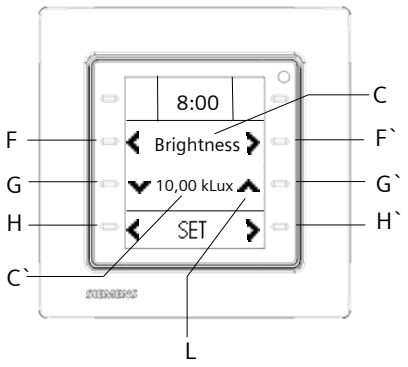


Figure 12

The following value types are configurable:
- 8-bit decimal,
- 8-bit percent,
- 16-bit decimal,
- Temperature,
- Brightness,
- Wind speed

A special communication object blocks and releases operation of the buttons (G and G`).
You set whether the button control is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals blocking of the command.

4.10 Display feature: Display value

The button pair (H and H`) selects the "Display values" feature group in the bottom line.
The button pair (F and F`) can now select the different received values of the communication objects for display:
- 1-bit values
- 8-bit decimal values
- 8-bit percentages
- 16-bit decimal values
- 16-bit floating point values

The value labeling (C) can be set in up to 3 languages at random.
If all display features have been configured as "Display value", up to 8 different values can be shown on the display.
The value received via the relevant communication object is shown in the third line. A physical unit can be configured appropriately for the relevant value. It is shown behind the value.

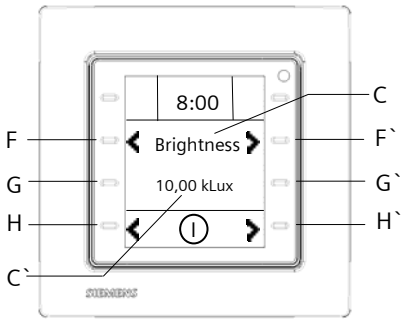


Figure 13

Note:
Because this feature works as a pure display feature, no commands are triggered via the buttons (G and G`) and the blocking feature remains non-operational.

4.11 Display feature: Show text

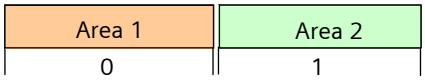
The button pair (H and H`) selects the "Display text" feature group in the bottom line.
The button pair (F and F`) select the different value-dependent text messages for display: The following types of status object are available for value-dependent text displays:

- 1-bit values
- 8-bit decimal values
- 8-bit percentages
- 16-bit decimal values
- 16-bit floating point values
- Text message via object (14 bytes)

Up to two thresholds can be configured, so you can define a maximum of three display areas. You define a text (C`) up to 8 characters in length, in 3 different languages respectively for each display area.
With the 1-bit data type, in each case an individual text (C`) can be displayed for the object values 0 and 1. This is how, for example you show the text "Open" for the value 1 and "Closed" for the value 0 in the display.

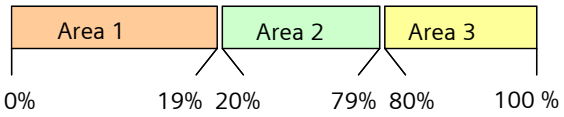
Examples:
The display is dependent on a 1-bit value:

Value : 0
Value : 1



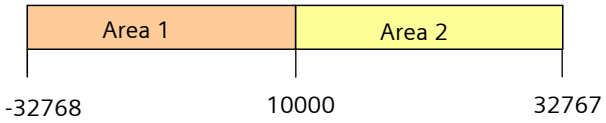
The display is dependent on a percentage value:

Threshold 1: 20 %
Threshold 2: 80 %



The display is dependent on a 16-bit floating point value:
Configuration with a threshold:

Threshold 1: 10000



With the "Text message via object" configuration, the text content of a 14-byte communication object, as received via the KNX bus, is shown directly in the third line. The text consists of a maximum of 14 ASCII characters.

Example of level display for a tank: The status object receives a percentage value (1 byte). The threshold is set between 20% and 80%. For display area 1 (< 20%), the text is configured "low", for display area 2 (20 ... 79%), the text is "normal" and for display area 3 (> 80%) "full". Depending on the display feature "Show text", the configured text (C) is displayed in the third line.
The text message labeling (C) can be set in up to 3 languages at random, e.g. *"fluid level"*.

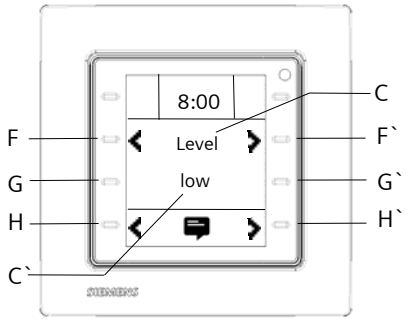


Figure 14

If all display features have been set as "Text messages", 8 channels are available to display messages.

Note:
Because this feature works as a pure display feature, no commands are triggered via the buttons (G and G`) and the blocking feature remains non-operational.

5 Representation and feature of alarm messages

The room controller offers eight alarm features. If an alarm condition is met, then an alarm is triggered.

5.1 Alarm behavior

If an alarm message is triggered, the corresponding alarm page with the set alarm text (C'), e.g. "Fire", is shown automatically with the set alarm symbol or alarm value.
The alarm text (C) can be set in up to 3 languages at random.
These alarm symbols are selected via a parameter:

- Alarm

- Warning

- Window

- Wind

- Temperature

The alarm number is shown in the top left corner (J).

If a number of alarms occur concurrently, then you browse between alarms with the buttons (F and F`).
All pending alarms are shown in the order in which they arrived. The alarm with the most recent time stamp has the highest alarm number.

In the feature line (I), the date, day of the week and current time are shown when an alarm is triggered.

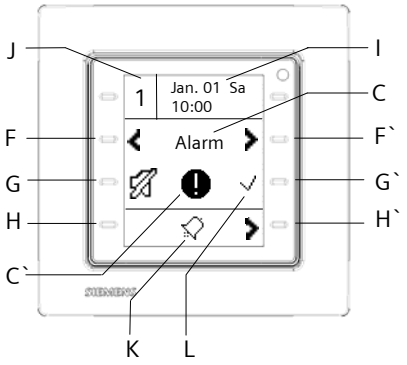


Figure 15

The LED in the top right corner flashes red. If the LED has already been used previously as a green orientation or status LED, this flashes red/amber alternating with green when the alarm occurs.

In addition, an audible alarm tone can be configured when an alarm occurs. You also set whether the alarm tone sounds once for a defined time or alternates between alarm tone and silence in a defined period. A silent alarm indication is also possible in theory. An alarm event can be reported via a 1-bit communication object and via an alarm text (14-byte communication object) over the KNX bus. This selection and the alarm text to be sent in 3 languages are configurable.

You use the button (G) to mute the alarm tone locally. If there are a number of alarms with an alarm tone, muting one alarm mutes all the alarm tones.

The button (G`) confirms the alarm locally. The alarm tone is also switched to mute. If there are a number of alarms with an alarm tone, clearing one alarm ends all the alarm tones. After clearing the alarm, the "clearance checkmark" is deleted. Clearance can be reported via a 1-bit communication object via the KNX bus.
There is also the option to confirm all pending alarms via a collective clearance over a 1-bit communication object.

To be reminded of a muted or previously confirmed alarm, you can set a repeat of the alarm tone after a defined time.

Use the (H`) button to quit the alarm page.
Consequently, you can browse with the button pair (H and H`) through the different feature groups (K) to the alarms. An interim page shows whether there are pending alarms or no alarms. If alarms are pending, you can scroll to these with the button (F`).

You can block or release the alarm message via a special communication object.
You set whether the alarm message is always released or locked via the blocking object if the value of the blocking object is 1 or 0. If an alarm is blocked, there is no alarm message if an alarm condition is met.

5.2 Alarm conditions

You can set thresholds and alarm conditions for alarm activation.

The alarm conditions for activating an alarm depend on the communication object data type used in each case. The alarm conditions and data type to be used are set with the ETS configuration. The following data types are available:

- 1-bit values
- 8-bit decimal values
- 8-bit percentages
- 16-bit decimal values
- 16-bit floating point values

The following alarm conditions can be set for the "1-bit" data type:

Alarm triggering if the alarm object value = 1
or
Alarm triggering if the alarm object value = 0

You can configure one or two thresholds for all other data types.
If an alarm activation threshold has been set, the following alarm conditions lead to an alarm triggering:
if the value of the alarm object:

- equals the threshold (always)
- > threshold
- < threshold
- ≥ threshold
- ≤ threshold
- exceeds the threshold (rising edge)
- falls below the threshold (trailing edge)

equals the threshold (always):

An alarm is always triggered if the alarm object value is the same as (=) the threshold. The LED in the top right corner flashes red. The time stamp is updated each time the alarm condition is again met.

If the value of the alarm object is not equal to (≠) the threshold value and if the alarm has not yet been cleared, the LED in the top right corner lights up permanent red. Another change of the alarm value not equaling (≠) the threshold does not lead to the value in the display being updated.

> threshold:

An alarm is always triggered if the alarm object value is > the threshold. The LED in the top right corner flashes red. The time stamp is updated each time the alarm condition is again met.

If the value of the alarm object is less than or equal to the threshold value and if the alarm has not yet been cleared, the LED in the top right corner lights up permanent red. Another change of the alarm value ≤ the threshold does not lead to the value in the display being updated.

< threshold:

An alarm is always triggered if the alarm object value is < the threshold. The LED in the top right corner flashes red. The time stamp is updated each time the alarm condition is again met.

If the value of the alarm object is greater than or equal to the threshold value and if the alarm has not yet been cleared, the LED in the top right corner lights up

permanent red. Another change of the alarm value ≥ the threshold does not lead to the value in the display being updated.

≥ threshold:

An alarm is always triggered if the alarm object value is ≥ the threshold. The LED in the top right corner flashes red. The time stamp is updated each time the alarm condition is again met.

If the value of the alarm object is less than the threshold value and if the alarm has not yet been cleared, the LED in the top right corner lights up permanent red. Another change of the alarm value < the threshold does not lead to the value in the display being updated.

≤ threshold:

An alarm is always triggered if the alarm object value is ≤ the threshold. The LED in the top right corner flashes red. The time stamp is updated each time the alarm condition is again met.
If the value of the alarm object is greater than the threshold value and if the alarm has not yet been cleared, the LED in the top right corner lights up permanent red. Another change of the alarm value > the threshold does not lead to the value in the display being updated.

exceeds the threshold (rising edge):

An alarm is triggered if the alarm object value is greater (>) than the threshold. The LED in the top right corner flashes red. The current time stamp is shown. Another alarm, i.e. if the alarm condition is again met, is not shown as a new alarm and thus does not lead to the time stamp being updated.

If the value of the alarm object is less than or equal to the threshold value and if the alarm has not yet been cleared, the LED in the top right corner lights up permanent red. Another change of the alarm value ≤ the threshold does not lead to the value in the display being updated.

If an alarm value has now been received that is less than or equal to the threshold value and as a result the alarm condition is met again (alarm object value > threshold), this alarm is shown with the current time stamp.

falls below the threshold (trailing edge):

An alarm is triggered if the alarm object value is less than (<) the threshold. The LED in the top right corner flashes red. The current time stamp is shown. Another alarm, i.e. if the alarm condition is again met, is not shown as a new alarm and thus does not lead to the time stamp being updated.

If the value of the alarm object is greater than or equal to the threshold value and if the alarm has not yet been cleared, the LED in the top right corner lights up permanent red. Another change of the alarm value ≥ the threshold does not lead to the value in the display being updated.

If an alarm value has now been received that is greater than or equal to the threshold value and as a result the alarm condition is met again (alarm object value < threshold), this alarm is shown with the current time stamp.

If two alarm activation thresholds have been set, the following alarm conditions lead to an alarm triggering:
if the value of the alarm object:

- is outside or equal to the threshold values
- is within or equal to the threshold values

outside or equal to the threshold values:

An alarm is always triggered if the alarm object value is outside or equal (=) to the threshold values. The LED in the top right corner flashes red. The time stamp is updated each time the alarm condition is again met.
If the value of the alarm object is within the threshold values and if the alarm has not yet been cleared, the LED in the top right corner lights up permanent red. Another change of the alarm value within the threshold values does not lead to the value in the display being updated.

within or equal to the threshold values:

An alarm is always triggered if the alarm object value is within or equal (=) to the threshold values. The LED in the top right corner flashes red. The time stamp is updated each time the alarm condition is again met.

If the alarm object value is outside the threshold values and if the alarm has not yet been cleared, the LED in the top right corner lights up permanent red. Another change of the alarm value within the threshold values does not lead to the value in the display being updated.

Note:
The value updating is only effective if the value display is configured accordingly and not for symbol display.

If an alarm has not yet been cleared with the button (G`), but the alarm condition is no longer met, the following alarm pattern appears:

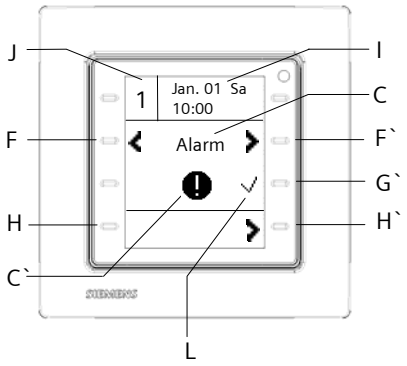


Figure 16

The alarm symbol (K, Figure 15) is deleted on the alarm page. However, the alarms feature group continues to exist.
The alarm tone is switched off.
The LED in the top right corner which was previously flashing red is now on permanently.

An alarm is deleted if it has been acknowledged and the alarm condition is no longer met.

5.3 Alarm behavior after a restart

After the room controller has been restarted, monitored alarm object values are read for a given, configurable time from 10 seconds to 5 minutes.

Only after another time from 10 seconds to 30 minutes has been set does alarm monitoring begin. This ensures that the monitored alarm objects/alarm sensors have current values and that there are sensible alarm conditions. No false alarms will be reported.

All former alarms up to this point are discarded.

Alarms will then be displayed in accordance with the alarm condition fulfilled.

6 Room temperature controller

The UP 227 room controller offers room-oriented temperature control. For this, a room controller, by recording the actual room temperature and defining a nominal value with a corresponding control algorithm, sends a control parameter to an actuator. This actuator controls a heating or cooling valve, which varies the room temperature.
The room controller also supports control of fan coil units.
A multi-speed fan blows hot or cold air into the room. This forced convection causes the room to heat up or cool down more quickly.

6.1 Device feature

The UP 227 room controller is used as a pure control device for individual room temperature control. Display and toggling of room modes, nominal temperature setting value and displaying and adjusting fan speeds are also possible. The controller works only in combination with a corresponding actuator which, functionally, includes temperature control.

Alternatively, the device features as an independent controller with a room thermostat feature. The corresponding control parameters for heating and cooling are calculated and sent to switching actuators, electronic actuators or directly to a thermal valve drive.
These ways of functioning are configurable. Depending on the selection, various parameter pages and communication objects are visible.

6.2 Functional overview

The room thermostat feature has a number of feature blocks which can be combined with each other.
The room thermostat is variable as
- heating only,
- cooling only,
- heating and cooling.

The room temperature can be controlled optionally via a Two-step controller, a constant PI controller or a PI controller with sequence control.

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The following features are available:
- Switch between automatic and manual modes via the room controller or the communication object,
- Change room mode via the room controller, via the timer or communication object,
- Nominal value shift/Setting via the room controller,
- Fan speed display and adjustment,
- Interior temperature display,
- Display the active room made,
- Display heating or cooling mode,
- Display dewpoint alarm and open window.

The following partial features are included in the:
- Room temperature measurement via the internal thermostat with offset setting,
- Inclusion of a room temperature measurement via an extreme room thermostat with offset setting,
- Calculation of the current actual room temperature value (internal and external room thermostats weighted),
- Calculation of the current nominal room temperature value from basic nominal value, mode and nominal value shift,
- Track nominal room temperature in cooling mode based on outside temperature,
- Comfort mode extension through timed lifting of the pre-comfort, Economy and protection modes,
- Presence detection via the bus switches to Comfort mode,
- Dewpoint mode can be activated via the bus,
- Analysis of window states via the bus,
- Frost protection/heat protection is detected via the bus,
- Two-step control for heating and/or cooling with switching Control value output
- PI control for heating and/or cooling with constant Control value output (in %) or switching Control value output (PWM).
- Isolated or common Control value output for heating and cooling,
- Separate Control value output for basic stage (sequence 1) and supplementary stage (sequence 2) with 2-stage heating or cooling,
- Sense changing and scaling of control parameter for heating/cooling possible,
- Maximum and minimum control parameters for heating/cooling (PI control) possible,
- Mode (controller status) can be read out via the bus
- Automatic setting of the fan speed via the controller

6.2.1 Room temperature control (control):

The room temperature control can be set separately for heating and cooling. You can also vary whether the control is switchable between two room modes (comfort and protection modes), three room modes (comfort, Economy and protection modes) or four room modes (comfort, pre-comfort, Economy and protection mode).

Two-step controller:
A two-step controller checks the current actual temperature value at discrete intervals (cycle time). Depending on whether the actual value is above or below the nominal value, heating/cooling is switched on or off.
The control cycle time and the hysteresis for the two-step controller are variable.
The two-step controller must be configured simply and can be used for control operations in which a slight fluctuation of the room temperature is permitted.

Constant PI controller:
The PI controller computes a control parameter from the actual value and nominal value input parameters. This control parameter can be transferred as a constant control value in the range from 0...100% (Figure: 17) or as a pulse-width modulates input/output command (Figure: 18) via the KNX bus.

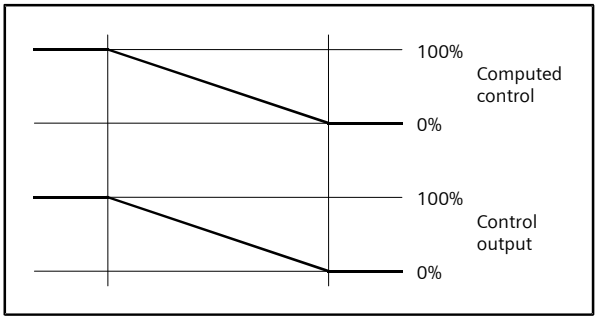

Figure: 17

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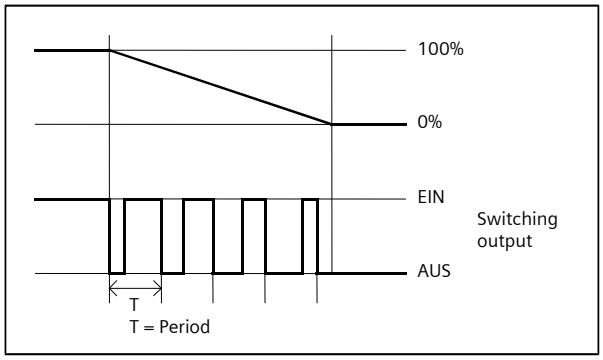

Figure: 18

The type of Control value output, proportional range and tracking time are variable.

Sequential control:
If there are two different types of heating and cooling for a room (e.g. underfloor or radiator heating), sequence control is sensible. Both heat/cold sources are then controlled sequentially, not in parallel.
Example of heating with underfloor and radiator heating in a single room:

- If the room temperature is below the nominal value, then the underfloor heating valve is opened first (sequence 1).
- If the underfloor heating valve is fully open and it is still not warm enough, the radiator valve is opened (sequence 2).
- If it is too warm in the room, the radiator valve is closed first, then the underfloor heating valve.

The sequential control converts the internal control parameters computed by the constant PI controller into two values (control parameter sequence 1, control parameter sequence 2).
The control parameter value from which sequence 2 begins is variable. From which control parameter change the control parameter is to be sent to the bus and in which intervals the control value is repeated cyclic is also separately variable for each sequence.

This control parameter is output as a constant control value in the range from 0...100% (1 byte) (Figure: 19).

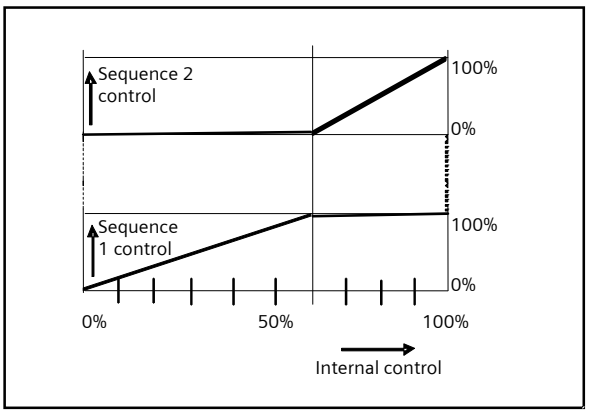

Figure: 19

6.2.2 Actual value calculation:

Internal temperature sensor:
The room controller contains an integrated temperature sensor to record the room temperature in the range from 0°C to +50°C with a resolution of at least 0.08°K. This actual internal value can be compensated by means of a variable offset to environmental factors (e.g. when fitting in a cold outside wall). The corrected value is used for actual value determination.
The sensor values are sent via a separate communication object. The send interval is variable over time or dependent on the value change.
A configurable "hysteresis" prevents very small temperature fluctuations from leading constantly to new actual values.

External temperature sensor:
The room controller also has an additional object for the temperature value measured by an external temperature sensor. This object can send "Read Criteria" cyclically if necessary to the corresponding external temperature sensor object, so that this then transfers the current value. However, in theory, an external sensor should send any temperature change automatically. A variable offset can also be configured for the external temperature value.
After a bus power cut, the ETS-value is used for the outside temperature value which was configured in the parameter "Basic value, outside temperature and external inside temperature on restart" is used. This means that the program immediately has a sensible starting value when the bus voltage returns.

Room temperature - actual value:

From the temperatures of the integrated and external sensors, the program computes the current actual value for room temperature, taking into account a configurable "Weighting". From the "Weighting", the program determines what percentage of the externally measured temperature value is included in the computation of the actual temperature value.

The actual room temperature computed in this manner (from both sensors) can be sent automatically or even cyclically via a separate object on changing a configurable value.

6.2.3 Setpoint value setting/Setpoint value computation:

The current setpoint value is determined from
- the current room mode,
- the basic setpoint value and
- a setpoint value shift, to be included if need be.

The nominal value setting is always related to the comfort mode (basic setpoint value).

The basic setpoint value can be changed either via the communication object "Basic setpoint value (in °C)" or set to a fixed value via a parameter "Basic setpoint value, outside temperature and external inside temperature on restart".

On defining the basic setpoint value via the communication object, the controller demands the current value at the bus independently.

From the thermostat settings, a direct setpoint value setting in the range from 16...26°C can be made.

On the other hand, the setpoint value can be shifted in a range between -5K and +5K (lower values can be set) to a higher or lower value.

You use a parameter to set which of the two operating alternatives is possible at a given time.

Accordingly, the setpoint value is shown in the display as a temperature in °C/°F or shift of the basic setpoint value in Kelvin on the room thermostat control page.

If a basic setpoint value is received, then the (total) setpoint value and the setpoint value shift are always sent. By receiving a new basic setpoint value the setpoint value shift is reset to 0 K.

If the setpoint value is changed by an operation at the device, then the (total) setpoint value and the setpoint value shift are always sent. By setting values for the setpoint value shift to the object it is possible to change the setpoint value for the display with an external button.

Tracking setpoint room temperature in cooling mode based on outside temperature,

A further object - "Temperature, outside sensor (in °C)" - is required for tracking the room temperature in cooling mode based on the outside temperature feature. If the outside temperature is above 26°C and about 6K above the current setpoint temperature, the current setpoint temperature is set to a value 6K below the outside temperature, but not higher than the temperature for heat protection. In this case, shifts in the setpoint value or changes to modes are also possible. With the new setpoint temperature generated in this way, you should again proceed as described above. Exceptions are protection mode (heat protection) and the dew point alarm. After a bus power cut, the temperature value which was configured in the parameter "Basic value, outside temperature and external inside temperature on restart" is used. The outside temperature object is polled afterwards. The outside sensor object is present only for the cooling mode.

6.2.4 Room operating modes:

Depending on the current use of the room, the requirements for room temperature control may differ. Several modes, which are assigned different nominal values in each case, are therefore available.
- Comfort mode,
- Pre-comfort mode,
- Economy mode,
- Protection mode.

Modes can be changed automatically (automatic mode) or manually (manual mode).

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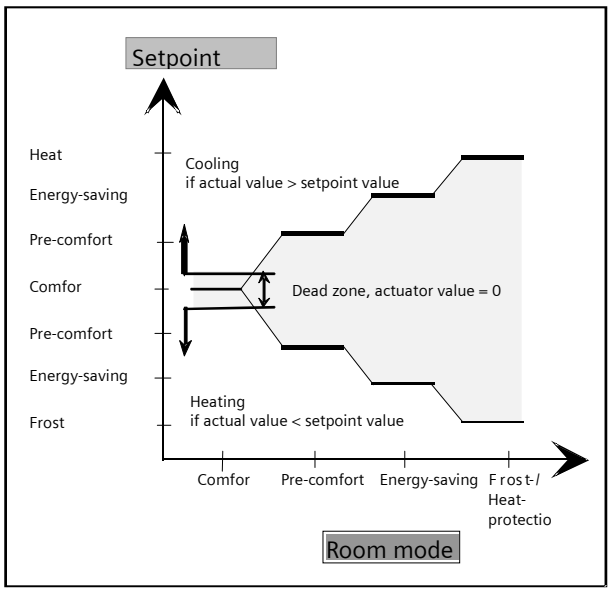

Figure: 20

Automatic/manual mode:
In automatic mode, modes are changed either by external bus telegrams or by internal timer programs. Switching commands from the other control type in each case are ignored.
Automatic mode is shown as such in the display via an "A".
The "Automatic mode via" parameter sets which type of automatic mode is to be active.

In manual mode, there is the option to set a room mode manually via the room controller.
A mode activated permanently in manual mode cannot be changed by external bus telegrams, the internal timer program or presence detector. A change to constant protection mode is possible.
Automatic mode can be reactivated locally via the room controller or via the corresponding communication object.
Settings in manual mode are possible only if the device is not in constant protection mode.

Comfort mode:
This room mode is indicated by the corresponding symbol in the display. The nominal value in room mode does not depend on whether heating or cooling is active. It equates either to the value set directly on the controller display or to that computed from the basic nominal value and the set nominal value shift.
Comfort mode can also be activated via a presence detector. A communication object required for this can be configured. In manual mode, presence detector telegrams are ignored.

Dead zone:
If the room thermostat is configured for heating & cooling, a symmetrical dead zone between heating and cooling will be defined to ensure that heating valve and cooling valve are not open at the same time.
The size of the dead zone between heating and cooling will be determined by the dead zone parameter.
The following rules apply:
- The dead zone is symmetrical about the nominal temperature range.
- On power returning, the actual room temperature T is polled and heating or cooling mode is set depending on the result:
  T < nominal value: Heating;
  T ≥ nominal value: Cooling.
- The dead zone is active only in comfort mode.

Comfort extension:
If while operating without presence detectors and with windows closed, "Energy Saving mode" or "Protection mode" are switched on in automatic mode, then "Comfort mode" can be switched on for a limited time (the variable "Comfort extension" by means of a local operation at the room controller.
Activation or premature ending of comfort extension is only possible locally.

Comfort extension should be viewed as a conventional timer. In other words, if the controller is not already in comfort mode, the comfort extension changes it into comfort mode for a limited period. This is then also analyzed as a new (temporary) mode and therefore sent accordingly.
After comfort extension has elapsed or it is ended actively, the controller reverts to its former mode, unless bus telegrams for an operation mode shift have received or an internal time program has switched the operating mode. In the latter cases, it does not revert to the last active mode, but is switched to the mode stipulated by the bus objects or time program.
Local mode changeover ("Comfort", "Pre-comfort", "Economy" and "Protection" modes) is, unlike the bus changeover telegram, executed immediately and therefore end the comfort extension.

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Pre-comfort mode (standby mode):
This room mode is indicated by the corresponding symbol in the display. The nominal value in "Pre-comfort" room mode depends on whether heating or cooling is active. With heating, the nominal pre-comfort mode value equals the basic nominal value minus the pre-comfort mode temperature drop and with cooling, the basic nominal value plus the pre-comfort mode temperature rise, in each case plus or minus the set nominal value shift. The values for lowering and raising in pre-comfort mode are variable via parameters.
The changeover to room "Pre-comfort Mode" can be made via the bus or by means of timer programs. Also, a room user can, when leaving the room, change from the room "Comfort Mode" to "Pre-Comfort Mode" and revert to "Comfort Mode" on entering the room directly at the room controller. The room's user can also change from another room mode to "Pre-comfort Mode" or switch from this to any other room mode directly at the room controller (manual mode).

Economy mode:
This room mode is indicated by the corresponding symbol in the display. The nominal value in "Economy" room mode depends on whether heating or cooling is active. With heating, the nominal Economy mode value equals the basic nominal value minus the Economy mode temperature drop and with cooling, the basic nominal value plus the Economy mode temperature rise, in each case plus or minus the set nominal value shift. The values for lowering and raising in Economy mode are variable via parameters. They must be larger than (>) the parameters for Pre-comfort mode. If they are set lower, then the pre-comfort mode will be used internally for calculations.
Changeover in this mode is possible via the bus or by means of timer programs. If the controller recognizes only two or three room modes, then you can switch between "Comfort mode" and "Economy mode" directly at the room controller. The room's user can also change from another room mode to "Economy mode" or switch from this to any other room mode directly at the room controller (manual mode).

Protection mode (Frost protection/Heat protection):
This room mode is indicated by the corresponding symbol in the display. The nominal value in this mode depends exclusively on whether heating or cooling is active. In heating, the nominal value equals the "Frost Protection" value, variable by means of a parameter and in heating the "Heat Protection" value, variable by means of a parameter. Changeover in this mode is possible at any time via a received command telegram or by means of timer programs. A received status telegram "Window = UP" also makes the change to protection mode. The room's user can also change from another room mode to "Protection Mode" or switch from this to any other room mode directly at the room controller (manual mode).

Constant protection mode:
If you want to switch the room thermostat permanently to protection mode (e.g. during a holiday), then the special communication object "Permanent Protection Mode" is available. If the room "Protection Mode" is switched on via this object, then it can only be switched off again by this object.
A changeover directly at the room controller and receipt of all telegrams or timer commands, which relate to a mode change, will be ignored while in protection mode.
If constant protection mode is switched off by telegram in automatic mode, the controller changes to the room mode which is activated at this time by internal timer program or bus telegram.
If constant protection mode is switched off by telegram in manual mode, the controller changes after deactivation of constant protection mode to Economy mode (if this mode is available, otherwise protection mode remains active).

Status of windows:
The window status analysis allows the controller to respond to the opening of windows or doors. For this purpose, up to four window objects can be assigned. These are interlinked in the controller via a logical OR feature. If one or more of the window objects are set to logical One (window open), then there is a switch to protection mode, i.e. the nominal room temperature value is set to the frost protection value for heating and for cooling to the heat protection value. The present mode with a window open is saved. If all windows are closed again (i.e. all window objects are again at logical 0), then there is a switch to the saved mode (which existed before opening the first window) or to that during opening via the bus or timer programs or to the new mode received via local operation and saved meanwhile. Another parameter controls whether the opening of a window should lead immediately or only after a time delay (e.g. 15, 30 or 60 seconds) to a changeover to protection mode, so that, if need be, there is no response to a window open for a short time.

Dew point mode:
If, in cooling mode with a cooling cover, the controller responds to the dewpoint monitor fixed to it, then it

switches internally to "dewpoint" mode. For this purpose, the cooling cover valve is closed completely while the dewpoint alarm is present. A switched "dewpoint mode" can be indicated by a corresponding message/symbol in the display.
The dewpoint alarm signal is received from a dewpoint monitor via a corresponding communication object.
If a change is made while in dewpoint mode to another mode (e.g. by means of a bus telegram or by means of internal timer programs), the mew mode is only active after dewpoint mode is ended.

Presence:
The controller includes an optional object for the "Presence" status for use in rooms with a presence detector. The "Presence object visible" parameter decides whether the Presence communication object is to be added.
Messages via this communication object are analyzed to activate the Comfort room mode.
If a presence telegram is received, comfort mode is switched on.
If a Presence = OFF telegram is received in presence, the controller changes immediately to the room mode that is activated by internal timer program or bus telegram.
Opening a window with presence activates protection mode.
In manual mode and in protection mode, presence detector telegrams are ignored respectively abolished.

Mode change via the bus:
In automatic mode, the mode can be changed, inter alia, by external bus telegrams.

Setting via 1-bit objects:
Four 1-bit objects are available at the temperature controller for changing room mode. For switching to comfort, pre-comfort, Economy or protection mode, a single ON command to the corresponding 1-bit object will suffice.
Mode changing by telegram is shown immediately on the display, but only accepted by the controller after 3 seconds.
All communication objects in which the switching status has changed by switching to the new room mode are sent automatically.

The "Frost Alarm" and "Heating Alarm" states and the operating mode "Heating/Cooling" will be determined by the controller independently and sent via these objects. In 2-wire systems with a heat exchanger and an actuator valve, in which either cold or hot water flows through the network, however, the controller must be switched to the current operating mode in each case via the bus and the "Heating/Cooling" object.
The controller can be switched on and off with another 1-bit object - "Controller".

Setting via 8-bit objects:
Two 1-byte communication objects can also be used to change room mode and status display. This are for use as an option.
You use a parameter - "8-bit object room mode/room mode status" - to set whether the room mode should also be switched via an 8-bit object and the current room mode sent via an 8-bit status object. In each case, the following mode is assigned the following object values:

- An arriving 0 (automatic mode) deactivates manual mode and activates automatic mode. The room mode is set to the last mode received via the bus.
- A 1 arriving (in automatic mode) activates comfort mode.
- A 2 arriving (in automatic mode) activates pre-comfort mode.
- A 3 arriving (in automatic mode) activates Economy mode.
- A 4 arriving (in automatic mode) activates protection mode.
- Telegrams with values other than 0, 1, 2, 3 and 4 are discarded as false.
- Telegrams with modes that are not available with the controller are discarded as false.

6.2.5 Fan control

The UP 227 room controller can be used to operate a FCU controller of the REG 540/01 or REG 540/11 type or to operate a FCU controller of the RXB21 type.
It is also used to operate and control a Fan Coil Unit or another corresponding source (e.g. N 512/11, N 512/21, etc.).
You use a parameter to set whether the room controller can also control a fan. If a fan is controlled, then another parameter sets the number of fan speeds (1 to 3).
1-bit communication objects are available, depending on the number of configured fan speeds. The value = ON transfers the relevant switching speed to the Fan Coil Actuator.

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An 8-bit communication object is also available. This sends the speed directly in % as a constant value. Figure 21 is used to recalculate the fan speeds at a constant value. The thresholds for intervals can be configured, e.g. if the fan speed is 2 with three fan speeds, the speed is 67%.

Fan speed	Number of configured fan speeds		
	1	2	3
OFF	0 %	0 %	0 %
1	1 – 100 %	1– 50 %	1– 33 %
2	0	51 – 100 %	34 – 67 %
3	0		68 – 100 %

Figure: 21

In manual mode, there is the option to set a fan speed manually via the room controller.
A parameter can also block this manual control.
If a fan speed of 0 is set by hand, then the fan is switched off. An open heating or cooling valve is closed. This means the room is then neither heated nor cooled. If the nominal value for heating protection is exceeded or that for frost protection not reached as a result, the controller responds as follows:

- The fan switches to automatic fan mode. A nominal value is generated with the present mode (comfort mode, etc.).
- The controller heats or cools until the nominal frost or heat protection value is reached.
- The fan also remains in automatic mode after these values are reached.
- The heating/cooling valve remains open until the active nominal value which was active before changing to fan speed 0 is reached

Automatic fan speed activation
The fan switches to automatic mode if one of the following conditions is reached:

- Change of room mode by means of bus telegrams or the internal timer program,
- Manual setting directly on the room controller,
- Failure to reach the frost protection nominal value or breaching the heat protection nominal value and the automatic changeover to "Protection" mode associated with this.

If fan speeds are controlled automatically with a constant speed controller, the fan speeds are set based on the heating or cooling control variable. This percentage control value is again formed via the set threshold values on fan speeds 1 to 3. According to Figure 21, e.g. the control parameter 50% equals fan speed 2 with three fan speeds.

With automatic fan speeds controlled by a two level controller, fan speeds are set to the current setpoint value based on the temperature difference:

- A temperature difference of 1 K switches to fan speed 1.
- A temperature difference of 2 K switches to fan speed 2.
- A temperature difference of 3 K switches to fan speed 3.

In each case, the hysteresis is 0.5 Kelvin.

If the fan coil actuator has status objects for the fan speeds, then these can be indicated on the room controller display as current values. If the actuator delivers a constant value in % for the status, this is depicted at a corresponding fan speed according to Figure 21. If the actuator delivers 1-bit values for the fan speed status, these are indicated directly. This selection of communication objects can be set with the "Fan speed display" parameter.

A parameter "Fan start-up speed" also determines the speed at which the fan starts for 3 seconds. This ensures that the fan also runs safely even at a low fan speed. It would be sensible to set this value to a speed higher than fan speed 1.

Another parameter, "Fan speed hold time," also sets a changeover delay in automatic mode between individual fan speeds.

A special, configurable 1-bit communication object - "(Send" fan mode" is used to control the different fan coil controllers.
The parameter "Release automatic mode with" sets whether the object value "1" or "0" is sent or whether an incoming "1" or "0" is used to change automatic mode for the fan.

To use a FCU controller of the REG 540 type, the value "1" must be sent to the REG 540 on de-activating manual mode at the room controller. The FCU controller is then to set the fan speed automatically once more.
The value "1" must be sent to the RXB21 on changing to manual mode at the room controller to use a FCU controller of the RXB21 type.

6.3 Display and use of the room thermostat/fan:

Indications and settings for room temperature control and fan control are displayed on special pages on the room controller.
As with the display features, the top area contains the feature line, with both fixed feature buttons right and left. In the center of the feature line, between the two fixed feature buttons, you can display a variety of room temperature or fan control, e.g. inside temperature, room mode, window status, dewpoint mode. This display is configurable.

To access the room temperature controller display pages, navigate with the button pair (H and H`) in the bottom line to the feature group "Room temperature controller/fan control (K), see Figure 22.
The button pair (F and F`) now select the different room temperature controller/fan control setting pages. These are the display pages:

- for setting room modes, automatic (Figure 22),
- for setting the setpoint temperature/setpoint temperature shift (Figure 23/24),
- for setting comfort extension (Figure 25),
- for setting fan speed (Figure 26),

6.3.1 Room mode display and setting

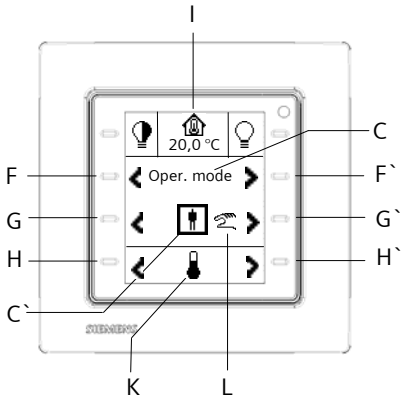

Figure: 22

For example, the feature line displays the inside temperature (I) in °C.
Now use the button pair (F and F`) to select the room mode (C) from the different room controller settings.
The current mode (C`), comfort mode, is displayed in the center of line 3.

Use the button pair (G and G`) to set the room mode manually on the room controller. Depending on the configuration, you can change between room modes - comfort mode, pre-comfort mode, Economy mode and protection mode.
Set the room mode manually to show the manual mode symbol (L) beside the room mode.
Use the button pair (G and G`) to change locally to automatic mode. Accordingly, this automatic status (L) is shown beside the room mode. When changing to automatic, the last mode before the change to manual mode or the wanted mode sent meanwhile by bus telegram or timer is set.

Note:
If the room temperature controller is in permanent protection mode, you cannot change the room mode manually. In this case, a special display page signaling this appears.

You can block or release mode change with a special communication object.
You set whether mode change is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals mode change blocking.

6.3.2 Setting of the setpoint temperature or setpoint value shift

For example, the feature line displays the inside temperature (I) in °C.
Now use the button pair (F and F`) to set the setpoint temperature/setpoint temperature shift (C) from the different room temperature controller settings.
The current value (C`) is displayed in the center of line 3.

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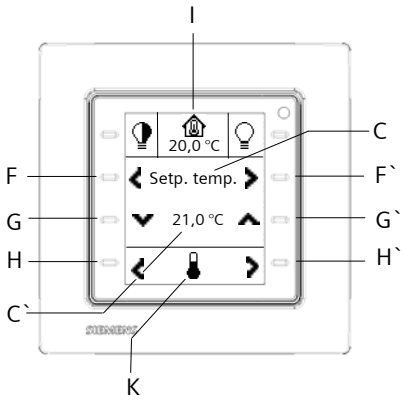

Figure: 23

The setpoint value shift can be displayed or set with two different strategies - see Section 6.2.3. The setpoint value setting is selected via the parameter "Setpoint value setting on display".
A direct setpoint value setting (Figure 23) sets the setpoint value (C`) in a range between 16°C and 26°C in 0.1K steps.
The (G`) button increments the value to be sent.
The (G) button decrements the value to be sent.
Each time the button is held down, the value is incremented or decremented cyclically for the time held down.
The temperature (C`) can be shown in degrees Celsius (°C) or degrees Fahrenheit (°F).

The setpoint value shift setting (Figure 24) shifts the setpoint value in a range from a maximum of -5K or + 5K (C`) in 0.1K steps. This permissible range for the setpoint value shift is set with the parameter "Setpoint value shift range".

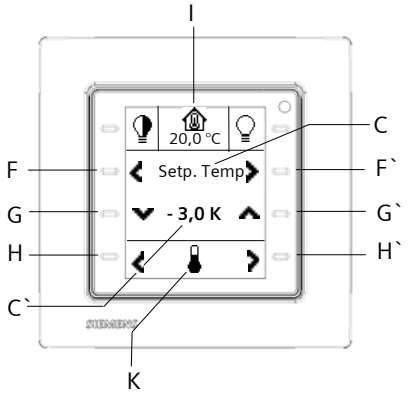

Figure: 24

The (G`) button increments the value to be sent.
The (G) button decrements the value to be sent.
Each time the button is held down, the value is incremented or decremented cyclically for the time held down.

You can block or release the nominal value setting/setpoint value shift via a special communication object.
You can set whether nominal value setting/setpoint value shift is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals setpoint value setting/setpoint value shift blocking.

6.3.3 Setting the Comfort Extension

For example, the feature line (Figure 25) displays the inside temperature (I) in °C.
Now use the button pair (F and F`) to select the comfort extension from the different room temperature controller settings.
The time to extend comfort mode (C`) is displayed in minutes in the center of line 3. The time to extend this mode is set via the parameter "Comfort extension time" and shown accordingly (C') on pressing button (G`).

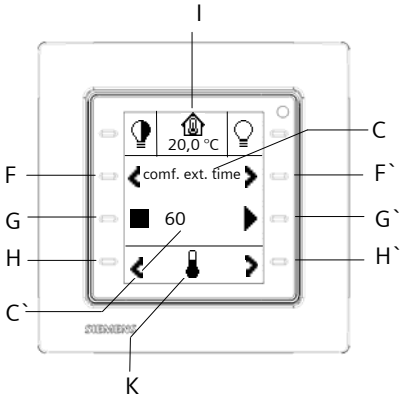

Figure: 25

The comfort mode setting appears only in automatic mode, if no mode switching via a presence detector object is configured, see Section 6.2.4.
Use the button (G`) to start comfort extension. After comfort extension is started, the residual run time in minutes is counted down and displayed accordingly (C`).

Use the button (G) to end comfort extension at any time.
If the button (G`) is pressed again while comfort extension is already started, then the set time for comfort extension if started again completely and shown (=) retriggered).

Note:
If the room temperature is in permanent protection mode, comfort extension is not possible. In this case, a special display page signaling this appears.

6.3.4 Setting fan speeds

Fan speeds can only be set if "Yes" has been set via the parameter "Fan available."

For example, the feature line (Figure 26) displays the inside temperature (I) in °C.
Now use the button pair (F and F`) to select the fan setting (C) from the different room controller settings.
The current fan speed (C`) is displayed in the center of line 3.

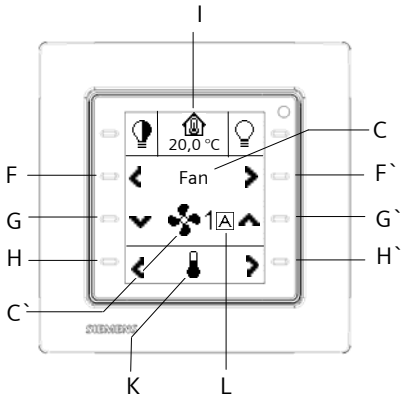

Figure: 26

Use the button pair (G and G`) to set fan speeds manually on the room controller. Changes are made in manual mode at the same time. Depending on the parameter "Number of speeds", you can change between fan speeds 0, 1, 2 or 3.
Set the fan speed manually to show the manual mode symbol (L) beside the fan speed.
Use the button pair (G and G`) to change locally to automatic mode. Accordingly, this automatic status (L) is shown beside the fan speed.

You can block or release the fan setting with a special communication object.
You set whether fan setting is always released, permanently locked or locked via the security object if the value of the blocking object is 1 or 0. A special display page signals fan setting blocking.

7 System Settings

Besides manual setting of date and time, the room controller offers the option to implement certain display and language settings directly at the device.
Each system setting is displayed on a separate system page. These various settings are grouped under the feature group "System settings":

- Setting the display background illumination
- Setting the background color (white or blue)
- Setting the time until the display illumination switches off
- Setting the clock time
- Setting the date
- Setting the control language
- Setting the system language

7.1 Setting the display background illumination

By way of example, the system language (I) is shown in the feature line, e.g. German, see Section 7.7.

The button pair (H and H`) selects the "System settings" feature group (K) in the bottom line.
You now use the button pair (F and F`) to select the different system settings (C), corresponding to the selected features group, e.g. "Brightness".

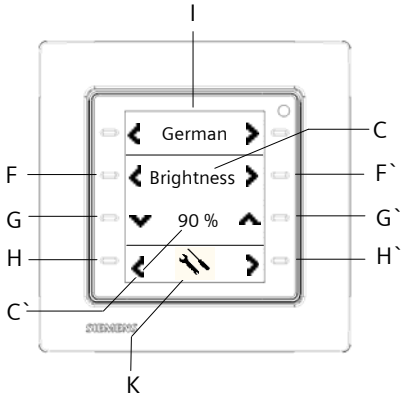

Figure: 27

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Use the button pair (G and G`) to change the brightness of the display background illumination.
The brightness (C`) is shown in %. It can be changed in a range from 0% to 100% in 10% steps.
The (G`) button increments the brightness.
The (G) button decrements the brightness.
Each time the button is held down, the value is incremented or decremented cyclically for the time held down.

7.2 Setting the background color (white or blue)

By way of example, the system language (I) is shown in the feature line, e.g. German, see Section 7.7.

The button pair (H and H`) selects the "System settings" feature group (K) in the bottom line.
You now use the button pair (F and F`) to select the different system settings (C), corresponding to the selected features group, e.g. "Color".

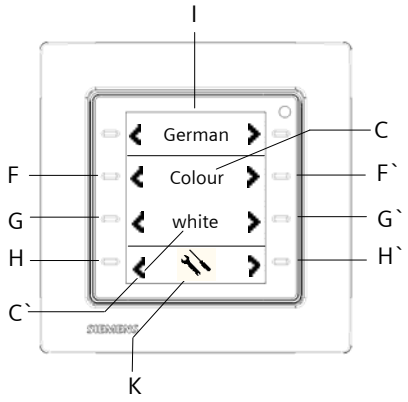

Figure: 28

Now use the button pair (G and G`) to change the display background illumination between White and Blue.
The current background color (C`) is displayed in the center of line 3.

7.3 Setting the time until switch to standby

By way of example, the system language (I) is shown in the feature line, e.g. German, see Section 7.7.

The button pair (H and H`) selects the "System settings" feature group (K) in the bottom line.
You now use the button pair (F and F`) to select the different system settings (C), corresponding to the selected features group, e.g. "Time Out".

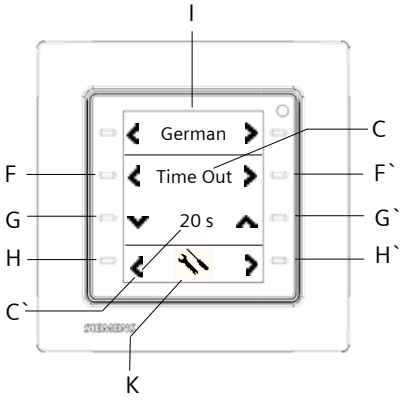

Figure: 29

Use the button pair (G and G`) to set the time until the display switches to standby.
The time to standby (C`) is shown in seconds. It can be changed in a range from 5 to 20 seconds in 1 second steps.
The (G`) button increments the time.
The (G) button decrements the time.
Each time the button is held down, the value is incremented or decremented cyclically for the time held down.
If the room controller is not used after this set time, the display background illumination moves into a darkened state. This darkened state is set via the parameter "Display brightness in the standby state". The display page in the standby state is also defined via the parameter "Display mode in the standby state".

7.4 Setting the clock time

By way of example, the system language (I) is shown in the feature line, e.g. German, see Section 7.7.

The button pair (H and H`) selects the "System settings" feature group (K) in the bottom line.
You now use the button pair (F and F`) to select the different system settings (C), corresponding to the selected features group, e.g. "Time".

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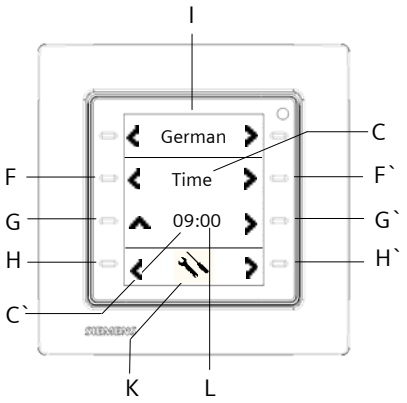

Figure: 30

Note:
Setting the clock time is only possible in administrator mode, see Section 7.8

The time is displayed in two blocks. The first block (C`) represents the hours and the second block (L) the minutes.
The following presentations are possible: 0...24 or 0...12 (AM/PM).
This setting is implemented via the parameter "Time presentation".

The (G`) button initially marks the hours block (C`).
The (G`) button increments the hours. It increments by one hour each time it is pressed.
Holding the button down increments the time cyclically for the time it is pressed.
The (G`) button navigates to the next block for setting the minutes. The minutes block must also be marked here.
The (G) button increments the minutes. It increments by one minute each time it is pressed.
Holding the button down increments the time cyclically for the time it is pressed.
If you use the button pair (F) or (F`) to change to another system setting or the button pair (H) or (H`) to change to another feature group, the set time is accepted.

7.5 Setting the date

By way of example, the system language (I) is shown in the feature line, e.g. German, see Section 7.7.
The button pair (H and H`) selects the "System settings" feature group (K) in the bottom line.

You now use the button pair (F and F`) to select the different system settings (C), corresponding to the selected features group, e.g. "Date".

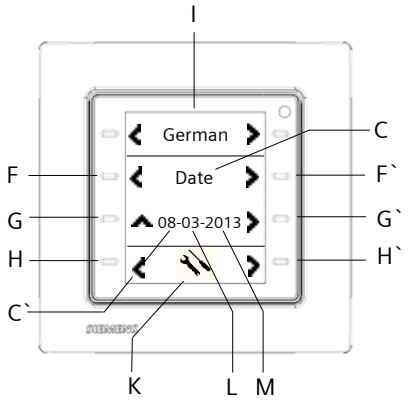

Figure: 31

Note:
Setting the date is only possible in administrator mode, see Section 7.8

The date is displayed in 3 blocks. The first block (C`) represents the days, the second block (L) the months and the third block (M) the years.
The following presentations are possible: DD-MM-YYYY, YYYY-MM-DD or MM-DD-YYYY
This setting is implemented via the parameter "Date presentation".

The (G`) button initially marks the days block (C`).
The (G) button increments the days. It increments by one day each time it is pressed.
Holding the button down increments the time cyclically for the time it is pressed.
The (G`) button navigates to the next block for setting the months. This block must be marked.
The (G) button increments the months. It increments by one month each time it is pressed.
Holding the button down increments the time cyclically for the time it is pressed.
The (G`) button navigates to the next block for setting the years.
The (G) button increments the years. It increments by one year each time it is pressed.
Holding the button down increments the time cyclically for the time it is pressed.
If you use the button pair (F) or (F`) to change to another system setting or the button pair (H) or (H`) to

change to another feature group, the set date is accepted.

7.6 Setting the control language

By way of example, the system language (I) is shown in the feature line, e.g. German, see Section 7.7.

The button pair (H and H`) selects the "System settings" feature group (K) in the bottom line.
You now use the button pair (F and F`) to select the different system settings (C), corresponding to the selected features group, e.g. "Language".

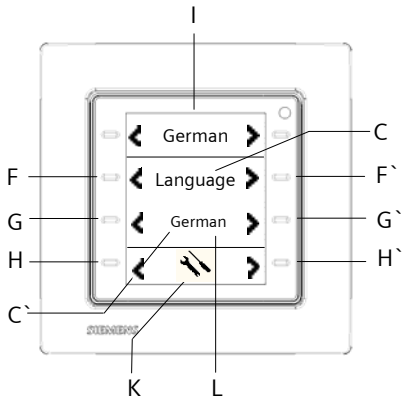

Figure: 32

Use the button pair (G and G`) to change the control language. You can choose from three languages.
These three different control languages are created individually via the settings. There are 3 options for language input, e.g. in German, in English and in Spanish for describing the display features and alarms, for displaying text messages and sending alarm messages.
The current control language (C`) is displayed in the center of line 3.

7.7 Setting the system language

By way of example, the system language (I) is shown in the feature line, e.g. German.

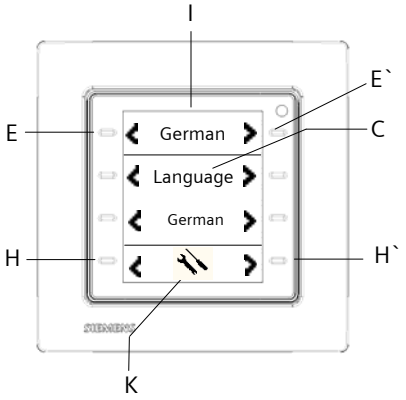

Figure: 33

The button pair (H and H`) selects the "System settings" feature group (K) in the bottom line.
Now use the button pair (E and E`) to set the different system languages (C), e.g. "German".
You can choose between German, English, French, Italian and Spanish. The system settings (brightness, color, time out, time, date, control language, weekdays in the timer program), room temperature controller settings (mode, setpoint temperature (see Figure 34), comfort extension, fan speeds) and the Administrator mode, factory settings and programming mode are performed in this selected language.
These 5 system languages are stored permanently in the room controller regardless of the configuration.

Example: The selected system language was English. As shown in Figure 34, the nominal value setting (C) is shown in English inside the feature group "Room temperature controller/Fan control".

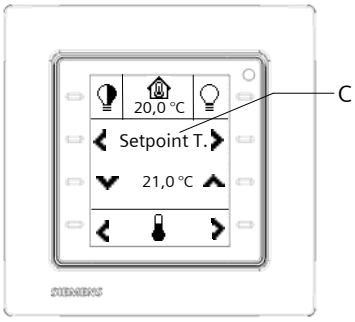

Figure: 34

7.8 Administrator mode

Administrator mode protects against unwanted operations and settings. Scene storage, date and time setting and configuration of timer features is only possible in administrator mode.
This mode can be set permanently or switched off via a specific local operation at the room controller or via an operation at the room controller and a communication object.
For this, you must hold down the buttons (F and F`) in the feature group "System settings" simultaneously for at least 5 seconds. The following setting appears, see Figure 35:

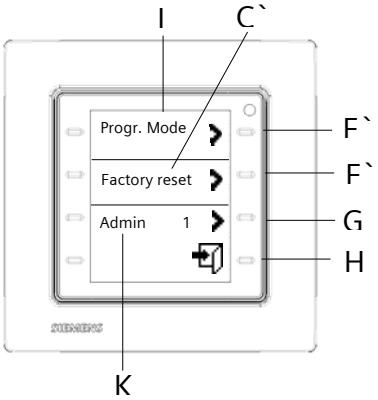

Figure: 35

The Administrator mode setting is in line 3. Use the (G`) button to switch between On mode "1" or Off mode "0". You can also quit Administrator mode after a time to be set.
Use the button (H`) to end setting.

7.9 Factory settings

If factory settings are activated, then all system settings are reset to their factory values.

- Display background illumination: 60%
- Display background color: white
- Time to standby: 15 seconds
- Time: 00:00
- Date: 01.01.2012
- Control language: Language 1
- System language: English

All parameter settings in the ETS are also set to their standard values.

To set the factory settings, you must hold down the buttons (F and F`) in the feature group "System settings" simultaneously for at least 5 seconds. The setting in Figure 35 appears.

The factory settings are in line 2. The F` key restarts the room controller with the factory settings.

Note:
After resetting to the factory settings, you must assign the physical address and download the application, see Section 7.10.
The input of the timer jobs to the weekly time switching program are deleted, see Section 8.1

7.10 Address assignment

In programming mode, you access the feature group "System settings" by pressing the buttons (F and F`) for at least 5 seconds. The setting in Figure 35 appears.

The E` button in the top line enables and disables programming mode. The LED (Figure 1, (A)) lights red and indicates the activated programming mode. After accepting the physical address, the LED extinguishes and programming mode is ended.

Note:
On first commissioning of the device, before the first application download, this special system page for address assignment, administrator mode and factory settings will be called up automatically. It is used exclusively for setting the programming mode. Setting administrator mode and resetting to the factory settings is not possible in this case.

8 Weekly time switching program

You can set up to 40 timer jobs on the weekly timer directly at the room controller. The user can enter weekly timer commands for each of the 8 configurable user features, as well as for setting the 4 room modes and fan automation.

8.1 Configuring the weekly timer program

Setting timer switch tasks using the weekly timer program is as described in the example below:

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Example:
On Monday, Tuesday and Friday, the light is to be switched on at 9 a.m.

The button pair (H and H`) selects the "Switching" feature group in the bottom line, Figure 4.
You now use the button pair (F and F`) to select the different switching channels (C), corresponding to the "Switching" features group (K), e.g. "Light", Figure 4.
By pressing the buttons (F) and (F`) simultaneously for at least 5 seconds, you access the weekly timer program setting (see Figure 36) for the light switching feature.

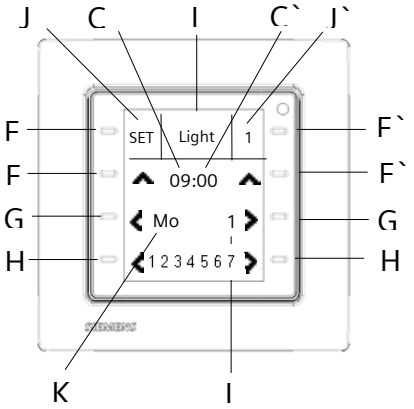

Figure: 36

The name (I) of the illumination channel to be set is shown in the center of the feature line.
The timer task number (1 to 40) appears in the right field (J`) of the feature linen(e.g. 1).
The button (E`) selects the timer task number in which the timer command is to be stored. If a timer command is already stored under a number, its setting is displayed.
The button (E) accesses editing mode for the timer task. This is indicated by the display "SET" in the left field (J) of the feature line.
Line 2 shows the clock time to be set. The time is displayed in 2 blocks. The first block (C) represents the hours and the second block (C') the minutes.
The (F) button increments the hours, e.g. 9 a.m. It increments by one hour each time it is pressed.
Holding the button down increments the time cyclically for the time it is pressed.
The (F) button increments the minutes, e.g. 00 minutes. It increments by one minute each time it is pressed.
Holding the button down increments the time cyclically for the time it is pressed.
The setting is accepted immediately.
The weekday to be set is shown in the left field (K) of line 3. The (G) button selects the weekday (Mon – Sun), e.g. Monday, Tuesday and Friday.
Line 4 shows the weekdays (1 – 7). The button (H) activates the weekday selected in line 3. This is signaled by means of an underline below the relevant weekday. The button (H) de-activates the weekday selected in line 3. The underline below the weekday in question is deleted. The setting is accepted immediately.
The relevant value corresponding to the feature is shown in the right field (L) of line 3. The button (G`) selects, say On "1" or Off "0" for a switching command or, say, 0 -100% for a dimming command. The setting is accepted immediately.
The button (E) sets the selected timer command to active. This activation status is indicated by the clock symbol in the left field (J) of the feature line.
Holding the button (E) down for at least 2 seconds deletes the timer command setting.
The button (H`) ends the weekly timer program.

Note:
Setting timer tasks is only possible in administrator mode, see Section 7.8

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9 Parameters and communication objects

This Section gives an overview of the available communication objects and parameters.

Maximum number of group addresses: 252
Maximum number of assignments: 255

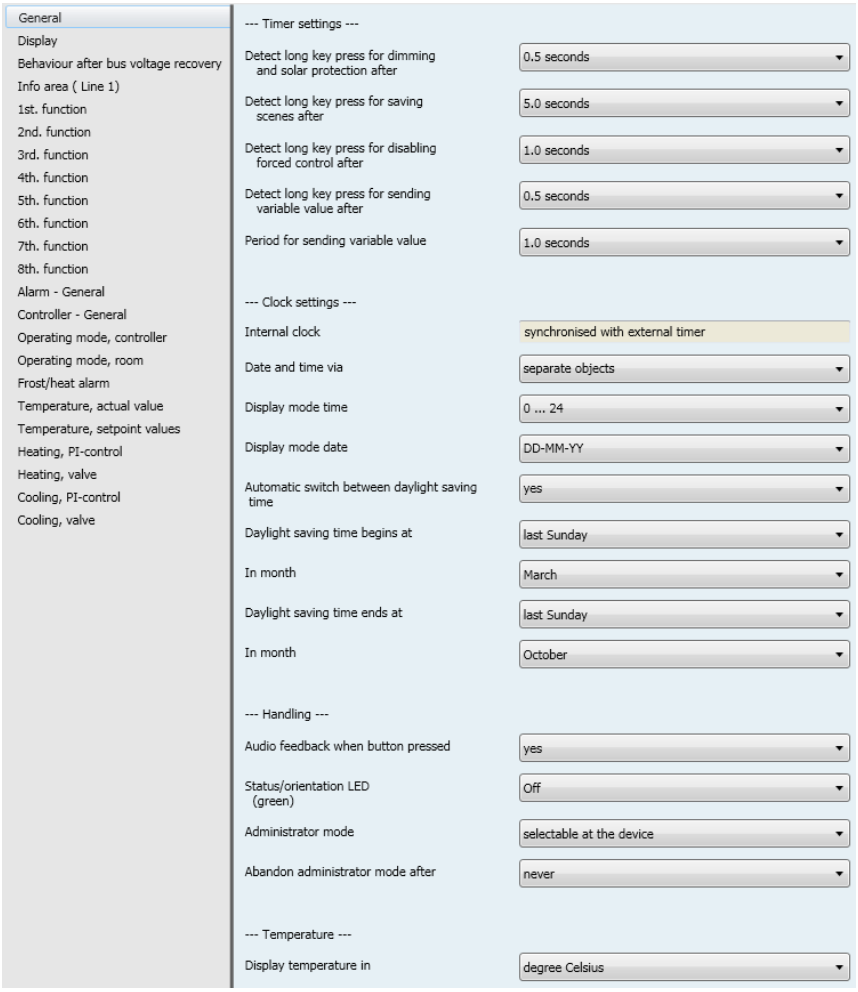
Note

Number and type of available communication objects can vary, depending on the parameter settings.

You use the ETS to assign specific parameters and addresses and to transfer them to the bus device.
The firmware is loaded into the device from the works.

Engineering Tool Software (ETS), version ETS3.0f or later is needed to load the application program.

9.1 Parameters in general



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9.1.1 Timer settings

Parameter	Settings
Detect long key press for dimming and solar protection after	**0.5**, 0.6, 0.8. 1.0, 1.2,1.5, 2.0, 2.5, 3.0, 4.0, 5.0, 6.0, 7.0
This parameter sets the time threshold for the difference between tapping and holding down the button to switch on or dim the lights and to adjust the slats or move the blind. If the button is tapped, a switching command (On/Off) or Stop/Slat adjustment command (Up/Down) is sent and, if the button is held down, a dimming command (brighter/darker) or blind movement command.	
Detect long key press for saving scenes after	0.5, 0.6, 0.8. 1.0, 1.2,1.5, 2.0, 2.5, 3.0, 4.0, **5.0**, 6.0, 7.0
This parameter sets the time threshold for the difference between tapping and holding down a button to recall or save a scene. If a key is tapped, a command is sent to call up a scene and, if it is held down, a command to save it.	
Detect long key press for disabling forced control after	0.5, 0.6, 0.8. **1.0**, 1.2,1.5, 2.0, 2.5, 3.0, 4.0, 5.0, 6.0, 7.0
This parameter sets the time threshold for the difference between tapping and holding down a button to enable or disable override. Tapping a button sends an override ON or override OFF command and holding it down an override inactive command.	
Detect long key press for sending variable value after	**0.5,** 0.6, 0.8, 1.0, 1.2 1.5, 2.0
This parameter sets the time threshold for the difference between tapping and holding down a button for one-time or cyclical sending of telegrams with value adjustment. If a button is tapped, a value that is incremented or decremented about the set interval is sent once and, if it is held down, cyclically.	
Period for sending variable value	0.5**,** 0.6, 0.8, **1.0**, 1.2 1.5, 2.0
This parameter sets the cycle time after which, if the button is held down, a new value, incremented or decremented around the set interval, is sent.	

9.1.2 Clock settings

Parameter	Setting
Internal clock	needs external time transmitter
The date and time are set manually via system control and synchronized via the bus as well. An external time transmitter delivering the precise time and precise date as time master via the "Time" and "Date" objects is needed for precise time and date display. This parameter is an information.	
Date and time via	**separate objects** common object
This parameter determines whether the time and date settings are to be synchronized via 2 individual 3-byte objects, "Time" and "Date" or via a common 8-byte object "Time & Date".	
Display mode time	**0...24** 0...12 (AM/PM)
This parameter defines the time display format. A 24-hour display appears in the setting "0...24" (him), where he: is from 00-23 and mm: is from 00-59. An indicator "am" (before noon) and "pm" (afternoon) appears in the setting "0...12 (AM/PM)". A 12-hour display appears in the setting "0...11" (AM/PM), where he: is from 00-11 and mm: is from 00-59. This parameter takes national spellings into account.	
Display mode date	**DD-MM-YY** YY-MM-DD MM-DD-YY
This parameter defines the date display format. This display appears in the setting "DD-MM-YY": DD: day of the month 01...31, MM: month 01...12 and year. The other selections are similar. This parameter takes into account national spellings.	
Automatic switch between daylight saving time	no **yes**
With the setting "yes", there is an automatic summer and winter time changeover according to the following parameters - "Change to summer time begins on", "in month" and "Summer time ends on", "in month". If the setting is "no", there is no summer or winter time changeover.	

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Parameter	Setting
Daylight saving time begins at	first Sunday second Sunday third Sunday next to last Sunday **last Sunday**
This parameter sets the day for the changeover from winter to summer time.	
In month	February **March** April
This parameter refers to the parameter above - "Change to summertime begins on". It sets the month for the changeover from winter to summer time.	
Daylight saving time ends at	first Sunday second Sunday third Sunday next ti last Sunday **last Sunday**
This parameter sets the day for the changeover from summer to winter time.	
In month	September **October** November
This parameter refers to the parameter above - "Summertime ends on". It sets the month for the changeover from summertime to winter time.	

9.1.3 Handling

Parameter	Setting
Audio feedback when button pressed	no **yes**
Use this parameter to set whether pressing the touch-sensitive button to trigger commands and features is to be clarified by an audio feedback, a short beep.	
Status/orientation LED (green)	**Off** On Status object (normal) Status object (inverted) Operation feedback
This parameter sets the LED pattern (see Figure 1) as orientation lighting. The LED is green when used as an orientation light. With the setting "On" the LED glows green all the time. No communication object is available for setting via the bus. With the setting "Off" the LED is always off. No communication object is available for setting via the bus. With the setting "Status object (normal)", a communication object can switch the LED on via the bus with the value = 1 and switch it off with the value = 0. With the setting "Status object (inverted)", a communication object can switch the LED on via the bus with the value = 0 and switch it off with the value = 1. The "Press button" setting always lights the LED for the time the touch-sensitive button is pressed. This is the same with any touch-sensitive button.	
Administrator mode	always on **selectable at the device** after enable via object, selectable at device
This parameter activates administrator mode. The setting "always" means administrator mode is switched on permanently. No communication object is shown to release the local setting. Local setting is not possible. With the "variable locally" setting, administrator mode can be switched on and off via the system settings (see Section 7.8). No communication object is shown to release the local setting. With the "Variable locally and after release via communication object" setting, administrator mode can be switched on and off (see Section 7.8) if this has been released beforehand via a communication object (value=1). With the (value=0) in the communication object the administrator mode is quit simultaneously.	
Abandon administrator mode after	1 minute 2 minutes 5 minutes 10 minutes 20 minutes **never**

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Parameter	Setting
This parameter sets automatic disconnection of administrator mode. The setting "never" means administrator mode is switched on permanently. This parameter appears only if administrator mode locally is adjustable on site and after release via a communication object.	

9.1.4 Temperature

Parameter	Setting
Display temperature in	**Degree Celsius** Degree Fahrenheit
This parameter sets the system of units (°C or °F) in which temperatures are to be displayed or preset.	

9.1.5 Communication objects in general

Obj	Object name	Function	Type	Flag
1	Time	Indication	3 bytes	KSÜA
The current time value is received and/or sent to this object via the group address.				
Obj	**Object name**	**Function**	**Type**	**Flag**
2	Date	Indication	3 bytes	KSÜA
The current date value is received and/or sent to this object via the group address.				
Obj	**Object name**	**Function**	**Type**	**Flag**
3	Time & date	Indication	8 bytes	KSÜA
The current time and date values are received and/or sent to this object via the group address.				
Obj	**Object name**	**Function**	**Type**	**Flag**
8	Admin mode	block/release	1 bit	KSÜA
Local activation of administrator mode with value = 1 is released via this object's group address. This object is displayed only if administrator mode has been configured as "Variable locally and after release via object".				
Obj	**Object name**	**Function**	**Type**	**Flag**
9	LED orientation	On/Off	1 bit	KSÜA
The LED can be switched on or off as orientation lighting via this object's group address. If you select the settings "On" or "Off" or "Press button" in the "Status/LED orientation (green)" parameter window, this object is not indicated.				
Obj	**Object name**	**Function**	**Type**	**Flag**
10	Temperature display	Celsius (0)/Fahrenheit (1)	1 bit	KSÜA
The group address for this object controls the temperature display. If the value "0" is received via this object, the temperature is shown in °C. If the value "1" is received via this object, the temperature is shown in °F.				

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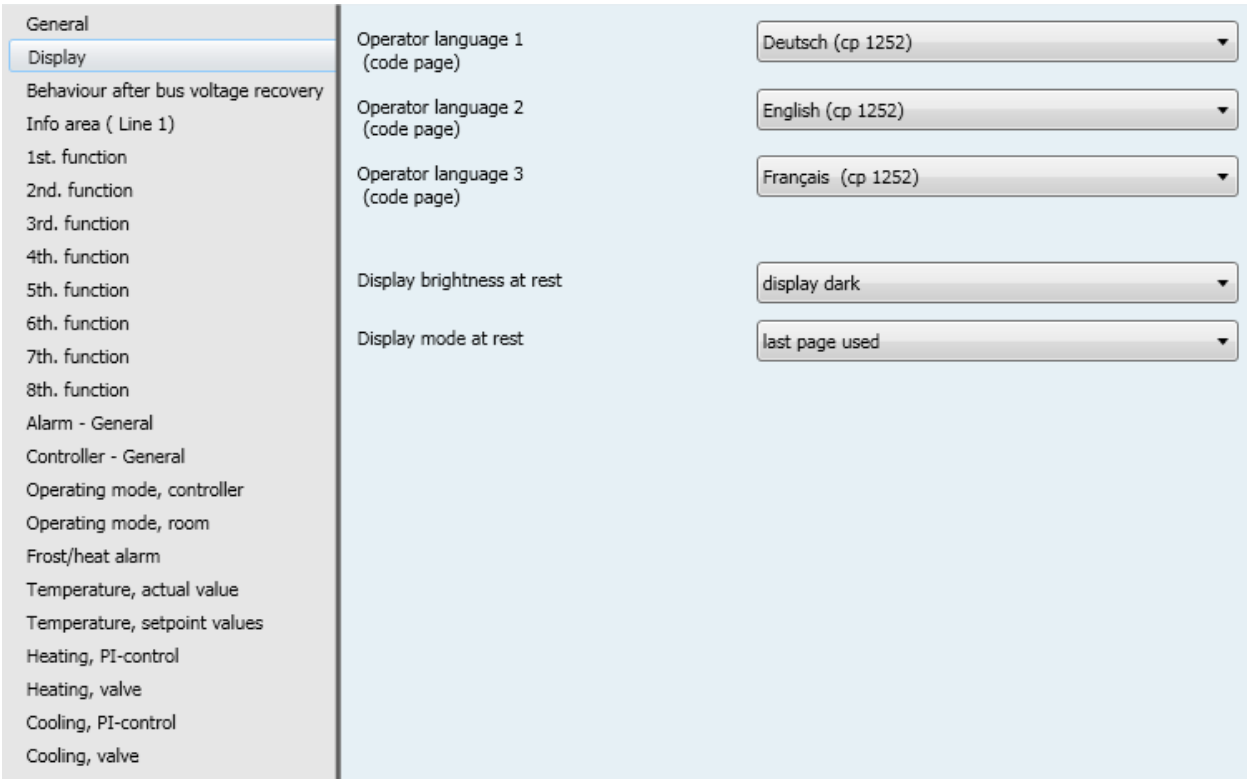
9.2 Parameter display



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Parameter	Settings
Operator language 1 (code page)	Danish (cp 1252) **German (cp 1252)** English (cp 1252) Finnish (cp 1252) French (cp 1252) Italian (cp 1252) Croatian (cp 1252) Dutch (cp 1252) Norwegian (cp1252) Polish (cp 1252) Portuguese (cp 1252) Romanian (cp 1252) Swedish (cp 1252) Spanish (cp 1252) Czech (cp 1252) Turkish (cp1252) Hungarian (cp 1252) Arabic (cp1256)
This parameter selects control language 1. All descriptions of the display features, as well as alarm and text messages on the display are shown in this language, in the corresponding character set for this. All descriptions and texts must be configured in this language. The current control language can be changed on the room controller via the system settings (see Section 7.6). A selection from three control languages is possible. The control language can be changed simultaneously via three 1-bit communication objects.	

Parameter	Settings
Operator language 2 (code page)	Danish (cp 1252) German (cp 1252) **English (cp 1252)** Finnish (cp 1252) French (cp 1252) Italian (cp 1252) Croatian (cp 1252) Dutch (cp 1252) Norwegian (cp1252) Polish (cp 1252) Portuguese (cp 1252) Romanian (cp 1252) Swedish (cp 1252) Spanish (cp 1252) Czech (cp 1252) Turkish (cp1252) Hungarian (cp 1252) Arabic (cp1256)
This parameter selects control language 2. All descriptions of the display features, as well as alarm and text messages on the display are shown in this language, in the corresponding character set for this. All descriptions and texts must be configured in this language. The current control language can be changed on the room controller via the system settings (see Section 7.6). A selection from three control languages is possible. The control language can be changed simultaneously via three 1-bit communication objects.	

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Parameter	Settings
Operator language 3 (code page)	Danish (cp 1252) German (cp 1252) English (cp 1252) Finnish (cp 1252) **French (cp 1252)** Italian (cp 1252) Croatian (cp 1252) Dutch (cp 1252) Norwegian (cp1252) Polish (cp 1252) Portuguese (cp 1252) Romanian (cp 1252) Swedish (cp 1252) Spanish (cp 1252) Czech (cp 1252) Turkish (cp1252) Hungarian (cp 1252) Arabic (cp1256)
This parameter selects control language 3. All descriptions of the display features, as well as alarm and text messages on the display are shown in this language, in the corresponding character set for this. All descriptions and texts must be configured in this language. The current control language can be changed on the room controller via the system settings (see Section 7.6). A selection from three control languages is possible. The control language can be changed simultaneously via three 1-bit communication objects.	
Display brightness at rest	**Display dark** Display brightness 10% Display brightness 20% Display brightness 30%
This parameter sets whether the display is completely darkened in standby mode or whether either a last used page or a special function with 10%, 20% or 30% dimmed lighting is to be shown (see Section 7.1).	

Parameter	Settings
Display mode at rest	Switching Dimming Roller shutter Sun blind Scene control Send value Display value Display text RTR (setpoint temperature) RTR (operationg mode) RTR (comfort mode prolongation) RTR (fan speed steps) **last page used**
This parameter controls the display in standby mode (see Section 7.3). When setting "Last used page", the feature which was used before entering standby mode is shown. Otherwise, a selected feature is shown permanently in standby mode.	

9.2.1 Communication objects display

Obj	Object name	Function	Type	Flag
4	Control language 1	activate (1)	1 bit	KSA
The group address for this object changes the control language via the bus. If the value 1 is received via this object, the currently set control language 1 is set.				
5	Control language 2	activate (1)	1 bit	KSA
The group address for this object changes the control language via the bus. If the value 1 is received via this object, the currently set control language 2 is set.				
6	Control language 3	activate (1)	1 bit	KSA
The group address for this object changes the control language via the bus. If the value 1 is received via this object, the currently set control language 3 is set.				
7	Active system language	send	2 bytes	KÜ
The group address for this object sends the system language set currently (see Section 7.7) to the room controller as ASCII code (e.g. DE = Germany) via the bus.				
11	Active control language	send	2 bytes	KÜ

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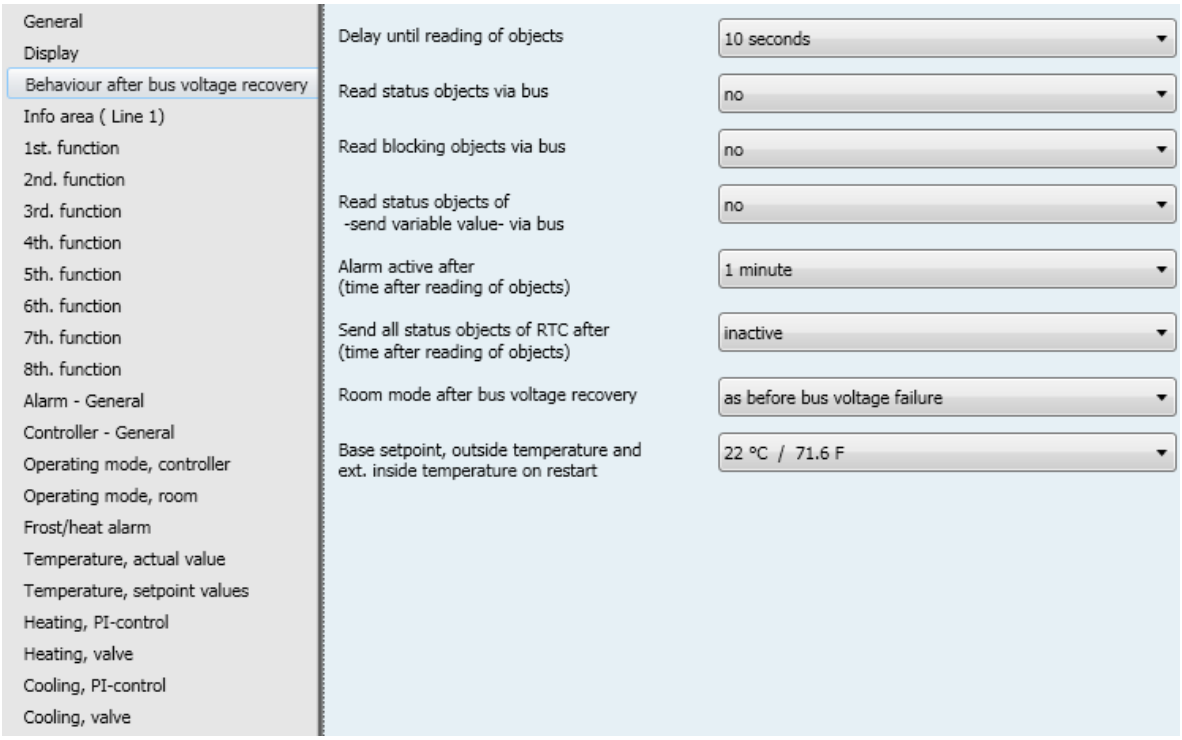
Obj	Object name	Function	Type	Flag
The group address for this object sends the control language set currently (see Section 7.6) to the room controller as ASCII code (e.g. DE = Germany) via the bus.				

9.3 Parameter behaviour after bus voltage recovery



Parameter	Setting
Delay until reading of objects	**10 seconds** 20 seconds 30 seconds 1 minute 2 minutes 3 minutes 4 minutes 5 minutes

Parameter	Setting
Use this parameter to set the delay after which object polling begins with a "value read" after a power recovery. The time mismatch among the single telegrams counts 100ms. Note: Sometimes, because many objects have to be polled, this process leads to increased bus loading if several room controllers are used in a KNX system. You must therefore take care to stagger the start of polling if there is more than one room controller in one bus line!	

Parameter	Setting
Read status objects via bus	**no** yes

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Parameter	Setting
This parameter setting relates to the preceding parameter "Delay until object polling". This setting determines whether status objects are also to be polled after the set delay.	
Read blocking objects via bus	**no** yes
This parameter setting relates to the preceding parameter "Delay until object polling". This setting determines whether blocking objects are also to be polled after the set delay.	
Read status objects of -send variable value- via bus	**no** yes
This parameter setting relates to the preceding parameter "Delay until object polling". This setting determines whether status objects for the feature "Send value variably" are also to be polled after the set delay.	
Alarm active after (time after reading of objects)	10 seconds 30 seconds **1 minute** 2 minutes 3 minutes 4 minutes 5 minutes 6 minutes 10 minutes 15 minutes 20 minutes 25 minutes 30 minutes
This parameter is to be viewed in conjunction with the preceding parameter "Delay until polling objects". Only if the delay until polling objects has elapsed and all relevant object values have been read in does the time set in this parameter start to run. All former alarms up to this point are discarded (see Section 5.3). Alarm monitoring begins after this time, which also has to be set.	

Parameter	Setting
Send all status objects of room temperature controller after (time after reading of objects)	**inactive** 5 seconds 10 seconds 20 seconds
This parameter is to be viewed in conjunction with the preceding parameter "Delay until polling objects". Only if the delay until polling objects has elapsed and all value-read-telegrams to check the device status have been sent does the time set in this parameter start to run. The RTR status objects are sent after this time, which also has to be set. No RTR status objects are sent with the setting "inactive".	
Room mode after bus voltage recovery	**As before bus voltage failure** Comfort mode Pre-comfort mode Economy mode: Protection mode
This parameter sets the room mode which is activated automatically after power is restored.	
Base setpoint, outside temperature and ext. inside temperature on restart	16°C, 17°C, 18°C, 19°C, 20°C, 21°C, **22°C**, 23°C, 24°C, 25°C, 26°C
This parameter specifies which value must be used as basic nominal value and external measured value for an inside temperature sensor in order that the program has meaningful start values immediately on restart (after download or bus voltage restoration). Any available outside temperature will initially be preset with the same value.	

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Control Products & Systems
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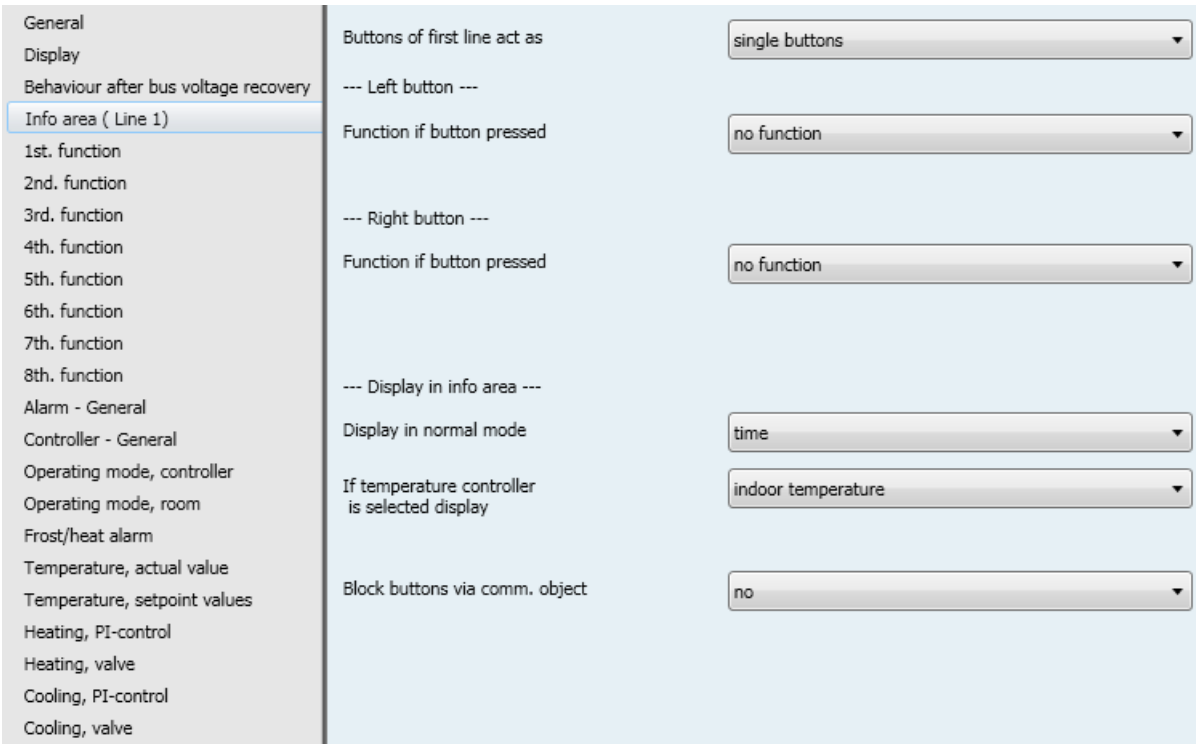
9.4 Parameter info area (line 1)



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Parameter	Setting
Buttons of first line act as	Button pair **Single buttons**
This parameter sets whether both touch-sensitive buttons in the feature line (see Section 3 for fixed control features) are used as individual buttons, with separate control features for each button, or as a matched pair of buttons for the dimming, shutter and blind features.	

9.4.1 Left button/right button

Parameter	Setting
Function if button pressed	**No function** Switching: On Switching: Off Switching: toggle Press On/Release Off Press Off/Release On Forced controlled On Forced controlled Off Forced control inactive (On) Forced control inactive (Off) 8-bit scene: recall 1-bit scene: recall/save scene 1 1-bit scene: recall/save scene 2 Send 8-bit decimal value Send 8-bit percent value Send temperature value Send brightness value Send wind speed value Send 16-bit value

Parameter	Setting
Use these parameters to select the feature for the left and right feature buttons. An individual button controls the features (see Section 3). This parameter appears only if the previous parameter "Feature line buttons act as" was set to "Individual buttons". Switch: On Pressing the key sends a "Switch on" command. Switch: Off Pressing the key sends a "Switch off" command. Switch: Toggling Pressing the key once sends a "Switch on" command and pressing the key again sends a "Switch off" command. With each additional press, the inverted object value is sent in each case (Change function). Bell feature: Press = On, Release = Off Pressing the key sends a "Switch on" command and releasing it sends a "Switch off" command. Bell feature: Press = Off, Release = On Pressing the button sends a "Switch off" command and releasing it sends a "Switch on" command. Forced Controlled ON Pressing the button sends an forced controlled On switching command (value: 11). Forced Controlled Off Pressing the button sends an forced controlled Off switching command (Value: 10). Forced Control inactive (On) Pressing the button sends a disable Override command (Value: 01). Forced Control inactive (Off) Pressing the button sends a disable Override command (Value: 00). 8-bit scene: Recall Pressing the button calls up the scene with the set number (scene 1 ... scene 64) configured for this button. 1-bit scene: Recall/save scene 1 Pressing the button calls up "Scene 1" via the corresponding object. Pressing the button saves "Scene 1" via the corresponding object. This selection is dependent on the object assignment!	

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1-bit scene: Recall/save scene 2

Pressing the button calls up "Scene 2" via the corresponding object. Pressing the button saves "Scene 2" via the corresponding object. This selection is dependent on the object assignment!

Send 8-bit decimal value

Pressing the button sends a decimal value (0...255) to be set.

Send 8-bit percentage value

Pressing the button sends a decimal value (0...100%) to be set.

Send temperature value

Pressing the button sends a temperature value in floating point format (-30...48°C) to be set.

Send brightness value

Pressing the button sends a brightness value in floating point format (0...100000 lux) to be set.

Send wind speed value

Pressing the button sends a wind speed in floating point format (0...35 m/s) to be set.

Send 16-bit value

Pressing the button sends a 16-bit value in counter format (0...65535) to be set.

Parameter	Setting
Scene number	**1**...64
This parameter selects the scene number to be sent. This parameter appears only if the feature: "Call up 8-bit scene" is selected.	

Parameter	Setting
8-bit value	**0**...255
This parameter selects the decimal value to be sent. This parameter appears only if the feature: "Send 8-bit decimal value" is selected.	

Parameter	Setting
percent value	**0**...100 %
This parameter selects the percentage value to be sent which is then converted to 0...255. This parameter appears only if the feature: "Send 8-bit percentage value" is selected.	

Parameter	Setting
Temperature value	-30°C...**20°C**...48°C
This parameter selects the temperature value to be sent. This parameter appears only if the feature: "Send temperature value" is selected.	

Parameter	Setting
Brightness value	0 lux...**500 lux**...100000 lux
This parameter selects the brightness value to be sent. This parameter appears only if the feature: "Send brightness value" is selected.	

Parameter	Setting
Wind speed	0 m/s...**3 m/s**...35 m/s
This parameter selects the wind speed value to be sent. This parameter appears only if the feature: "Send wind speed value" is selected.	

Parameter	Setting
16-bit value	0...65535
This parameter selects the 16-bit counter value to be sent. This parameter appears only if the feature: "Send 16-bit value" is selected.	

Parameter	Setting
Send second telegram	**no** yes
This parameter specifies whether a further telegram is to be sent via an additional object. Yes: Another telegram is sent No: No further telegram is sent This additional parameter is **not** available for the individual features: Press On/Release Off and Press Off/Release On	
Send second telegram	after delay (always) **if button held down (alternatively)**

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Parameter	Setting
If the "After delay (always)" setting is selected via this parameter, the following further parameter "Transmit delay for the second telegram" appears. If the "Hold button down (alternatively)" setting is selected via this parameter, the following further parameter "Starting with button held down" appears. Always one telegram is sent, dependent on pressing button or holding it down. This parameter appears only if the "Send second telegram" parameter is set to "Yes".	
Transmit delay for the second telegram (seconds)	**0**...255
After releasing the button, the delay (0...255 seconds) begins, at the end of which a second telegram is sent via a further object. If the button is pressed again before the delay ends, this restarts. The "Second telegram feature" parameter and any other parameters configure the second telegram. This parameter appears only if the "Send second telegram" parameter is set to "Yes" and with the setting “after delay (always)”.	
Long push of button after	**0.5 seconds** 0.6 seconds 0.8 seconds 1.0 seconds 1.2 seconds 1.5 seconds 2.0 seconds
This parameter determines how long at least the button must be pressed to send the alternative telegram via a second object. The "Second telegram feature" parameter and any other parameters configure the alternative telegram. This parameter appears only if the "Send second telegram" parameter is set to "Yes" and with the setting “if button held down (alternatively).	

Parameter	Setting
Second telegram feature	Switch: On Switch: Off Forced controlled On Forced controlled Off Forced control inactive (On) Forced control inactive (Off) 8-bit scene: recall 1-bit scene: Recall/save scene 1 1-bit scene: Recall/save scene 2 Send 8-bit percentage value Send 8-bit decimal value Send temperature value Send brightness value Send wind speed value Send 16-bit value
Use these parameters to select the second telegram feature for the left and right feature buttons (see Section 3).	

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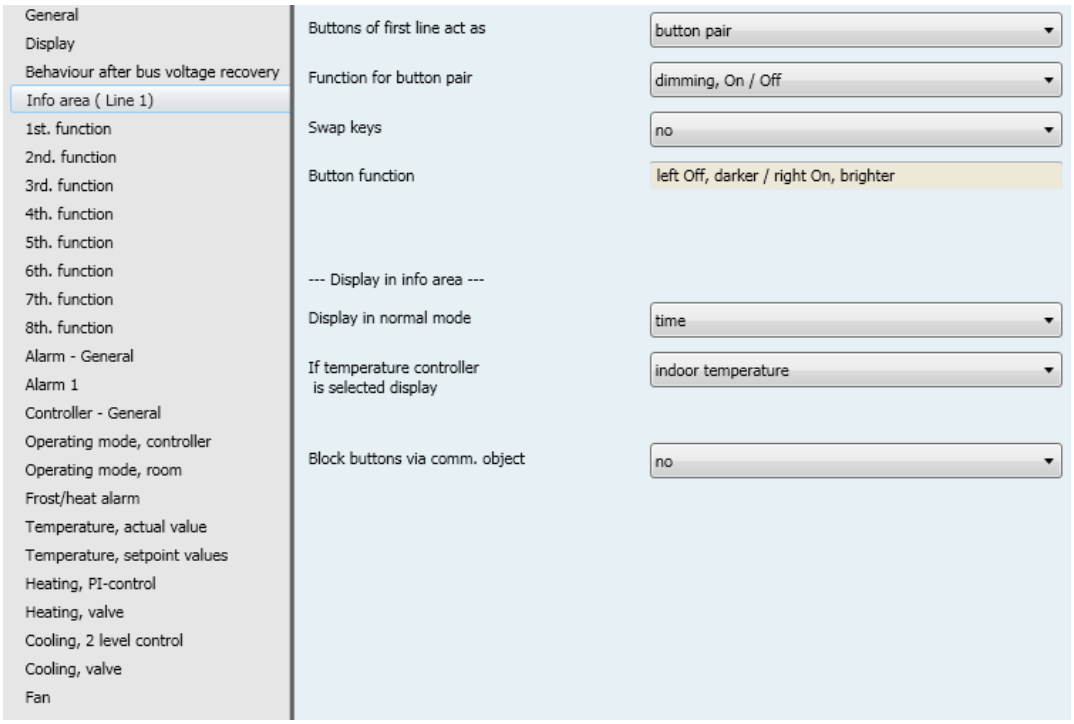
9.4.2 Button pair functions:



Parameter	Setting
Function for button pair	**Dimming, On/Off** Roller shutters Sun blind

Parameter	Setting
This parameter sets the button pair feature. Depending on the parameter setting, the parameter window changes and the associated parameters are indicated in standard settings (see Section 3.2). This parameter appears only if the previous parameter "Feature line buttons act as" was set to "Button pair". Dimming On/Off Switching, dimming: Off, darker/On, brighter Tap left button: Switching command "Off" Tap right button: Switching command "On" Hold down left button: "Dimming command "darker" Hold down right button: Dimming command "Brighter" Shutters Hold down left: Shutters "down" Hold down right button: Shutters "up" Tap left: Shutters "stop" Blind Hold down left: Blind "down" Hold down right button: Blind "up" Tap left: Blind "stop", slats "down" Tap right: Blind "stop", slats "up"	

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Parameter	Setting
Swap keys	**no** yes
This parameter changes the button pair operating strategy from left/right to right/left. This parameter is available for all three features: Dimming on/off, shutters, blind.	

9.4.3 Display in info area

Parameter	Setting
Display in normal mode	Date **Time** Outside temperature Inside temperature
The information set here is shown in the center of the info line on the user and display pages. Available for selection are the current date, current time, outside temperature and current inside temperature (see Section 2).	

Parameter	Setting
If temperature controller is selected display	**Indoor temperature** Operating mode RTC Heat/cool mode Fan speed Window open/closed Dew point
The information set here is shown in the center of the info line on the room temperature controller pages. Available for selection are the current inside temperature, current mode (automatic, comfort, pre-comfort, Economy mode, protection mode), heating and cooling modes, current fan speed, open or closed windows or dewpoint mode (see Section 2).	
Block buttons via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always
This parameter determines whether and under what conditions button operation is to be blocked via the blocking object. This blocking feature acts both in the "Individual buttons" setting and in the "Button pair" setting.	

9.4.4 Communication objects for features in the feature line (individual button features)

Obj	Object name	Feature	Type	Flag
14	Info line left, switching	On/Off/toggle	1 bit	KÜ
17	Info line right, switching	On/Off/toggle	1 bit	KÜ
If either the left or right button is pressed, an "ON" or "OFF" switching telegram is sent via the corresponding object. With the Change switching feature, an "On" switching telegram is sent via the corresponding object and an "Off" switching telegram is sent the next time it is pressed. With each additional press, the inverted object value is sent in each case (Toggle feature). With the feature Press = On/release = Off, when the button is pressed, an "On" switching telegram is sent via the corresponding object and on releasing the button an "Off" telegram is sent. With the feature Press = Off/release = On, when the button is pressed, an "Off" switching telegram is sent via the corresponding object and on releasing the button an "On" telegram is sent.				
Obj	**Object name**	**Feature**	**Type**	**Flag**
14	Info line left, forced control	On/OFF/inactive (On)/inactive (Off)	2 bit	KÜ
17	Info line right, forced control	On/OFF/inactive (On)/inactive (Off)	2 bit	KÜ
Tapping the left or right button sends a telegram "Override On" (binary value = 11) via the corresponding 2-bit override object and tapping the right button sends "Override Off" (binary value = 10). Holding down the right button disables the override with the binary value "01" and holding down the left button disables the override with the binary value "00". Tapping a button produces an Enable command and holding the button down a Disable command for override.				

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Obj	Object name	Feature	Type	Flag
14	Info line left, scene	recall/store	1 byte	KÜ
17	Info line right, scene	recall/store	1 byte	KÜ
Pressing the left or right button sends an 8-bit scene with the set scene number via the corresponding object. The scene numbers (1...64) are stored in bits 0 to 5 of the 8-bit object (1 to 64). The highest value bit 7 determines that the scene is recalled (bit = 0).				

Obj	Object name	Feature	Type	Flag
14	Info line left, scene 1/2	recall/store	1 bit	KÜ
17	Info line right, scene 1/2	recall/store	1 bit	KÜ
Pressing the left or right button sends a 1-bit scene with the scene number 1 or 2 via the corresponding object. Scene 1 is recalled with a "0" telegram and scene 2 with a "1" telegram. The relevant 1-bit object can also be used to program scene 1 or 2. Scene 1 is saved with a "0" telegram and scene 2 with a "1" telegram.				

Obj	Object name	Feature	Type	Flag
14	Info line left, 8-bit Bit	Value	1 byte	KÜ
17	Info line right, 8-Bit	Value	1 byte	KÜ
Pressing the left or right button sends a fixed, set, configured decimal value between 0 and 255 via the corresponding object.				

Obj	Object name	Feature	Type	Flag
14	Info line left, percentage	Value	1 byte	KÜ
17	Info line right, percentage	Value	1 byte	KÜ
Pressing the left or right button sends a fixed, set, configured percentage between 0 and 100% via the corresponding object.				

Obj	Object name	Feature	Type	Flag
14	Info line left, temperature	Value	2 bytes	KÜ
17	Info line right, temperature	Value	2 bytes	KÜ
Pressing the left or right button sends a fixed, set, configured temperature between -30 °C and +48°C in floating point format via the corresponding object.				

Obj	Object name	Feature	Type	Flag
14	Info line left, brightness	Value	2 bytes	KÜ
17	Info line right, brightness	Value	2 bytes	KÜ
Pressing the left or right button sends a fixed, set, configured brightness value between 0 and 100,000 lux in floating point format via the corresponding object.				

Obj	Object name	Feature	Type	Flag
14	Info line left, wind speed	Value	2 bytes	KÜ
17	Info line right, wind speed	Value	2 bytes	KÜ
Pressing the left or right button sends a fixed, set, configured wind speed between 0 and 35 m/s in floating point format via the corresponding object.				

Obj	Object name	Feature	Type	Flag
14	Info line left, 16-bit	Value	2 bytes	KÜ
17	Info line right, 16-bit	Value	2 bytes	KÜ
Pressing the left or right button sends a fixed, set, configured 16-bit value between 0 and 65535 via the corresponding object.				

9.4.5 Communication objects for features in the feature line (individual button feature) - "second telegram"

Obj	Object name	Feature	Type	Flag
15	Info line left 2, switching	On/Off	1 bit	KÜ
18	Info line right 2, switching	On/Off	1 bit	KÜ
15	Info line left 2, forced control	On/Off inactive (On)/inactive (Off)	2 bit	KÜ

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Obj	Object name	Feature	Type	Flag
18	Info line right 2, forced control	On/Off inactive (On)/inactive (Off)	2 bit	KÜ
15	Info line left 2, scene	recall/store	1 byte	KÜ
18	Info line right 2, scene	recall/store	1 byte	KÜ
15	Info line left 2, scene 1/2	recall/store	1 bit	KÜ
18	Info line right 2, scene 1/2	recall/store	1 bit	KÜ
15	Info line left 2, 8-bit	Value	1 byte	KÜ
18	Info line right 2, 8-bit	Value	1 byte	KÜ
15	Info line left 2, percentage	Value	1 byte	KÜ
18	Info line right 2, percentage	Value	1 byte	KÜ
15	Info line left 2, temperature	Value	2 bytes	KÜ
18	Info line right 2, temperature	Value	2 bytes	KÜ
15	Info line left 2, brightness	Value	2 bytes	KÜ
18	Info line right 2, brightness	Value	2 bytes	KÜ
15	Info line left 2, wind speed	Value	2 bytes	KÜ
18	Info line right 2, wind speed	Value	2 bytes	KÜ
15	Info line left 2, 16-bit	Value	2 bytes	KÜ
18	Info line right 2, 16-bit	Value	2 bytes	KÜ
Holding down the left or right button, or after a delay, sends a second or alternative telegram via the corresponding second object.				

9.4.6 Communication objects for features in feature line (button pair features)

Obj	Object name	Feature	Type	Flag
14	Info line, dimming	On/Off	1 bit	KÜ
15	Info line, dimming	brighter/darker	4 bit	KÜ
Tapping the buttons sends an "On" or "Off" switching telegram and holding then down sends a "brighter" or "darker" dimming telegram, in each case via the corresponding object. Tapping a button produces a Switch on command and holding the button down a Dimming command for the lighting.				

Obj	Object name	Feature	Type	Flag
14	Info line, roller stop	stop	1 bit	KÜ
15	Info line, roller shutter	up/down	1 bit	KÜ
If the buttons are held down, a shutter movement command "Up" or "Down" is sent via the corresponding object and if they are tapped a "Stop" command is sent. Holding the button down generates a command to move the shutter and tapping it a command to stop the trip.				

Obj	Object name	Feature	Type	Flag
14	Info line, slats	up/down	1 bit	KÜ
15	Info line, shutter	up/down	1 bit	KÜ
If the buttons are held down, a solar protection movement command "Up" or "Down" is sent via the corresponding object and if they are tapped a "Stop/Slat Up" or "Stop/Slat Down" command is sent. Holding down the button produces a command to move the solar protection and tapping a command to stop the movement or adjust the slats by one step.				

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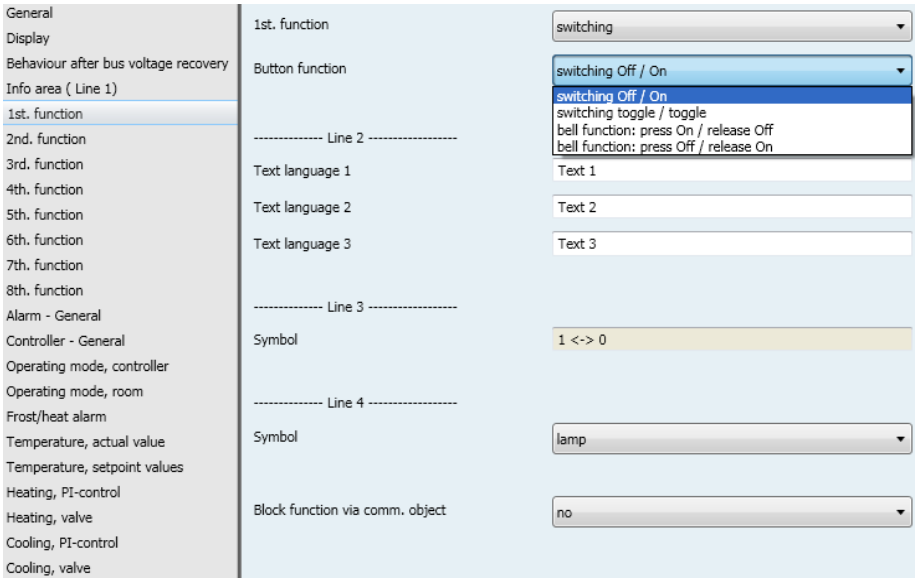
9.5 Parameter display features

8 display features can be set via the following parameters:



Parameter	Setting
1st. function	**No function** Switching Switching, dimming Switching with force control Sun protection Roller shutter 8-bit scene recall / save 1-bit scene recall / save Send fixed values Send variable values Display value Display text
This parameter selects the feature. The setting "Not used" means that no further parameter settings and objects are displayed for this feature.	

Switching:

Parameter	Setting
Button function	**Switching Off/On** Switching Toggle/Toggle Bell function: Press On/Release Off Bell function: Press Off/Release On

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Parameter	Setting
An individual button controls this feature (see Section 4.1). Switch: Off / On Use the button (G`) to send the "On" switching command. Use the button (G) to send the "Off" switching command. Switch: Toggling Pressing the button (G or G') once sends a "Switch on" command and pressing the button again sends a "Switch off" command. With each additional press, the inverted object value is sent in each case (Change feature). Bell feature: Press = On, Release = Off Pressing the button (G or G') once sends a "Switch on" command and releasing the button sends a "Switch off" command. Bell feature: Press = Off, Release = On Pressing the button (G or G') sends a "Switch on" command and releasing the button sends a "Switch off" command.	
Text language 1	
Use this entry field to enter an 11-character descriptive text for the switching feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 2	
Use this entry field to enter an 11-character descriptive text for the switching feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 3	
Use this entry field to enter an 11-character descriptive text for the switching feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Symbol	1 <- > 0
The status of the switching feature is shown on the display in the third line (C`) with the value "1" or "0". This is an information bit.	

Parameter	Setting
Symbol	**Lamp** 1/0 Contact Socket
This parameter selects a symbol for the features group display. The features group is shown on the display in the fourth line (K). These are the symbols for the features group "Switch, switch with override" (see Section 4).	
Block function via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always
This parameter determines whether and under what condition the display feature operation is to be blocked via the blocking object when the button is pressed.	

Switching, dimming:

Parameter	Setting
Button function	Left Off, darker/right On, brighter
The control strategy is set firmly (see Section 4.2). This is an information bit.	
Text language 1	
Use this entry field to enter an 11-character descriptive text for the switching, dimming feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object(see Section 7.6).	
Text language 2	
Use this entry field to enter an 11-character descriptive text for the switching, dimming feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 3	

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Parameter	Setting
Use this entry field to enter an 11-character descriptive text for the switching, dimming feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Symbol	Value (%)
The dimming value status is shown on the display in the third line (C`) with a percentage between 0 and 100%. This is an information bit.	
Symbol	Lamp 50%
A corresponding dimming symbol is shown for the "Switching, dimming" features group (see Section 4). The features group is shown on the display in the fourth line (K). This is an information bit.	
Block function via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always
This parameter determines whether and under what condition the display feature operation is to be blocked via the blocking object when the button is pressed.	

Switching with force control:

Parameter	Setting
Button function	Left forced Off/right forced On
The control strategy is set firmly (see Section 4.3). This is an information bit.	
Text language 1	
Use this entry field to enter an 11-character descriptive text for the switching with override feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 2	
Use this entry field to enter an 11-character descriptive text for the switching with override feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see Section 7.6).	

Parameter	Setting
Text language 3	
Use this entry field to enter an 11-character descriptive text for the switching with override feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Symbol	Locking unit
The override status is shown on the display in the third line (C`). If a lock is open, override is inactive. If a lock is closed, override is active. This is an information bit.	
Symbol	**Lamp** 1/0 Contact Socket
This parameter selects a symbol for the features group display. The features group is shown on the display in the fourth line (K). These are the symbols for the features group "Switch, switch with override" (see Section 4).	
Block function via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always
This parameter determines whether and under what condition the display feature operation is to be blocked via the blocking object when the button is pressed.	

Sun protection:

Parameter	Setting
Button function	Left Down/right Up
The control strategy is set firmly (see Section 4.5). This is an information bit.	
Text language 1	
Use this entry field to enter an 11-character descriptive text for the blind feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see Section 7.6).	

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Parameter	Setting
Text language 2	
Use this entry field to enter an 11-character descriptive text for the blind feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 3	
Use this entry field to enter an 11-character descriptive text for the blind feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Symbol	Value (%)
The hanging height status is shown on the display in the third line (C`) with a percentage between 0 and 100%. If the value is "0%", the blind is up. If the value is "100%", the blind is down. This is an information bit.	
Symbol	Shutter
A corresponding blind symbol is shown for the "Blind" features group (see Section 4). The features group is shown on the display in the fourth line (K). This is an information bit.	
Block function via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always
This parameter determines whether and under what condition the display feature operation is to be blocked via the blocking object when the button is pressed.	

Roller shutter:

Parameter	Setting
Button function	Left Down/right Up
The control strategy is set firmly (see Section 4.4). This is an information bit.	
Text language 1	
Use this entry field to enter an 11-character descriptive text for the shutter feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see Section 7.6).	

Parameter	Setting
Text language 2	
Use this entry field to enter an 11-character descriptive text for the shutter feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 3	
Use this entry field to enter an 11-character descriptive text for the shutter feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Symbol	Value (%)
The hanging height status is shown on the display in the third line (C`) with a percentage between 0 and 100%. If the value is "0%", the shutter is up. If the value is "100%", the shutter is down. This is an information bit.	
Symbol	Roller shutter
A corresponding shutter symbol is shown for the "Shutter" features group (see Section 4). The features group is shown on the display in the fourth line (K). This is an information bit.	
Block function via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always
This parameter determines whether and under what condition the display feature operation is to be blocked via the blocking object when the button is pressed.	

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8-bit scene recall / save:

Parameter	Setting
Scene number (Output via obj. 100)	**1**...64
This parameter selects the scene number to be sent or to be programmed. This parameter appears only for the feature: "Recall/save 8-bit scene".	
Text language 1	
Use this entry field to enter an 11-character descriptive text for the 8-bit scene feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 2	
Use this entry field to enter an 11-character descriptive text for the 8-bit scene feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 3	
Use this entry field to enter an 11-character descriptive text for the 8-bit scene feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Symbol	**Presentation** Meeting Leaf (Eco) Leaving room Universal Party Vacation Sleep mode
This parameter selects a symbol for the called-up scene display. This scene symbol is shown on the display in the third line (C`) (see Section 4.6).	
Symbol	Scene
A corresponding scene symbol is shown for the "Scenes" features group (see Section 4). The features group is shown on the display in the fourth line (K). This is an information bit.	

Parameter	Setting
Block function via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always
This parameter determines whether and under what condition the display feature operation is to be blocked via the blocking object when the button is pressed.	

1-bit scene recall / save:

Parameter	Setting
Scene number	**Scene 1** Scene 2
This parameter selects scene 1 or scene 2 to be sent or programmed. This parameter appears only for the feature: "Recall/save 1-bit scene".	
Text language 1	
Use this entry field to enter an 11-character descriptive text for the 1-bit scene feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 2	
Use this entry field to enter an 11-character descriptive text for the 1-bit scene feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 3	
Use this entry field to enter an 11-character descriptive text for the 1-bit scene feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see Section 7.6).	

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Parameter	Setting
Symbol	**Presentation** Meeting Leaf (Eco) Leaving room Universal Party Vacation Sleep mode
This parameter selects a symbol for the called-up scene display. This scene symbol is shown on the display in the third line (C`) (see Sections 4.6 and 4.7).	
Symbol	Scene
A corresponding scene symbol is shown for the "Scenes" features group (see Section 4). The features group is shown on the display in the fourth line (K). This is an information bit.	
Block function via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always
This parameter determines whether and under what condition the display feature operation is to be blocked via the blocking object when the button is pressed.	

Send fixed values

Parameter	Setting
Data type	8-bit decimal 8-bit percent 16-bit decimal **Temperature** Brightness Wind speed
This parameter selects the data type to be sent and which is to be sent as a firmly configured value. This parameter appears only for the feature: "Send fixed/variable values".	
Number of values	1 fixed value 2 fixed values 3 fixed values **4 fixed values**

Parameter	Setting
Up to 4 different values for the same data type can be sent via a single communication object. This parameter selects the number of values that are to be sent via a single communication object. This parameter appears only for the feature: "Send fixed values".	
First value	**0**...255 **0**...100 % **0**...65535 -30°C...**10 °C**...48°C **0 Lux...** 100,000 Lux 0 m/s...**1 m/s**...35 m/s
This parameter configures the defined value 1 to be sent, which is selected with the button (G) in line 3 and sent with the right button (G') in line 3. This parameter appears only for the feature: "Send fixed values".	
Second value	**0**...255 **0**...100 % **0**...65535 -30°C...**20°C**...48°C 0 lux...**100 lux**...100000 lux 0 m/s...**2 m/s**...35 m/s
This parameter configures the defined value 2 to be sent, which is selected with the button (G) in line 3 and sent with the right button (G') in line 3. This parameter appears only for the feature: "Send fixed values".	
Third value	**0**...255 **0**...100 % **0**...65535 -30°C...**30 °C**...48°C 0 lux...**500 lux**...100000 lux 0 m/s...**3 m/s**...35 m/s
This parameter configures the defined value 3 to be sent, which is selected with the button (G) in line 3 and sent with the right button (G') in line 3. This parameter appears only for the feature: "Send fixed values".	

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Parameter	Setting
Fourth value	**0**...255 **0**...100 % **0**...65535 -30°C...**40 °C**...48°C 0 lux...**1000 lux**...100000 lux 0 m/s...**4 m/s**...35 m/s
This parameter configures the defined value 4 to be sent, which is selected with the button (G) in line 3 and sent with the right button (G') in line 3. This parameter appears only for the feature: "Send fixed values".	
Text language 1	
Use this entry field to enter an 11-character descriptive text for the "Send fixed values" feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 2	
Use this entry field to enter an 11-character descriptive text for the "Send fixed values" feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 3	
Use this entry field to enter an 11-character descriptive text for the "Send fixed values" feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Symbol	Value [__] Value [%] Value [°C] Value [kLux] Value [m/s]
The value to be sent is shown on the display in the third line (C`) with the selected data type and the corresponding unit. This is an information bit.	
Symbol	SET
A corresponding blind symbol is shown for the "Send values" features group (see Section 4). The features group is shown on the display in the fourth line (K). This is an information bit.	

Parameter	Setting
Block function via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always
This parameter determines whether and under what condition the display feature operation is to be blocked via the blocking object when the button is pressed.	

Send variable values

Parameter	Setting
Data type	8-bit decimal 8-bit percent 16-bit decimal **Temperature** Brightness Wind speed
This parameter selects the data type to be sent and which is to be sent as a variable value to be set at the room controller. This parameter appears only for the feature: "Send fixed/variable values".	
Parameter	**Setting**
Minimal value	**0**...255 **0**...100 % **0**...32767 -30°C...**20°C**...48°C 0 lux...**100 lux**...100000 lux **0 m/s**...35 m/s
This parameter limits the range of values for the corresponding data type. The lower limit is set. If a threshold is not reached because of the set interval, the object value is restricted to this value. Only values that are within the set value range are sent (see Section 4.9). This parameter appears only for the feature: "Send variable values".	

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Parameter	Setting
Maximal value	0...**255** 0...**100 %** 0...**32767** -30°C...**30 °C**...48°C 0 lux...**500 lux**...100000 lux 0 m/s...**3 m/s**...35 m/s
This parameter limits the range of values for the corresponding data type. The upper limit is set. If a threshold is exceeded because of the set interval, the object value is restricted to this value. Only values that are within the set value range are sent (see Section 4.9). This parameter appears only for the feature: "Send variable values".	
Step (Celsius)	0...**1**...255 0...**1**...100 % 0...**10**...32767 0.2/0.5/**1.0**/2.5/5/10°C 0 lux...**10 lux**...100000 lux 0 m/s...**1 m/s**...35 m/s
This parameter determines the increment by which the current object values are increased or decreased when the buttons (G' and G) are pressed. Tapping the button increases or decreases the current object value by the set increment and then sends it (see Section 4.9).	
Holding the button down increases or reduces the current object value incrementally by the time set in the "General" parameter window "Repetition rate for value adjustment" and sends this cyclically while the button remains pressed. On This parameter appears only for the feature: "Send variable values".	
Text language 1	
Use this entry field to enter an 11-character descriptive text for the "Send variable values" feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 2	
Use this entry field to enter an 11-character descriptive text for the "Send variable values" feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 3	
Use this entry field to enter an 11-character descriptive text for the "Send variable values" feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Symbol	Value [__] Value [%] Value [°C] Value [kLux] Value [m/s]
The value to be sent is shown on the display in the third line (C`) with the selected data type and the corresponding unit. This is an information bit.	
Symbol	SET
A corresponding blind symbol is shown for the "Send values" features group (see Section 4). The features group is shown on the display in the fourth line (K). This is an information bit.	
Block function via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always
This parameter determines whether and under what condition the display feature operation is to be blocked via the blocking object when the button is pressed.	

Display value

Parameter	Setting
Data type	1 bit 8-bit decimal **8-bit percent** 16-bit decimal 16-bit float

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Parameter	Setting
This parameter selects the data type to be received and whose object content will be shown on the room controller. This parameter appears only for the feature: "Show value".	
Factor (Display = value × factor × 0.1)	-100...**10**...100
This parameter sets a scaling value. Accordingly, the value received via the bus is displayed with a factor of between -100 and +100. This facilitates a conversion between different physical units, e.g. Lux into kLux. This parameter appears only for the feature: "Show value" for the data types: 8-bit decimal 8-bit percent, 16-bit decimal values, 16-bit floating point values.	
Decimal places	**0**...1 0...**2**
This parameter sets the value display for 16-bit decimal values with one or no decimal place or for 16-bit floating point values with one, two or no decimal places. This parameter appears only for the feature: "Show value" for the data types: 16-bit decimal values, 16-bit floating point values.	
Text language 1	
Use this entry field to enter an 11-character descriptive text for the Show value feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 2	
Use this entry field to enter an 11-character descriptive text for the Show value feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Text language 3	
Use this entry field to enter an 11-character descriptive text for the Show value feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see Section 7.6).	
Symbol	1 <- > 0

Parameter	Setting
The value of the 1-bit object is shown on the display in the third line (C`) with the value "1" or "0". This is an information bit. This parameter appears only for the feature: "Show value" for the data types: 1 bit.	
Unit text	
This parameter enters a physical unit. Three characters are available for this. "%" is the default for the 8-bit data type. This unit is shown on the display in the third line (see Section 4.10). This parameter appears only for the feature: "Display value" for the data types: 8-bit decimal 8-bit percent, 16-bit decimal values, 16-bit floating point values.	
Symbol	Info
A corresponding blind symbol is shown for the "Show values" features group (see Section 4). The features group is shown on the display in the fourth line (K, Figure 3). This is an information bit.	
Block function via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always
This parameter determines whether and under what condition the display feature operation is to be blocked via the blocking object when the button is pressed. Because this feature works as a pure display feature and no commands are triggered via the buttons (G and G`), the blocking feature remains non-operational.	

Display text:

Parameter	Setting
Data type	**1 bit** 8-bit decimal 8-bit percent 16-bit decimal 16-bit float Text message via object (14 byte)

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Parameter	Setting
This parameter selects the data type to be received. Depending on the value content, you can configure different display messages to be shown on the room controller. Thresholds are set to differentiate the value contents. This parameter appears only for the feature: "Show text".	
Number of steps	One threshold **Two thresholds**
This parameter determines the number of thresholds and thus the number of ranges. With a threshold, there are in the relevant value range two display ranges for which a display text can be shown in each case. With two thresholds, there are in the relevant value range three display ranges for which a display text can be shown in each case (see Section 4.11). This parameter appears only for the feature: "Show text" for the data types: 8-bit decimal 8-bit percent, 16-bit decimal, 16-bit floating point.	
Threshold	0...**170**...255 0...**66**...100 % 0...**40000**...65535 -32768...**10000**...32767
This parameter sets a threshold for the relevant value range. You can define one display text for value content below the threshold and another display text for value content above the threshold. This parameter appears only for the feature: "Show text" for the data types: 8-bit decimal 8-bit percent, 16-bit decimal, 16-bit floating point and, if in the "Number of steps" parameter - "one threshold" was set.	
Upper threshold	0...**170**...255 0...**66**...100 % 0...**40000**...65535 -32768...**10000**...32767
This parameter sets an upper threshold for the relevant value range. You can define a display text for value content above the upper threshold and another display text for value content within the upper and lower thresholds, plus a display text for value content below the lower threshold. This parameter appears only for the feature: "Show text" for the data types: 8-bit decimal 8-bit percent, 16-bit decimal, 16-bit floating point and, if in the "Number of steps" parameter - "two thresholds" was set.	

Parameter	Setting
Lower threshold	0...**85**...255 0...**33**...100 % 0...**20000**...65535 -32768...**-10000**...32767
This parameter sets a lower threshold for the relevant value range. You can define a display text for value content above the upper threshold and another display text for value content within the upper and lower thresholds, plus a display text for value content below the lower threshold. This parameter appears only for the feature: "Show text" for the data types: 8-bit decimal 8-bit percent, 16-bit decimal, 16-bit floating point and, if in the "Number of steps" parameter - "two thresholds" was set.	
Text language 1	
Use this entry field to enter an 11-character descriptive text for the Show text feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see section 7.6).	
Text language 2	
Use this entry field to enter an 11-character descriptive text for the Show text feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see section 7.6).	
Text language 3	
Use this entry field to enter an 11-character descriptive text for the Show text feature. This descriptive text is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see section 7.6).	

Text message when Off (0)

Parameter	Setting
Text language 1	

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Parameter	Setting
Use this entry field to enter an 8-character display text for the value content = 0 of a 1-bit object (see section 4.11). This display text is shown on the display in the third line (C'). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only for the feature: "Show text" for the data type: 1 bit.	
Text language 2	
Use this entry field to enter an 8-character display text for the value content = 0 of a 1-bit object (see section 4.11). This display text is shown on the display in the third line (C'). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only for the feature: "Show text" for the data type: 1 bit.	
Text language 3	
Use this entry field to enter an 8-character display text for the value content = 0 of a 1-bit object (see section 4.11). This display text is shown on the display in the third line (C'). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only for the feature: "Show text" for the data type: 1 bit.	

Text message when On (1)

Parameter	Setting
Text language 1	
Use this entry field to enter an 8-character display text for the value content = 1 of a 1-bit object (see section 4.11). This display text is shown on the display in the third line (C'). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only for the feature: "Show text" for the data type: 1 bit.	
Text language 2	

Parameter	Setting
Use this entry field to enter an 8-character display text for the value content = 1 of a 1-bit object (see section 4.11). This display text is shown on the display in the third line (C'). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only for the feature: "Show text" for the data type: 1 bit.	
Text language 3	
Use this entry field to enter an 8-character display text for value content = 1 of a 1-bit object (see section 4.11). This display text is shown on the display in the third line (C'). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only for the feature: "Show text" for the data type: 1 bit.	

Text message for upper area
(above or equal threshold)

Parameter	Setting
Text language 1, 2, 3	
Use this entry field to enter an 8-character display text for value content ≥ the upper threshold (see section 4.11). This display text is shown on the display in the third line (C'). The entered text corresponds in each case to control languages 1, 2 and 3. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only for the feature: "Show text" for the data types: 8-bit decimal, 8-bit percent, 16-bit decimal, 16-bit floating point and if “number of steps” was set to “two thresholds”.	

Text message for middle area
(value between thresholds)

Parameter	Setting
Text language 1, 2, 3	

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Parameter	Setting
Use this entry field to enter an 8-character display text for value content < the upper threshold and > the lower threshold (see section 4.11). This display text is shown on the display in the third line (C'). The entered text corresponds in each case to control languages 1, 2 and 3. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only for the feature: "Show text" for the data types: 8-bit decimal, 8-bit percent, 16-bit decimal, 16-bit floating point and if "number of steps" was set to "two thresholds".	

Text message for lower area
(value below lower threshold)

Parameter	Setting
Text language 1, 2, 3	
Use this entry field to enter an 8-character display text for value content < the lower threshold (see section 4.11). This display text is shown on the display in the third line (C'). The entered text corresponds in each case to control languages 1, 2 and 3. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only for the feature: "Show text" for the data types: 8-bit decimal, 8-bit percent, 16-bit decimal, 16-bit floating point and if "number of steps" was set to "two thresholds".	

Parameter	Setting
Indication	(Text message via object)
The value content received via the 14-byte object is shown directly on the display in the third line (C`). This is an information bit. This parameter appears only for the feature: "Show text" for the data type: Text message via object (14 bytes)	
Symbol	Text
A corresponding symbol is shown for the "Show text" features group (see section 4). The features group is shown on the display in the fourth line (K, Figure 3). This is an information bit.	
Block function via comm. object	**no** yes, if blocking object = 0 yes, if blocking object = 1 block always

Parameter	Setting
This parameter determines whether and under what condition the display feature operation is to be blocked via the blocking object when the button is pressed. Because this feature works as a pure display feature and no commands are triggered via the buttons (G and G`), the blocking feature remains non-operational.	

9.5.1 Communication objects display features

Switching:

Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, switching	On/Off	1 bit	KÜ
If either of the buttons (G or G') is pressed, an "On" or "Off" switching telegram is sent via the corresponding object. With the Change switching feature, an "On" switching telegram is sent via the corresponding object and an "Off" switching telegram is sent the next time it is pressed. With each additional press, the inverted object value is sent in each case (Toggle feature). With the feature Press = On/release = Off, when the button is pressed, an "On" switching telegram is sent via the corresponding object and on releasing the button an "Off" telegram is sent. With the feature Press = Off/release = On, when the button is pressed, an "Off" switching telegram is sent via the corresponding object and on releasing the button an "On" telegram is sent.				

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Obj	Object name	Feature	Type	Flag
21, 27, 33, 39, 45, 51, 57, 63	1-8. function, switching	Status	1 bit	KSÜA
Depending on this object's received value, the value (0/1) is shown as the status of the Switching feature in the third line of the display.				
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, switching	On/Off	1 bit	KÜ
This object sends the switching telegram "On" or "Off", which was triggered at a set time via the weekly timer (see section 8.1)				

Switching, dimming:

Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, switching	On/Off	1 bit	KÜ
If either of the buttons (G or G') is tapped, an "On" or "Off" switching telegram is sent via the object. Tapping a button produces a Switch on command and holding the button down a Dimming command for the lighting.				
21, 27, 33, 39, 45, 51, 57, 63	1-8. function, dimming	Brighter/darker	4 bits	KÜ
If either of the buttons (G or G') is held down, the object sends a "brighter" or "darker" telegram. Tapping a button produces a Switch on command and holding the button down a Dimming command for the lighting.				
22, 28, 34, 40, 46, 52, 58, 64	1-8. function, dimmer status	Value	1 bytes	KLSÜA
Depending on this object's received value, the value (0 to 100%) is shown in the third line of the display as the status of the Dimming feature.				
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, dim value	Value	1 byte	KÜ
This object sends the switching telegram "On" or "Off", which was triggered at a set time via the weekly timer (see section 8.1)				

Switching with force control:

Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function left, forced control	forced Off/inactive	2 bits	KSÜ
Tapping the button (G) sends an "Override Off" (binary value = 10) telegram via the 2-bits override object. Holding down the button (G) disables the override with the binary value "00". Tapping a button produces an Enable command and holding the button down a Disable command for override.				

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Obj	Object name	Feature	Type	Flag
21, 27, 33, 39, 45, 51, 57, 63	1-8. function right, forced control	forced On/inactive	2 bits	KSÜ
Tapping the button (G') sends an "Override On" (binary value = 11) telegram via the 2-bits override object. Holding down the button (G') disables the override with the binary value "01". Tapping a button produces an Enable command and holding the button down a Disable command for override.				
22, 28, 34, 40, 46, 52, 58, 64	1-8. function, forced control	Status (Actuator)	1 bit	KSÜA
Depending on this object's received value, the value (0/1) is shown in the third line of the display as the status of the switching channel.				
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, forced control	forced On/Off/ inactive	2 bits	KÜ
This object sends the switching telegram "Override On" or "Override Off", which was triggered at a set time via the weekly timer (see section 8.1)				

Sun protection:

Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, slat	stop/open/close	1 bit	KÜ
If either of the buttons (G or G') is tapped, a "Stop/Slat up" or "Stop/Slat down" command is sent via the object. Holding down the button produces a command to move the solar protection and tapping a command to stop the movement or adjust the slats by one step.				
21, 27, 33, 39, 45, 51, 57, 63	1-8. function, shutter	up/down	1 bit	KÜ
If either of the buttons (G or G') is held down, the object sends an "Up" or "Down" solar protection movement command. Holding down the button produces a command to move the solar protection and tapping a command to stop the movement or adjust the slats by one step.				
22, 28, 34, 40, 46, 52, 58, 64	1-8. function, shutter status	Status	1 byte	KSÜA
Depending on this object's received value, the value (0 to 100%) is shown in the third line of the display as the status of the hanging height.				
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, shutter position	Position	1 byte	KÜ

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Obj	Object name	Feature	Type	Flag
This object sends the value for the blind position (hanging height) (0 to 100%), which was triggered at a set time via the weekly timer (see section 8.1)				

Roller shutter:

Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, roller shutter	stop	1 bit	KÜ
If either of the buttons (G or G') is tapped, a "Stop" command is sent via the object. Holding the button down generates a command to move the shutter and tapping it a command to stop the movement.				
21, 27, 33, 39, 45, 51, 57, 63	1-8. function, roller shutter	up/down	1 bit	KÜ
If either of the buttons (G or G') is held down, the object sends an "Up" or "Down" shutter movement command. Holding the button down generates a command to move the shutter and tapping it a command to stop the movement.				
22, 28, 34, 40, 46, 52, 58, 64	1-8. function, roller shutter	Status	1 byte	KSÜA
Depending on this object's received value, the value (0 to 100%) is shown in the third line of the display as the status of the hanging height.				

Obj	Object name	Feature	Type	Flag
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, roller shutter	Position	1 byte	KÜ
This object sends the value for the shutter position (hanging height) (0 to 100%), which was triggered at a set time via the weekly timer (see section 8.1)				

8-bit scene recall / save:

Obj	Object name	Feature	Type	Flag
100	1...8. function, scene	scene number	1 byte	KÜ
Pressing the button (G') sends an 8-bit scene with the set scene number via the object. Holding down the button (G) sends an 8-bit scene with the set scene number via the object. The scene numbers (1...64) are stored in bits 0 to 5 of the 8-bit object (1 to 64). The highest value bit 7 states whether the scene is recalled (bit = 0) or programmed (bit = 1). Bit 6 is not used.				
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, Scene	scene number	1 byte	KÜ
This object sends the value for the scene number to be called up (1 to 64) which was triggered at a set time via the weekly timer (see section 8.1)				

1-bit scene recall / save:

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Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, scenes 1/2	recall	1 bit	KÜ
Pressing the button (G') calls up, via the object, scene 1 with a "0" telegram and scene 2 with a "1" telegram.				
21, 27, 33, 39, 45, 51, 57, 63	1-8. function, scenes 1/2	save	1 bit	KÜ
Holding down the button (G') calls up, via the object, scene 1 with a "0" telegram and scene 2 with a "1" telegram.				
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, scene	recall	1 bit	KÜ
This object sends the value for the scene number (1/2) to be called up, which was triggered at a set time via the weekly timer (see section 8.1)				

Send fixed/variable values:

Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, 8-bit value	Value	1 byte	KÜ
Pressing the button (G`) or (G` and G) sends decimal values between 0 and 255, firmly set, configured or set on the display via the corresponding object.				

Obj	Object name	Feature	Type	Flag
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, 8-bit value	Value	1 byte	KÜ
This object sends values between 0 and 255 which were triggered at a set time via the weekly timer (see section 8.1)				
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, 8-bit value	Value	1 byte	KÜ
Pressing the button (G`) or (G` and G) sends percentage values between 0 and 100%, firmly set, configured or set on the display via the corresponding object.				
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, 8-bit value	Value	1 byte	KÜ
This object sends values between 0 and 100% which were triggered at a set time via the weekly timer (see section 8.1)				

Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, 16-bit value	Value	2 byte	KÜ
Pressing the button (G`) or (G` and G) sends decimal values between 0 and 65535, firmly set, configured or set on the display via the corresponding object.				

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Obj	Object name	Feature	Type	Flag
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, 16-bit value	Value	2 byte	KÜ
This object sends values between 0 and 65535 which were triggered at a set time via the weekly time switch (see section 8.1)				
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, temperature	Value	2 bytes	KÜ
Pressing the button (G`) or (G` and G) sends temperature values between -30°C and +48°C, firmly set, configured or set on the display via the corresponding object.				
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, temperature	Value	2 bytes	KÜ
This object sends values between -30°C and +48°C which were triggered at a set time via the weekly timer (see section 8.1)				
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, brightness	Value	2 bytes	KÜ
Pressing the button (G`) or (G` and G) sends set brightness values between 0 and 100,000 lux, firmly set, configured or set on the display via the corresponding object.				

Obj	Object name	Feature	Type	Flag
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, brightness	Value	2 bytes	KÜ
This object sends values between 0 and 100000 lux which were triggered at a set time via the weekly time switch (see section 8.1)				
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, wind speed	Value	2 bytes	KÜ
Pressing the button (G`) or (G` and G) sends set wind speed values between 0 and 35 m/s, firmly set, configured or set on the display via the corresponding object.				
24, 30, 36, 42, 48, 54, 60, 66	1-8. scheduler, wind speed	Value	2 bytes	KÜ
This object sends values between 0 and 35 m/s which were triggered at a set time via the weekly timer (see section 8.1)				

Display value:

Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, value	On/Off	1 bit	KSÜA

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Obj	Object name	Feature	Type	Flag
A 1-bit value, showing the value ("0" or "1") contained in it in the third line of the display, is received via this object.				
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, value	Value	1 bytes	KSÜA
A 1 Byte decimal value, showing the value contained in it and the set scaling in the third line of the display, is received via this object.				
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, value	Value	1 bytes	KSÜA
A 1 Byte percentage value, showing the value contained in it and the set scaling in the third line of the display, is received via this object.				
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, value	Value	2 bytes	KSÜA
A 16-bit decimal value, showing the value contained in it and the set scaling in the third line of the display, is received via this object.				
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, value	Value	2 bytes	KSÜA
A 16-bit floating point value, showing the value in the third line of the display, depending on the value contained in it and the set scaling, is received via this object.				

Display text:

Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, text assignment	On/Off	1 bit	KSÜA
A 1-bit value, showing the set text in the third line of the display, depending on the value ("0" or "1") contained in it, is received via this object.				
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, text assignment	Value	1 bytes	KSÜA
A 1-byte decimal value, showing the set text in the third line of the display, depending value contained in it and the set threshold.				
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, text assignment	Value	1 bytes	KSÜA
A 1-byte percentage value, showing the set text in the third line of the display, depending on the value contained in it and the set threshold, is received via this object.				
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, text assignment	Value	2 bytes	KSÜA
A 16-bit decimal value, showing the set text in the third line of the display, depending on the value contained in it and the set threshold, is received via this object.				

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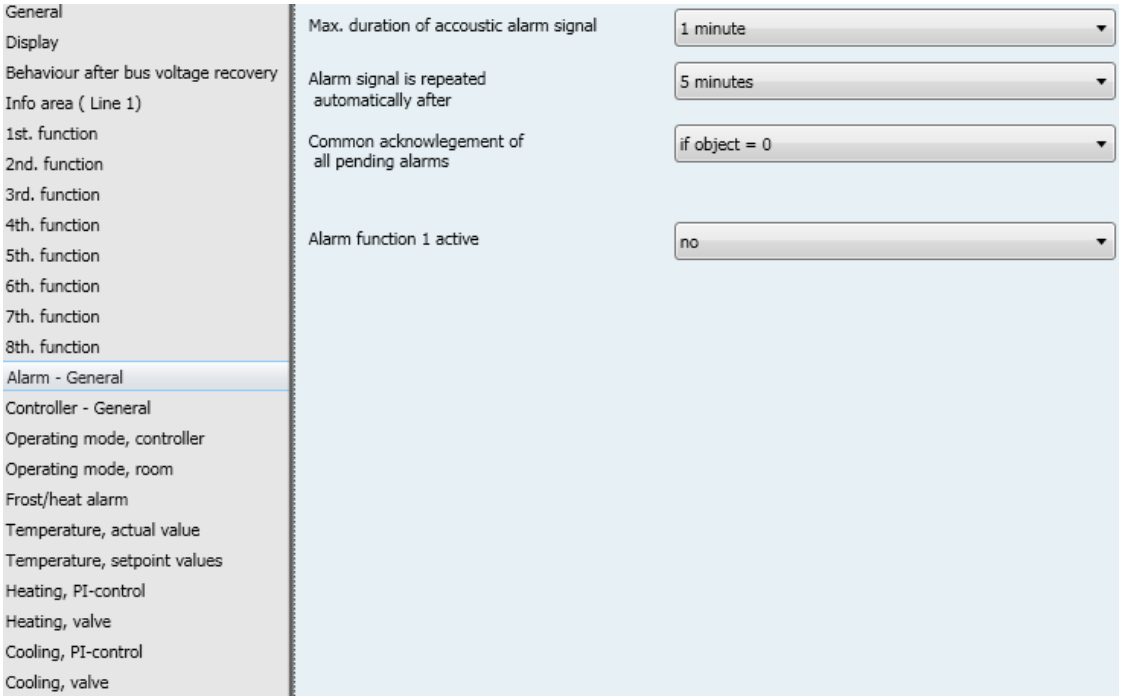
Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, text assignment	Floating value	2 bytes	KSÜA
A 16-bit floating point value, showing the set text in the third line of the display, depending on the value contained in it and the set threshold, is received via this object.				

Obj	Object name	Feature	Type	Flag
20, 26, 32, 38, 44, 50, 56, 62	1-8. function, text message	text string	14 bytes	KSÜA
A 14-byte value is received via this object and shown directly in the third and fourth line of the display, depending on the value contained in it.				

9.6 Alarm parameters – General



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Parameter	Setting
Max. duration of acoustic alarm signal	10 seconds 30 seconds **1 minute** 2 minutes 3 minutes 4 minutes 5 minutes 6 minutes 10 minutes 15 minutes 20 minutes 25 minutes 30 minutes
Use this parameter to set the time after which the audio signal is switched off. The alarm tone will sound for this set time if the alarm is not cleared.	
Alarm signal is repeated automatically after	10 seconds 30 seconds 1 minute 2 minutes 3 minutes 4 minutes **5 minutes** 6 minutes 10 minutes 15 minutes 20 minutes 25 minutes 30 minutes
Use this parameter to set the time after which the audio signal is switched off after an automatic switch off or restarts after an acknowledgement/mute switch. This set time is effective only if, in the subsequent setting of the individual alarms, the setting "alarm tone repeated constantly" is selected.	

Parameter	Setting
Common acknowledgment of all pending alarms	**If Object = 0** If Object = 1
All outstanding alarms can be confirmed with a collective acknowledgement via a 1-bit communication object. This parameter sets whether all alarms are to be confirmed with value content "0" or "1".	

Parameter	Setting
Alarm function 1- 8 active	**no** yes
Depending on the configuration, this parameter appears up to 8 times. With the setting "No", no alarms are shown for configuration. With the setting "Yes", additional parameter windows for configuring the individual alarms are shown.	

9.6.1 Alarm communication objects – General

Obj	Object name	Feature	Type	Flag
101	Alarm clearing (all)	clear with 0/(1)	1 bit	KLSÜ
This object produces a collective clearing of all alarms via the bus. Depending on configuration, the confirmation content can be "0" or "1".				

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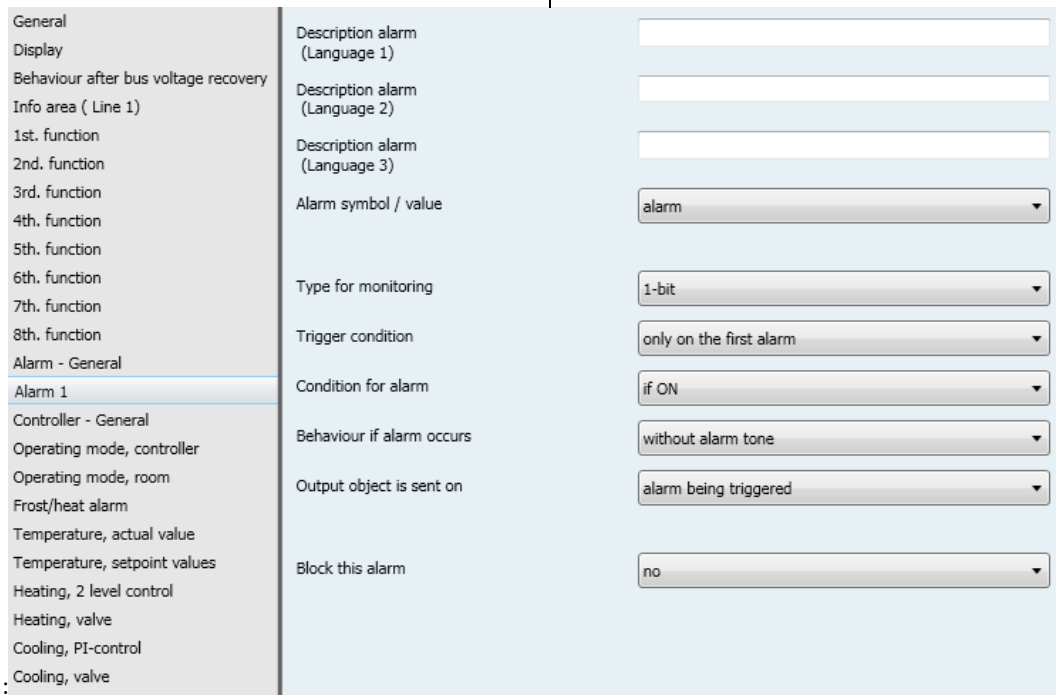
9.6.2 Alarm parameters

8 Alarms can be set:



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Parameter	Setting
Description Alarm (Language 1)	
Use this entry field to enter an 11-character descriptive text for the alarm. This alarm name is shown on the display in the second line (C). The entered text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see section 7.6).	
Description Alarm (Language 2)	
Use this entry field to enter an 11-character descriptive text for the alarm. This alarm name is shown on the display in the second line (C). The entered text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see section 7.6).	
Description Alarm (Language 3)	
Use this entry field to enter an 11-character descriptive text for the alarm. This alarm name is shown on the display in the second line (C). The entered text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see section 7.6).	
Alarm symbol/value	[Value] **Alarm** Warning Window Wind Temperature
This parameter selects an appropriate symbol for the alarm. This will be shown on the display in the center of the third line (C') in an alarm page, if an alarm is triggered. Alternatively, the alarm value can also be indicated. (see section 5.1).	
Type for monitoring	**1 bit** 8-bit decimal 8-bit percent 16-bit decimal 16-bit float
This parameter selects the data type to be received, the object content for alarm triggering of which is analyzed via threshold(s).	

Parameter	Setting
Trigger condition	on every alarm **only on the first alarm**
With the setting "for any alarm", an alarm is triggered whenever the value of the trigger object (=) is identical to the configured threshold. With the setting "only on the first alarm", an alarm is triggered once whenever the value of the trigger object (=) is identical to the configured threshold. This parameter appears only if in the setting "Type for monitoring" - "1 bit" was selected.	
Condition for alarm	if Off **if On**
This parameter sets at which value of the alarm trigger object an alarm should be activated. This parameter appears only if in the setting "value type for monitoring" - "1 bit" was selected.	
Number of thresholds	One threshold **Two thresholds**
This parameter determines the number of thresholds. These thresholds define the alarm triggering conditions. (see section 5.2). This parameter appears only if "8-bit decimal", "8-bit percent", "16-bit decimal" or "16-bit floating point" was selected in the setting "Type for monitoring".	
Alarm if value	equals threshold (always) **> threshold** < threshold ≥ threshold ≤ threshold equals threshold (once) Threshold exceeded (leading edge) Threshold not reached (trailing edge)

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Parameter	Setting
This parameter sets the comparison operator, referred to the set threshold. With the setting "equals threshold (always)", an alarm is triggered whenever the value of the trigger object (=) is identical to the configured threshold. With the setting "> threshold", an alarm is triggered whenever the value of the trigger object is > the configured threshold. With the setting "< threshold", an alarm is triggered whenever the value of the trigger object is < the configured threshold. With the setting "≥ threshold", an alarm is triggered whenever the value of the trigger object is ≥ the configured threshold. With the setting "≤ threshold", an alarm is triggered whenever the value of the trigger object is ≤ the configured threshold. With the setting "equals threshold (once)", an alarm is triggered once whenever the value of the trigger object (=) is identical to the configured threshold. With the setting " Threshold exceeded (leading edge)", an alarm is triggered once whenever the value of the trigger object is > the configured threshold. With the setting "Threshold not reached (trailing edge)", an alarm is triggered once whenever the value of the trigger object is < the configured threshold (see section 5.2). This parameter appears only if "8-bit decimal", "8-bit percent", "16-bit decimal" or "16-bit float" was selected in the setting "Type for monitoring" and a threshold was set.	
Alarm if value	**beyond or equal of thresholds** between or equal of thresholds
This parameter sets the comparison operator, referred to the set thresholds. With the setting "≥ threshold", an alarm is triggered whenever the value of the trigger object is ≥ the configured threshold. With the setting "≥ thresholds", an alarm is triggered whenever the value of the trigger object is within or equal to the configured threshold (see section 5.2). This parameter appears only if "8-bit decimal", "8-bit percent", "16-bit decimal" or "16-bit floating point" was selected in the setting "value type for monitoring" and two thresholds were set.	
Threshold	0...**127**...255 0...**50**...100 % 0...**30000**...65535 -32768...**0**...32767

Parameter	Setting
This parameter sets a threshold for the alarm condition. This parameter appears only if "8-bit decimal", "8-bit percent", "16-bit decimal" or "16-bit floating point" was selected in the setting "value type for monitoring" and a threshold was set.	
Upper threshold	0...**170**...255 0...**66**...100 % 0...**40000**...65535 -32768...**10000**...32767
This parameter sets an upper threshold for the alarm condition. This parameter appears only if "8-bit decimal", "8-bit percent", "16-bit decimal" or "16-bit floating point" was selected in the setting "Type for monitoring" and two thresholds were set.	
Lower threshold	0...**85**...255 0...**33**...100 % 0...**20000**...65535 -32768**...-10000**...32767
This parameter sets a lower threshold for the alarm condition. This parameter appears only if "8-bit decimal", "8-bit percent", "16-bit decimal" or "16-bit floating point" was selected in the setting "Type for monitoring" and two thresholds were set.	
Behaviour if alarm occurs	**Without alarm tone** Alarm tone once Alarm tone repeated continuously
This parameter sets whether and how the triggering of an alarm should be confirmed audibly. With the setting "Without alarm tone", no audio signal is reproduced when the alarm is triggered. The alarm is displayed noiselessly on the display. With the setting "Alarm tone once", a one-time alarm tone is reproduced for a given, set time when the alarm is triggered. With the setting "Alarm tone repeated continuously", an alarm tone is reproduced for a given, set time when the alarm is triggered. After this alarm tone, the alarm message is displayed noiselessly for a given set time until the audio tone is emitted again.	

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Parameter	Setting
Output object is sent on	confirmation **Alarm being triggered** Alarm being triggered (with alarm text)
The "Confirmation" setting sets the value of the output object to a configurable value "1" or "0" and sends this after an alarm acknowledgement. The "Alarm being triggered" setting sets the value of the alarm output object for triggering the alarm to "1" and sends this after an alarm is triggered. The setting "Alarm being triggered (with alarm text)" sets the alarm output object value to "1" and sends this after an alarm is triggered and simultaneously transfers an alarm message via a 14-byte value via the bus.	
Object value after alarm confirmation	**Off (0)** On (1)
This parameter defines which value in the object should be sent after a confirmation, 1 = Yes). This parameter appears only with the "Output object will be sent on" "Confrmation"	
Alarm text to be sent [Language 1]	
You can enter an alarm text with 11 characters. If the alarm condition is met, an alarm is triggered and this text is sent via the bus (14-byte object). The entered alarm text corresponds to control language 1. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only with the "Output object is sent on" "Alarm being triggered (with alarm text) ".	
Alarm text to be sent [Language 2]	
You can enter an alarm text with 11 characters. If the alarm condition is met, an alarm is triggered and this text is sent via the bus (14-byte object). The entered alarm text corresponds to control language 2. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only with the "Output object is sent on" "Alarm being triggered (with alarm text) ".	

Parameter	Setting
Alarm text to be sent [Language 3]	
You can enter an alarm text with 11 characters. If the alarm condition is met, an alarm is triggered and this text is sent via the bus (14-byte object). The entered alarm text corresponds to control language 3. The control language is set directly via the system settings or via a communication object (see section 7.6). This parameter appears only with the "Output object is sent on" "Alarm being triggered (with alarm text) ".	
Block this alarm	**no** yes, if object = 0 yes, if object = 1
This parameter determines whether and under what condition signaling of the alarm via the blocking object is to be suppressed.	

9.6.3 Alarm communication objects

Obj	Object name	Feature	Type	Flag
68, 72, 76, 80, 84, 88, 92, 96	1-8 Alarm, monitored value	On/Off	1 bit	KLSÜA
The value content of these objects is compared with a trigger condition. If the condition is met, an alarm is triggered.				
68, 72, 76, 80, 84, 88, 92, 96	1-8 Alarm, monitored value	Value	1 bytes	KLSÜA
The value content (0 to 255) of these objects is compared with a trigger condition. If the condition is met, an alarm is triggered.				

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Obj	Object name	Feature	Type	Flag
68, 72, 76, 80, 84, 88, 92, 96	1-8 Alarm, monitored value	Value	1 bytes	KLSÜA
The value content (0 to 100%) of these objects is compared with a trigger condition. If the condition is met, an alarm is triggered.				
68, 72, 76, 80, 84, 88, 92, 96	1-8 Alarm, monitored value	Value	2 bytes	KLSÜA
The value content (0 to 65535) of these objects is compared with a trigger condition. If the condition is met, an alarm is triggered.				
68, 72, 76, 80, 84, 88, 92, 96	1-8 Alarm, monitored value	Floating point value	2 bytes	KLSÜA
The value content (-32768 to 32767) of these objects is compared with a trigger condition. If the condition is met, an alarm is triggered.				
70, 74, 78, 82, 86, 90, 94, 98	1-8 Alarm confirmation, output	0 = alarm cleared/ 1 = alarm cleared	1 bit	KÜ
If, after an alarm has been triggered, this is confirmed, the value of this object is set to "1" or "0" and sent. This value content is configurable. This object appears only with the "Output object is sent on" "Confirmation" parameter selection.				

Obj	Object name	Feature	Type	Flag
70, 74, 78, 82, 86, 90, 94, 98	1-8 Alarm, output	1 = Alarm active	1 bit	KÜ
If the alarm condition was met and thus an alarm was triggered, the value of this object is set to “1” and sent. This object appears only with the ""Output object is sent on" "Alarm being triggered" parameter selection.				
69, 73, 77, 81, 85, 89, 93, 97	1-8 Alarm, Text message	Text string	14 bytes	KLÜ
If the alarm condition was met and an alarm was therefore triggered, this object sends a configured alarm text via the bus. This object appears only with the "Output object is sent on" "Alarm being triggered (with alarm text)” parameter selection.				
71, 75, 79, 83, 87, 91, 95, 99	1-8 Alarm, blocking	block/enable	1 bit	KSÜA
If the value "0" or "1" is received via this selection, no alarm is indicated for this alarm channel. The object value for blocking the alarm can be configured.				

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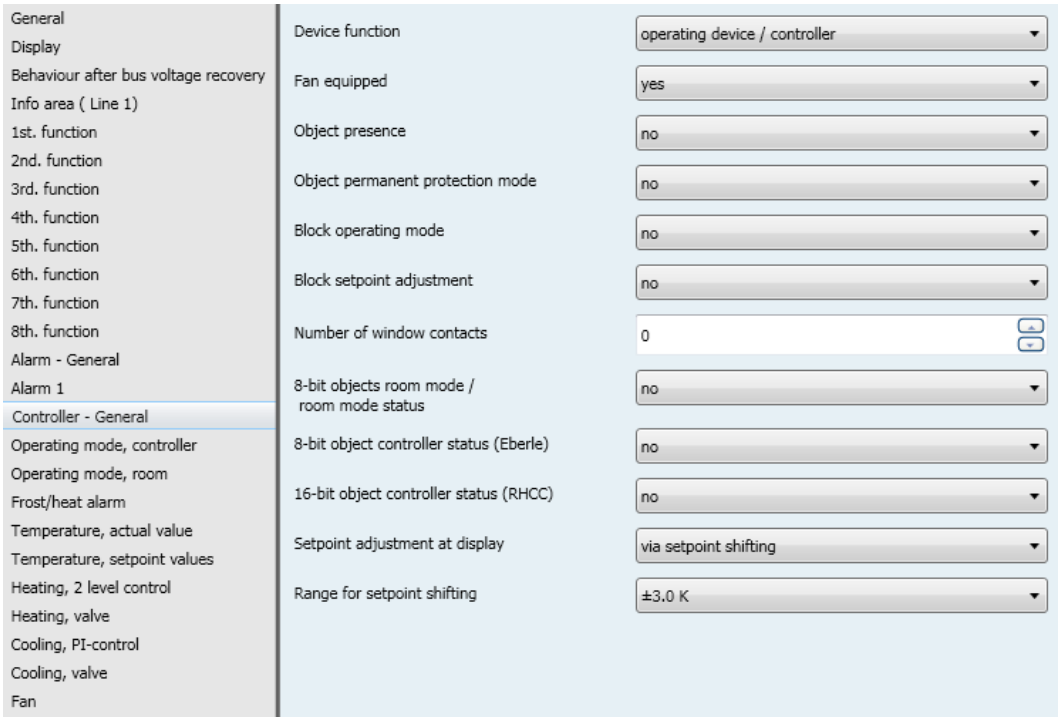
9.7 Room temperature controller/fan control parameters

9.7.1 Temperature controller parameters – General



Parameter	Setting
Device function	**Operating device/Controller** Operating device
The room controller can be configured as a controller or only as an operating device. All configuration parameters are listed below. The various parameters for configuration are offered based on this selection.	
Calculate setpoint	yes **no**
This parameter specifies whether the room temperature controller will be operated only as a user station or whether a nominal value calculation should also be performed. The relevant objects and parameters are then faded in. This parameter is only displayed if the device feature is set to "Operating device"	
Fan equipped	**yes** no

Parameter	Setting
This parameter specifies whether a fan is available. Additional "Fan" parameters for configuration are offered based on this selection.	
Object presence	yes **no**
This specifies whether the "Presence" communication object should be added or not. Messages via this communication object are analyzed to activate the Comfort room mode.	
Object permanent protection mode	yes **no**
This specifies whether the "Permanent Protection Mode" communication object should be added, through which the controller can be switched permanently to room "Protection Mode".	
Block operating mode	yes **no**

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Parameter	Setting
This parameter blocks local adjustment of the room temperature controller mode by the user.	
Block setpoint adjustment	yes **no**
This parameter blocks nominal value adjustment by the user.	
Number of window contacts	**0** 1 2 3 4
This parameter specifies how many windows and doors with a window contact the room contains. The relevant number of "Window x" communication objects, whose status is linked logically in the controller via an OR feature, is then added.	
Invert window contacts	yes **no**
This parameter inverts the window object value. (applies to all window contacts together).	
Reaction upon an open window	at once after 15 seconds **after 30 seconds** after 60 seconds
This parameter specifies the time for analyzing the window status. The "Window open" state means that the nominal room temperature value, depending on the setting, is set either immediately or only after 15 seconds or after 30 seconds or after 60 seconds to the frost protection value in heating mode and in cooling mode to the heating protection value and protection mode is activated. Setting a delay time means that not every brief opening of the window leads immediately to a change to protection mode.	
8-bit objects room mode/room mode status	yes **no**

Parameter	Setting
This specifies whether the two communication objects "Room mode" and "Room mode status" should be added. The value transferred with this object is used to set the room mode and to report the current room mode. The following classifications apply to this: 0 = Automatic mode 1 = Comfort mode 2 = Pre-comfort mode 3 = Economy mode 4 = Protection mode. Before switching from "manual mode" to a specific operating mode via this object the "automatic mode" has to be activated with the value "0".	
8-bit object controller status (Eberle)	yes **no**
This specifies whether the "Controller status (Eberle)" communication object should be added. You use this object to report the controller status and room mode. The following classifications apply to this: Bit 0: 1 = Comfort mode ON Bit 1: 1 = Pre-comfort mode ON Bit 2: 1 = Economy mode ON Bit 3: 1 = Protection mode ON Bit 4: 1 = Dewpoint alarm Bit 5: 1 = Heating mode, 0 = Cooling mode Bit 6: 1 = Controller On, 0 = Controller Off Bit 7: 1 = Frost/Heating alarm ON (based on value from bit 5)	
16-bit object controller status (RHCC)	yes **no**
This specifies whether the "16-bit controller status" communication object should be added. With this object the control and room mode can be set respectively their status can be reported. The following classifications apply to this: Bit 0: 1 = no error, 0 = error Bit 8: 1 = heating mode, 0 = cooling mode Bit 12: 1 = dewpoint alarm Bit 13: 1 = frost alarm Bit 14: 1 = heating alarm The Bits: 1, 2, 3, 4, 5, 6, 7, 9, 10, 11 and 15 are set to the value = 0.	
Setpoint adjustment at display	**direct in °C/°F** via setpoint shifting
This parameter specifies whether the nominal room temperature control value should be adjustable in °C/°F directly on the controller or whether the basic nominal value for the comfort temperature on the controller should be set movably to a lower or higher value.	

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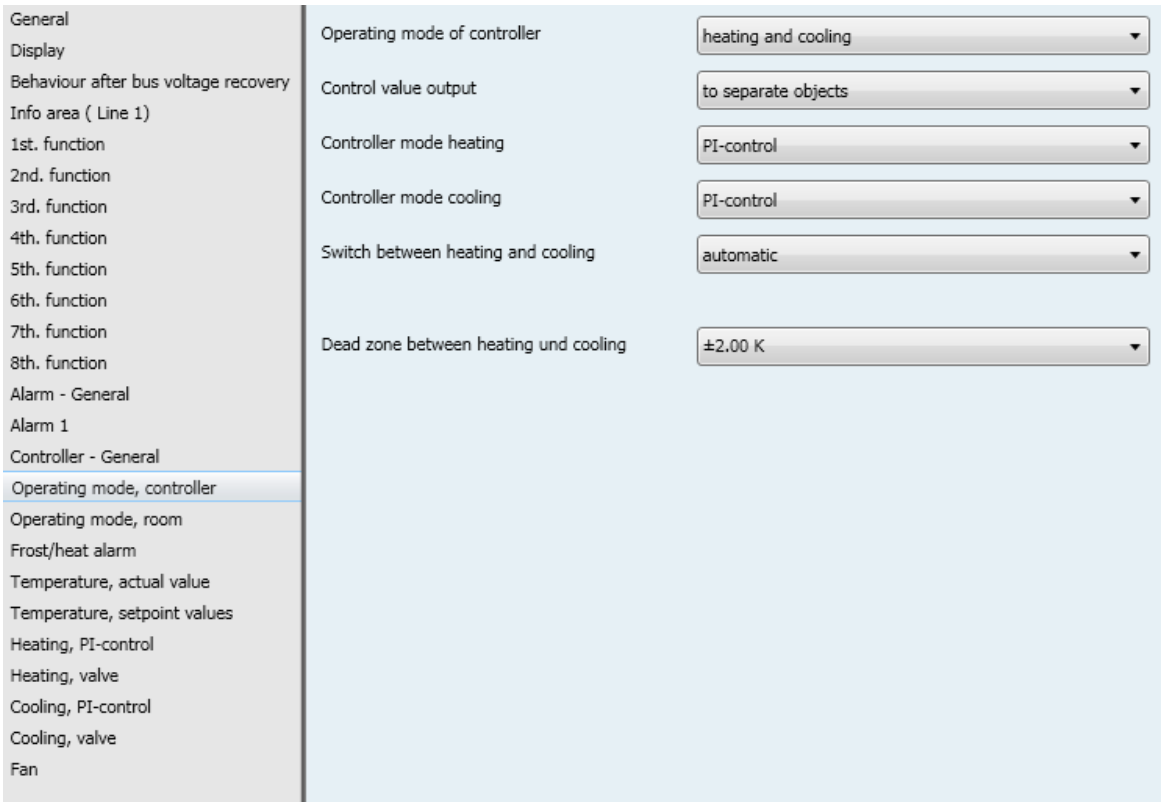
Parameter	Setting
Range for setpoint shifting	±1.0 K ±1.2 K ±1.5 K ±2.0 K **±3.0 K** ±4.0 K ±5.0 K
This parameter specifies by how many degrees Kelvin the basic nominal value can be shifted to a higher or lower temperature. This parameter is only displayed if the nominal value setting is specified as "via nominal value shift".	

9.7.2 Operating mode parameters, control



Parameter	Setting
Operating mode of controller	**Heating and cooling** Heating Cooling

Parameter	Setting
This specifies whether the room can be heated and/or cooled. This parameter is only displayed if the device feature is set to "Operating device/Controller".	

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Parameter	Setting
Control value output	to common object **to separate objects**
This parameter specifies whether the control parameter is output to one common or two separate objects. This parameter is only displayed if the device feature is set to "Operating device/Controller". This parameter is only visible if the "Controller mode" parameter is set to "Heating and cooling".	
Controller mode heating/cooling	Two level control **PI control**
This specifies how the heating/cooling is to be controlled. This parameter is only displayed if the device feature is set to "Operating device/Controller". This parameter is only visible if the "Controller mode" parameter is set to "Heating and cooling".	
Controller mode heating	Two level control **PI control**
This specifies how the heating is to be controlled. This parameter is only displayed if the device feature is set to "Operating device/Controller". This parameter is only visible if the "Controller mode" parameter is set to "Heating and cooling" and the "Control value output" parameter is set to "to separate objects". This parameter is only visible if the "Controller mode" parameter is set to "Heating".	
Controller mode cooling	Two level control **PI control**
This specifies how the cooling is to be controlled. This parameter is only displayed if the device feature is set to "Operating device/Controller". This parameter is only visible if the "Controller mode" parameter is set to "Heating and cooling" and the "Control value output" parameter is set to "to separate objects". This parameter is only visible if the "Controller mode" parameter is set to "Cooling".	
Switch between Heating and Cooling	**automatic** Via object 117 – Heating/Cooling

Parameter	Setting
The "Automatic" setting sends the heating or cooling mode status via the bus. The setting "Via object 117 – Heating/Cooling" must switch between heating and cooling modes via the bus. In 2-conductor systems, this object changes the control between heating and cooling modes via the bus. This parameter is only displayed if the device feature is set to "Operating device/Controller". This parameter is only visible if the "Controller mode" parameter is set to "Heating and cooling" and the "Control value output" parameter is set to "to separate objects". At the setting Control value output “on joint object” the heating or cooling mode must generally be preset via object 117.	
Dead zone between heating and cooling	±1,0 K ±1,5 K **±2,0 K** ±2,5 K ±3,0 K
This parameter specifies the dead zone between heating and cooling. The dead zone should be chosen big enough in order to avoid that an overshoot of the controller does not cause a switch of the controller operating mode. Otherwise the actual value of room temperature can deviate from the nominal value for comfort mode up (heating) or down (cooling) about maximum half the value of the symmetric dead zone. The dead zone is equivalently higher at the other operation modes (pre-comfort mode, Economy mode and heat/frost alarm). This parameter is only displayed if the device feature is set to "Operating device/Controller". This parameter is only visible if the device feature is set to "Operating device/Controller". This parameter is only visible if the "Controller mode" parameter is set to "Heating and cooling" and the "Control value output" parameter is set to "to separate objects"and the “Switch between Heating/Cooling” parameter is set to “automatic”.	

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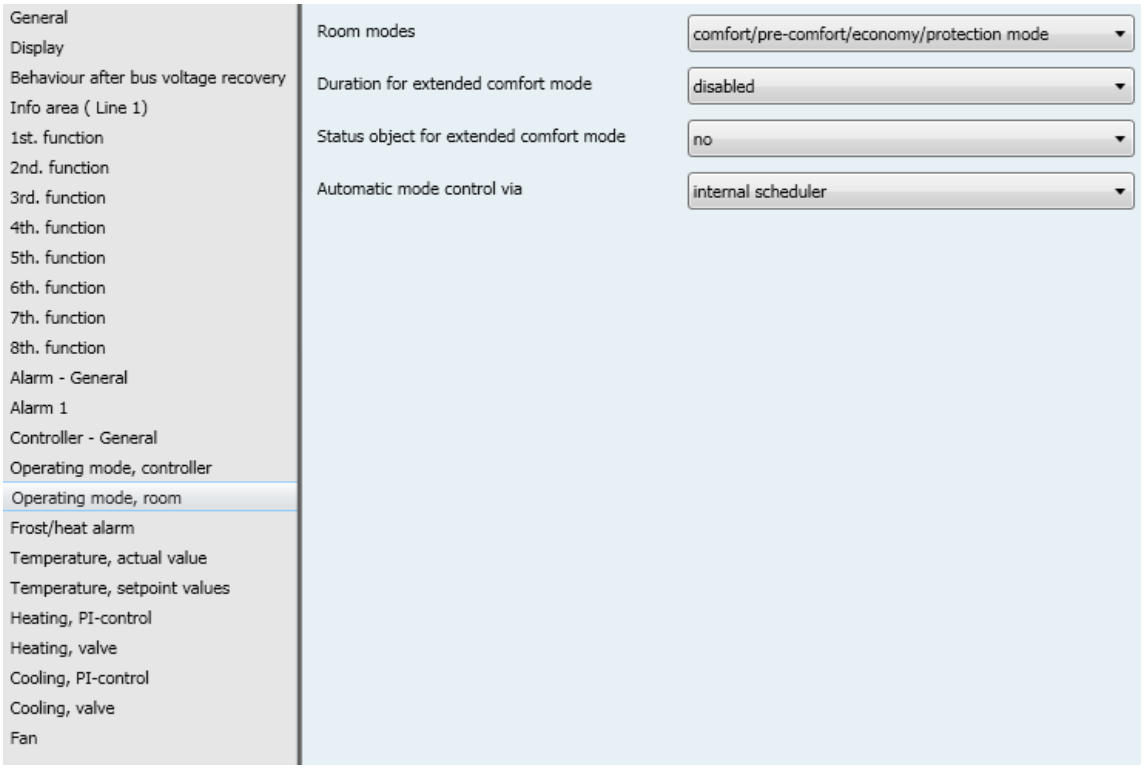
9.7.3 Operating mode parameter, room



Parameter	Setting
Room modes	Comfort/protection mode Comfort/Economy/Protection mode **Comfort/Pre-comfort/Economy/Protection mode**
This parameter specifies between which room modes there should be a distinction for room temperature control.	
Duration for extended comfort mode	**disabled** 10 minutes 15 minutes 20 minutes 30 minutes 45 minutes 60 minutes 90 minutes 120 minutes 240 minutes

Parameter	Setting
The comfort extension duration equals the value chosen here. If "Pre-comfort mode", "Economy mode" or "Protection mode" is activated and comfort extension is then activated at the room controller, then the time set here is switched from the "Pre-comfort mode", "Economy mode" or "Protection mode" into "Comfort mode".	
Status object for extended comfort mode	yes **no**
This specifies whether the "Comfort extension status" communication object should be added. This object reports that the controller is in comfort extension.	
Automatic mode control via	**internal scheduler** bus telegrams
This parameter specifies how automatic mode is set and in this the room modes. Commands from the other controller in each case are then ignored.	

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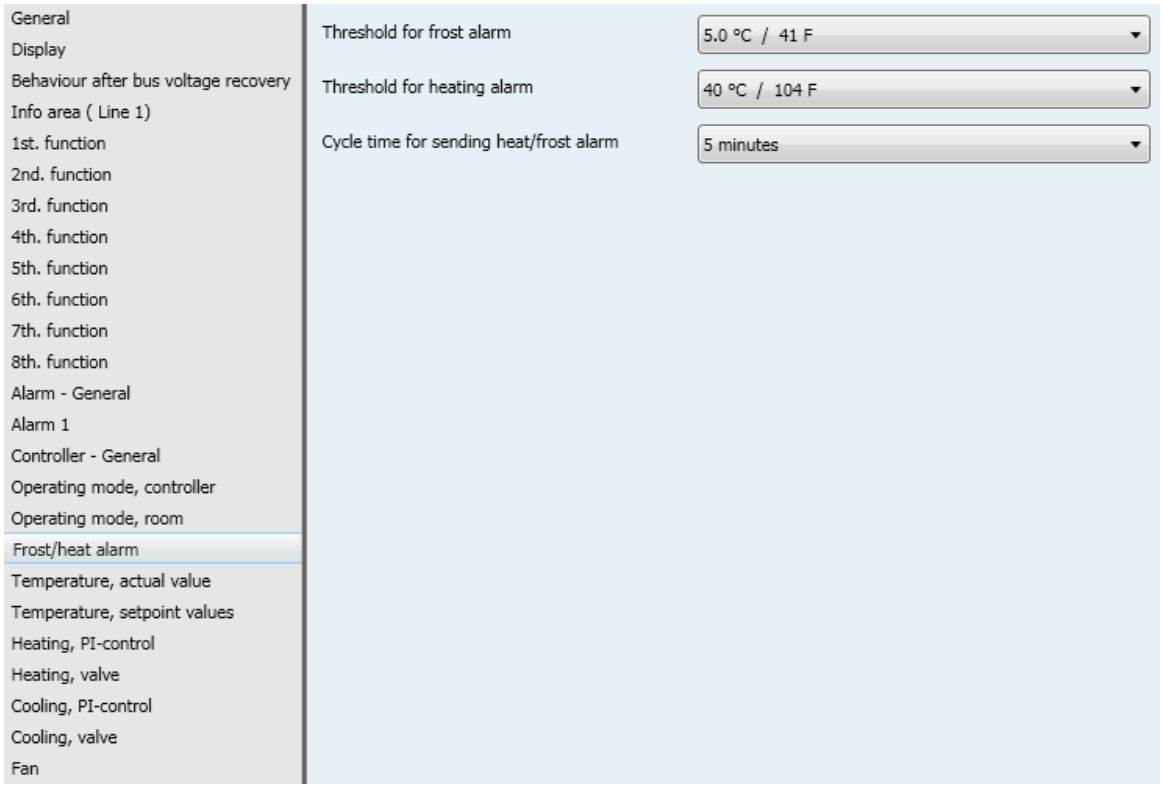
9.7.4 Frost/Heating alarm parameter



Parameter	Setting
Threshold for frost alarm	Not valid 0.0 °C 0.5 °C 1.0 °C 1.5 °C 2.0 °C 2.5 °C 3.0 °C 3.5 °C 4.5 °C **5.0 °C**
This parameter sets a threshold for a frost protection alarm. A corresponding alarm object is sent.	

Parameter	Setting
Threshold for heating alarm	Not valid 35°C 36°C 37°C 38°C 39°C **40°C** 41°C 42°C 43°C 44°C 45°C
This parameter sets a threshold for a heat alarm. A corresponding alarm object is sent.	
Cycle time for sending heat/frost alarm	**5**; 6; 7; 8; 9; 10 ; 12; 15; 17; 20; 25; 30; 40; 50; 60; 90; 120 minutes; disabled

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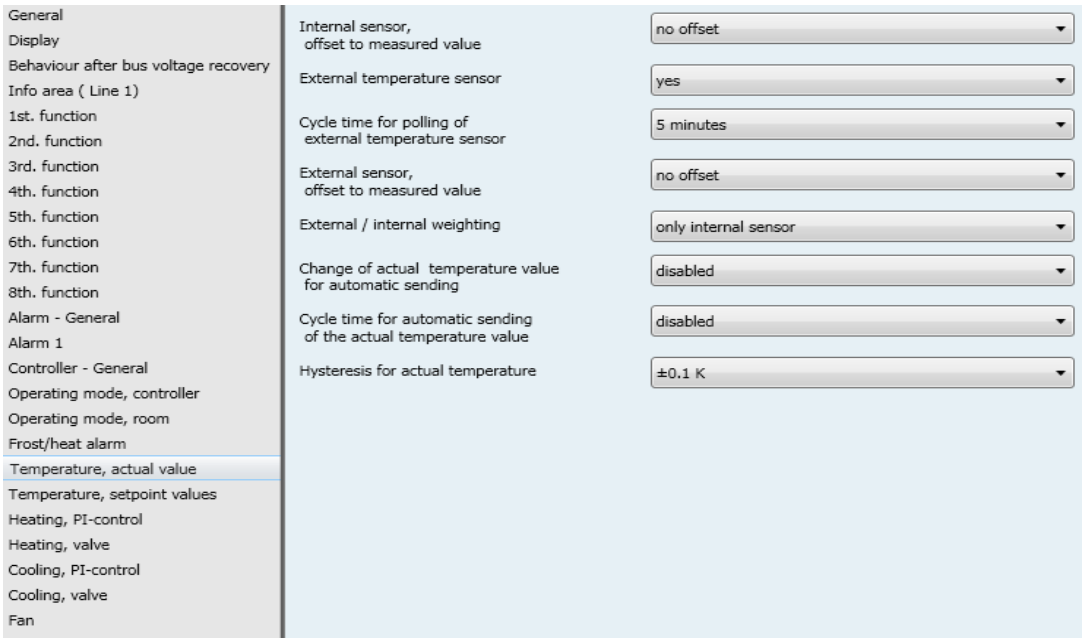
Parameter	Setting
In this case, the send interval time for sending frost and heat alarms is set jointly. In addition to automatic sending on changing, this sends the "Frost alarm" and "Heat alarm" object cyclically e.g. every 10 minutes.	

9.7.5 Temperature parameter, actual value



Parameter	Setting
Internal sensor, offset to measured value	**No offset** Min. -10.0K Max: +10.0K
You use the offset to compensate the measured value computed by the internal sensor for environmental factors (e.g. a cold wall).	
External temperature sensor	**yes** no
This specifies whether the room temperature is also measured at another point in the room. If this object is set to "Yes", then the communication object "Temperature, actual value external sensor" is complemented.	

Parameter	Setting
Cycle time for polling of external temperature sensor	**5 minutes** 10 minutes 15 minutes 20 minutes 25 minutes 30 minutes 40 minutes 50 minutes 60 minutes 90 minutes 120 minutes disabled
This specifies the time interval in which the external measured value should be polled.	

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Parameter	Setting
External sensor, offset to measured value	**No offset** Min. -10.0K Max: +10.0K
You use the offset to compensate the measured value received by the external sensor for environmental factors (e.g. a cold wall).	
External/internal weighting	only external sensor 90%/10% 80%/20% 70%/30% 60%/40% 50%/50% 40%/60% 30%/70% 20%/80% 10%/90% **only internal sensor**
This parameter specifies in what ratio (weighting) the measured values from the external and internal sensors are used to compute the current actual value. The first value corresponds to the external sensor weighting. The weighted value is used internal for the regulation and for the frost or heat alarm.	
Change of actual temperature value for automatic sending	0.1 K 0.2 K 0.3 K 0.4 K 0.5 K 0.6 K 0.7 K 0.8 K 0.9 K 1.0 K 1.2 K 1.5 K 1.8 K 2.0 K 2.5 K 3.0 K 3.5 K 4.0 K 4.5 K 5.0 K **disabled**
This specifies by how much the actual value should have changed for it to be resent automatically.	

Parameter	Setting
Cycle time for automatic sending of the actual temperature value	5 minutes 10 minutes 15 minutes 20 minutes 25 minutes 30 minutes 40 minutes 50 minutes 60 minutes 90 minutes 120 minutes **disabled**
This specifies the time interval at the end of which the actual value, as well as automatic sending on change, should be resent.	
Hysteresis for actual temperature	±0.0K **±0.1K** ±0.2K ±0.3K ±0.4K ±0.5K ±0.7K
This parameter can specify a hysteresis. This prevents minor temperature fluctuations constantly delivering new actual values.	

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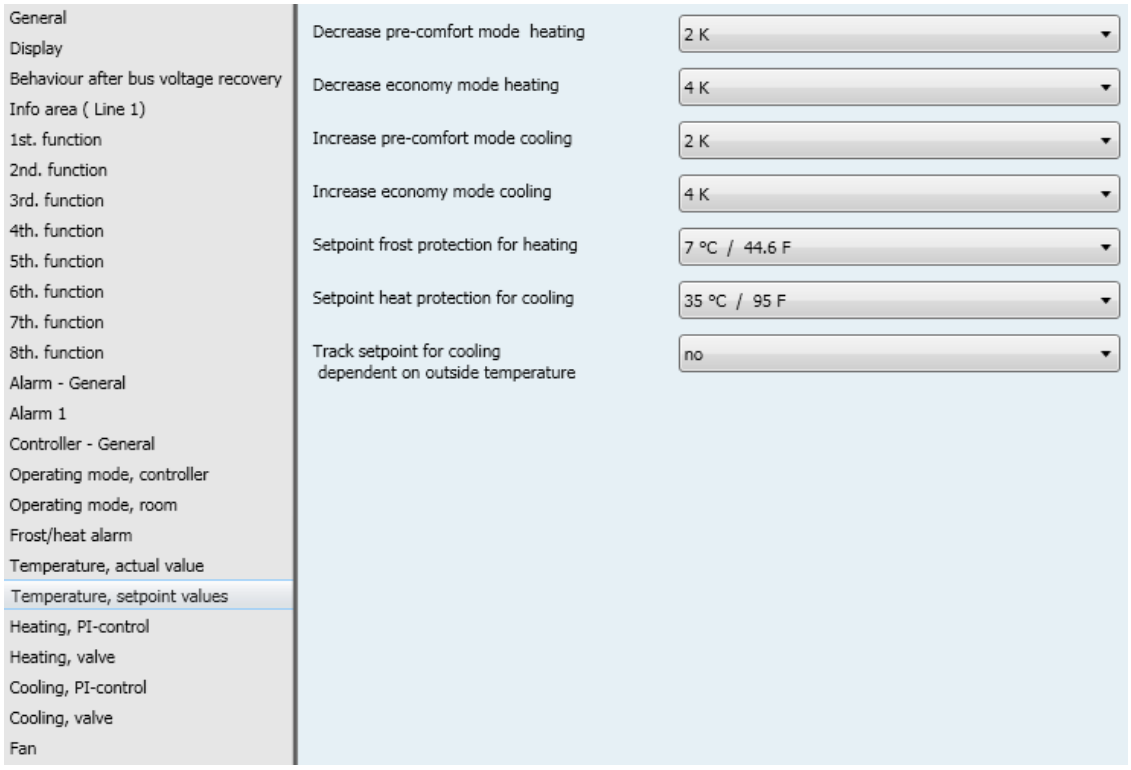
9.7.6 Temperature parameter, setpoint values



Parameter	Setting
Decrease pre-comfort mode heating	**2K** 3K 4K
This parameter is only visible if the controller can activate 4 room modes. This parameter sets the value by which the nominal room temperature value is to be reduced, if there is a switch in heating mode from "Comfort mode" to "Pre-comfort mode".	
Decrease economy mode heating	2K 3K **4K** 5K 6K

Parameter	Setting
This parameter is only visible if the controller can activate 3 or 4 room modes. This parameter sets the value by which the nominal room temperature value is to be reduced, compared with the nominal value in "Comfort mode" if a switch is made to "Economy mode".	
Increase pre-comfort mode cooling	**2K** 3K 4K
This parameter is only visible if the controller can activate 4 room modes. This parameter sets the value by which the nominal room temperature value is to be increased, if there is a switch in cooling mode from "Comfort mode" to "Pre-comfort mode".	

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Parameter	Setting
Increase economy mode cooling	2K 3K **4K** 5K 6K
This parameter is only visible if the controller can activate 3 or 4 room modes. This parameter sets the value by which the nominal room temperature value is to be increased, compared with the nominal value in "Comfort mode" if a switch is made to "Economy mode".	
Setpoint frost protection for heating	5°C; 6°C; **7°C;** 8°C; 9°C; 10°C
This parameter specifies the nominal value for frost protection mode. Frost protection mode is activated, for example, if the status "Window open" is received and the controller is in heating mode.	
Setpoint heat protection for cooling	30°C; 31°C; 32°C; 33°C; 34°C; **35°C**; 36°C; 37°C; 38°C; 39°C; 40°C
This parameter specifies the nominal value for "heat protection" mode. Heating protection mode is activated, for example, if the status "Window open" is received and the controller is in cooling mode.	
Track setpoint for cooling dependent on outside temperature	**no** yes
This specifies whether the nominal temperature will be tracked if the outside temperature falls. If "Yes" is selected, the outside temperature object is created and the received nominal outside temperature tracked, if this is above 26°C and 6K above the pre-selected nominal comfort temperature. In this case, the new nominal temperature is always about 6K below the outside temperature.	

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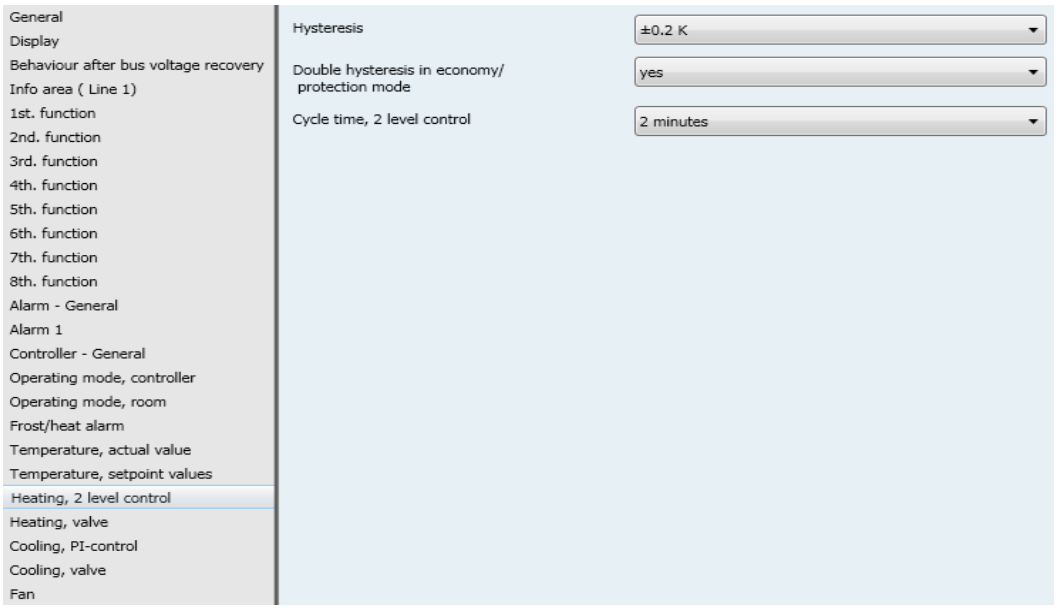
9.7.7 Heating parameter, two level control

Note:
Parameter and feature of the "Cooling, Two level control" parameter window are the same as those for this parameter window.



Parameter	Setting
Hysteresis	**±0.2K** ±0.3K **±0.4K** ±0.5K **±0.6K** **±0.7K** ±1.0K
In this case, the switching hysteresis of the two level controller is set for heating/cooling mode. The smaller the hysteresis is, the more precise must be compliance with the nominal room temperature value, and the switching frequency of the controller increased. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "Two level control" setting.	
Double hysteresis in economy/protection mode	no **yes**

Parameter	Setting
With this, you can set that in Economy or frost protection mode, fluctuations (hysteresis) in room temperature of twice the size are allowed, in order to save additional heating/cooling energy or lower the frequency of operation. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "Two level control" setting.	
Parameter	**Setting**
Cycle time, two level control	0.5; 1; **2**; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12; 13; 14; 15 minutes

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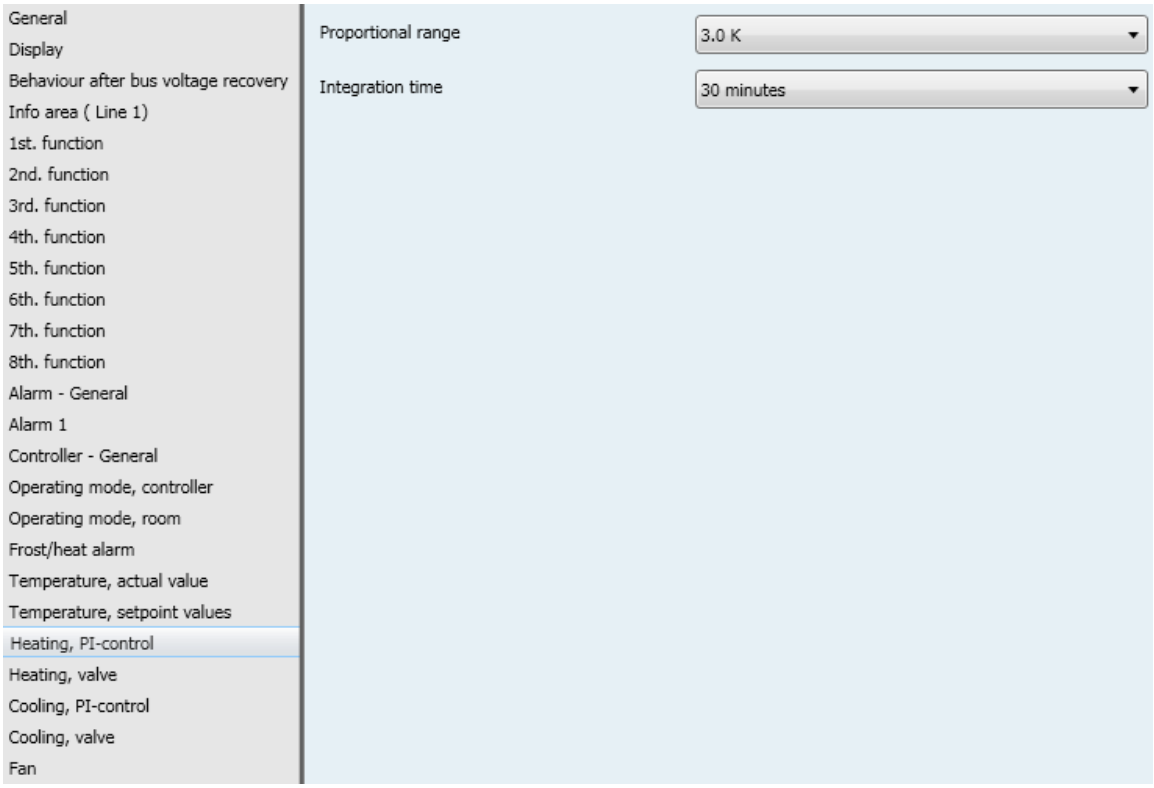
Parameter	Setting
This specifies the time interval, after which the valves are switched in a minimum time frame. If the nominal value e.g. is already reached after 2 minutes although 5 minutes are configured, the valve remains on until the end of the 5 minutes. This parameter prevents an increased abrasion of thermo valves. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "Two level control" setting.	

9.7.8 Heating parameter, PI control

Note:
Parameter and feature of the "Cooling, PI control" parameter window are the same as those for this parameter window.



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Parameter	Setting
Proportional range	1.0K; 1.1K; 1.2K; 1.3K; 1.4K; 1.5K; 1.6K; 1.7K; 1.8K; 2.0K; 2.2K; 2.5K; **3.0K**; 3.5K; 4.0K ; 4.5K; 5.0K; 6.0K; 7.0K; 8.0K; 9.0K; 10K
This parameter sets the proportional range of the PI controller for heating/cooling mode. A proportional range of 3K means that a control deviation between actual value and nominal value of 3K results in an actuator parameter change of 100%. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	

Integration time	5; 10; 15; 20; 25; **30;** 40; 50; 60; 90; 120 minutes
This parameter specifies the PI controller reset time (I-component) for heating/cooling mode. A reset time of 30 minutes means that within this time the I-component equals the P-component. Small deviations of the actual temperature to the nominal temperature increase during operation time and lead to adjustments of the valve. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	

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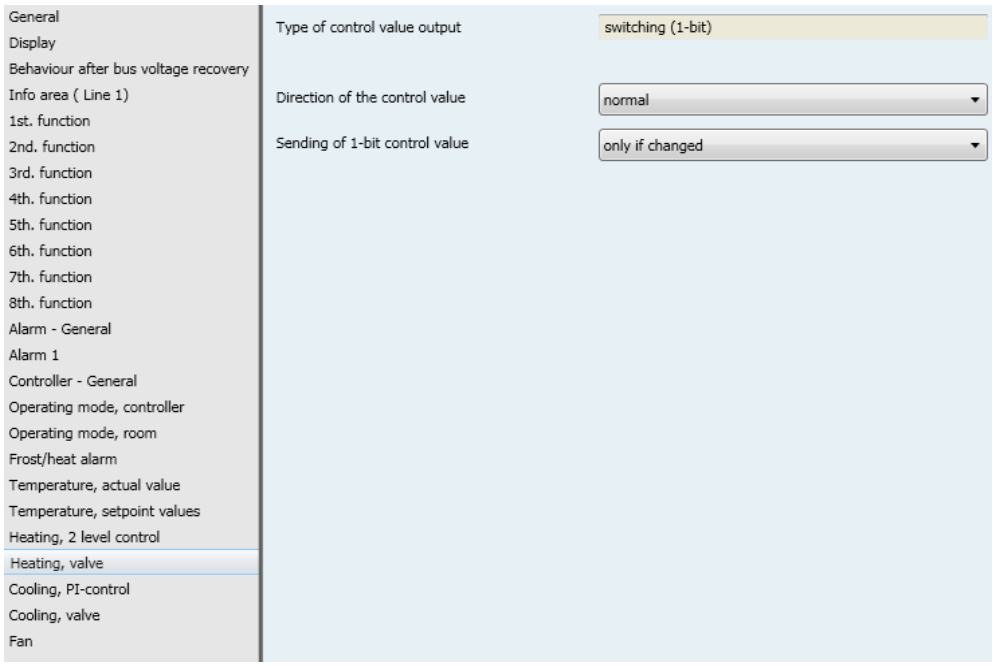
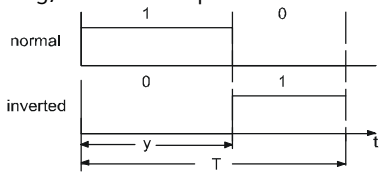
9.7.9 Heating parameter, Valve (two level ontrol)

Note:
Parameter and feature of the "Cooling, Valve (Two level control)" parameter window are the same as those for this parameter window.



Parameter	Setting
Type of control value output	switching (1 bit)
The parameter output is implemented via a 1-bit object. This is an information bit. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "Two level control" setting.	
Direction of the control value	**normal** inverted

Parameter	Setting
This parameter specifies in which form the actuator parameter should be output. In "normal" setting, the actuator parameter is output according to the computed actuator parameter. With the "inverted" setting, the actuator parameter sense is reversed.  The setting for this parameter is dependent on the valve type used (whether open or closed when no flow) and the actuator.	
Sending of 1-bit control value	**only on change** cyclical

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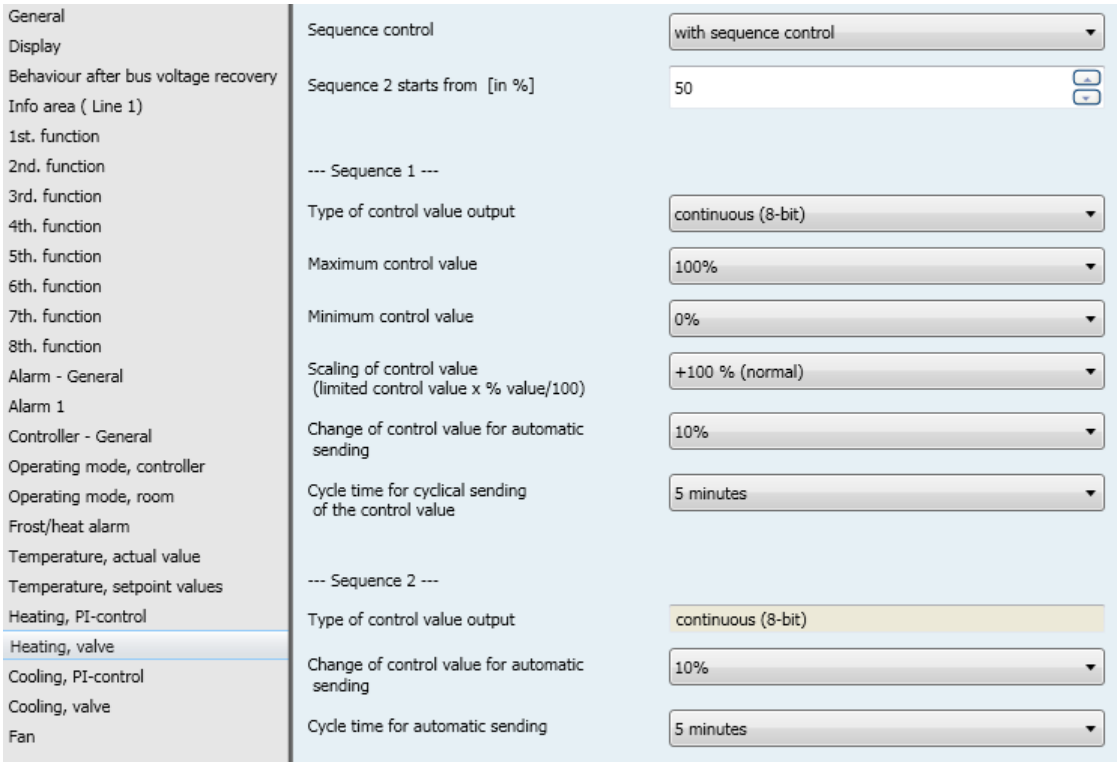
Parameter	Setting
In this case, you set by how much the control parameter must have changed for it to be resent automatically or whether the control parameter is only sent cyclically. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "Two level control" setting.	

Repeat control value after	1; 2; 3; 4; 5; 6; 7; 8; 9;10; 12; **15**; 20; 25; 30 minutes
This specifies the time interval at the end of which the heating or cooling control parameter should be resent. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "Two level control" setting.	

9.7.10 Heating parameter, Valve (PI control)

Note:
Parameter and feature of the "Cooling, Valve (PI control)" parameter window are the same as those for this parameter window.



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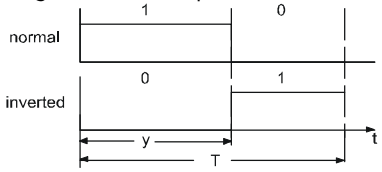
Parameter	Setting
Sequence control	**without sequence control** with sequence control
Here, you set whether a sequential control (sequence 1 and sequence 2 control parameters) is to act. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	
Type of control value output	**continuous (8-bit)** switching (1-bit)
This parameter sets whether the control parameter is output via a 1-bit (PWM) or an 8-bit object. This parameter is only displayed if the device feature is set to "Operating device/Controller". The "Controller mode heating" parameter/"Controller mode cooling" parameter has the "PI control" setting.	
Direction of the control value	**normal** inverted
This parameter is only visible if the type of Control value output was set to switching (1 bit, PWM). This parameter specifies in which form the actuator parameter should be output. In "normal" setting, the actuator parameter is output according to the computed actuator parameter. With the "inverted" setting, the actuator parameter sense is reversed.  T: Periodic duration of the Control value output y: Computed control parameter The setting for this parameter is dependent on the valve type used (whether open or closed when no flow) and the actuator. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	
Valve always open, if positioning value is above [in %]	40%; 50%; 60%; 65%; 70%; 75%; 80%; 85%; 90%; 95%; 98%; **100%**

Parameter	Setting
This parameter is only visible if the type of Control value output was set to switching (1-bit). This specifies from which percentage of the computed control parameter its output is always at "ON". In order to reduce the switching frequency, the valve characteristics can be adapted for this purpose. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	
Valve always closed, if positioning value is below [in %]	**1%** ; 3%; 5%; 7%; 10%; 15%; 20%; 25%; 30%; 35%; 40%; 45%; 50%
This parameter is only visible if the type of Control value output was set to switching (1 bit). This specifies up to which percentage of the control parameter its output is always at "OFF". In order to reduce the switching frequency, the valve characteristics can be adapted for this purpose. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	
Pulse with modulation period time	1; 2; 3; 4; 5; 6; 7; 8; **9**;10; 12; 15; 20; 25; 30 minutes

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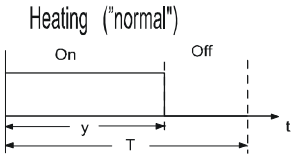
Parameter	Setting
This parameter is only visible if the type of Control value output was set to switching (1 bit). This parameter specifies the pulse width modulation period for the switching Control value output in heating mode. The control parameter also equals the button ratio (time ratio) between "ON (1)" and "OFF (0)" within a period.  y: Control parameter in % of periodic duration T: Periodic duration of the Control value output Note: With thermo-drives, you should note that the period is not chosen to be less than the sum of the thermo-drive heating up and cooling down times. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	
Maximum control value	0%; 1%; 2 %; 3%; 4%; 5%; 7%; 10%; 15%; 20%; 25%; 30%; 35%; 40%; 45%; 50%; 55%; 60%; 65%; 70%; 75%; 80%; 85%; 90%; 95%; **100%**
This parameter is only visible if the type of Control value output was set to continuous (8-bit). This parameter can set an upper threshold for the computed heating or cooling control parameter. Starting from this value, the Control value output is set to 100%. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	
Minimum control value	**0%** ; 1%; 2 %; 3%; 4%; 5%; 7%; 10%; 15%; 20%; 25%; 30%; 35%; 40%; 45%; 50%; 55%; 60%; 65%; 70%; 75%; 80%; 85%; 90%; 95%; 100%

Parameter	Setting
This parameter is only visible if the type of Control value output was set to continuous (8-bit). This parameter can set a lower threshold for the computed heating or cooling control parameter. Below this value, the minimum control parameter remains. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	
Scaling of control value (limited control value x % value/100)	+1%...+95%; **+100% (normal);** -1%... -95%; -100% (inverted)
This parameter is only visible if the type of Control value output was set to continuous (8-bit). This parameter specifies in which form the actuator parameter should be output. In the setting "100% (normal)", the controller assumes that the valve is open with a control parameter of +100%. However, if the valve is closed, say at 100%, the control parameter action must be the opposite (inverted). Reducing the percentage achieves a compression (scaling) of the control parameter. The setting is dependent on the type of valve or actuator used. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	
Change of control value for automatic sending	1%; 2 %; 3%; 4%; 5%; 7%; **10%;** 15%; 20%; 25%; 30%; 35%; 40%; 45%; 50%;
This parameter is only visible if the type of Control value output was set to continuous (8-bit). This parameter specifies from which control parameter change the heating or cooling control parameter should be sent automatically. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	
Cycle time for cyclical sending of the control value	N/A; **5**; 6; 7; 8; 9; 10; 12; 15; 17; 20; 25; 30; 40; 50; 60; 90; 120 minutes

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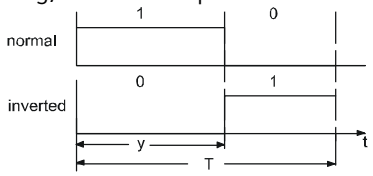
Parameter	Setting
This parameter is only visible if the type of Control value output was set to continuous (8-bit). This specifies the time interval at the end of which the heating or cooling control parameter, as well as automatic sending on change, should be resent. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter "Controller mode heating"/"Controller mode cooling" has the "PI control" setting.	
Value of the controller control parameter with which sequence 2 begins [in %]	5...95 **50**
This parameter specifies from which computed heating or cooling controller output control parameter sequence 2 should begin. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	

Sequence 1

Parameter	Setting
Type of control value output	**continuous (8-bit)** switching (1 bit)
This parameter sets whether for the first valve the control parameter is output via a 1-bit or an 8-bit object. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	
Direction of the control value	**normal** inverted

Parameter	Setting
This parameter is only visible if the type of Control value output was set to switching (1 bit). This parameter specifies in which form the actuator parameter should be output. In "normal" setting, the actuator parameter is output according to the computed actuator parameter. With the "inverted" setting, the actuator parameter sense is reversed.  T: Periodic duration of the Control value output y: Computed control parameter The setting for this parameter is dependent on the valve type used (whether open or closed when no flow) and the actuator. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	
Valve always open, if positioning value is above [in %]	40%; 50%; 60%; 65%; 70%; 75%; 80%; 85%; 90%; 95%; 98%; **100%**
This parameter is only visible if the type of Control value output was set to switching (1 bit). This specifies from which percentage of the computed control parameter its output is always at "ON". In order to reduce the switching frequency, the valve characteristics can be adapted for this purpose. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	
Valve always closed, if positioning value is below [in %]	**1%** ; 3%; 5%; 7%; 10%; 15%; 20%; 25%; 30%; 35%; 40%; 45%; 50%

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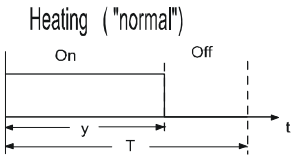
Parameter	Setting
This parameter is only visible if the type of Control value output was set to switching (1 bit). This specifies up to which percentage of the control parameter its output is always at "OFF". In order to reduce the switching frequency, the valve characteristics can be adapted for this purpose. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	
Pulse with modulation period time	1; 2; 3; 4; 5; 6; 7; 8; **9**;10; 12; 15; 20; 25; 30 minutes
This parameter is only visible if the type of Control value output was set to switching (1 bit). This parameter specifies the pulse width modulation period for the switching Control value output in heating/cooling mode. The control parameter also equals the button ratio (time ratio) between "ON (1)" and "OFF (0)" within a period.  y: Control parameter in % of periodic duration T: Periodic duration of the Control value output Note: With thermo-drives, you should note that the period is not chosen to be less than the sum of the thermo-drive heating up and cooling down times. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	
Parameter	**Setting**
Maximum control parameter	0%; 1%; 2 %; 3%; 4%; 5%; 7%; 10%; 15%; 20%; 25%; 30%; 35%; 40%; 45%; 50%; 55%; 60%; 65%; 70%; 75%; 80%; 85%; 90%; 95%; **100%** ;

Parameter	Setting
This parameter is only visible if the type of Control value output was set to constant (8-bit). This parameter can set an upper threshold for the computed heating or cooling control parameter. Below this value, the minimum control parameter remains. If the controller is turned off, the minimum control parameter 0% is displayed. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	
Minimum control parameter	**0%** ; 1%; 2 %; 3%; 4%; 5%; 7%; 10%; 15%; 20%; 25%; 30%; 35%; 40%; 45%; 50%; 55%; 60%; 65%; 70%; 75%; 80%; 85%; 90%; 95%; 100%;
This parameter is only visible if the type of Control value output was set to constant (8-bit). This parameter can set a lower threshold for the computed heating or cooling control parameter. Starting from this value, the Control value output is set to 0%. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	
Scaling of control value (limited control value x % value/100)	+1%...+95%; **+100% (normal);** -1%... -95%; -100% (inverted)

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Parameter	Setting
This parameter is only visible if the type of Control value output was set to constant (8-bit). This parameter specifies in which form the actuator parameter should be output. In the setting "100% (normal)", the controller assumes that the valve is open with a control parameter of +100%. However, if the valve is closed, say at 100%, the control parameter action must be the opposite (inverted). Reducing the percentage achieves a compression (scaling) of the control parameter. The setting is dependent on the type of valve or actuator used. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	
Change of control value for automatic sending	1%; 2 %; 3%; 4%; 5%; 7%; **10%;** 15%; 20%; 25%; 30%; 35%; 40%; 45%; 50%;
This parameter is only visible if the type of Control value output was set to constant (8-bit). This parameter specifies from which control parameter change the heating or cooling control parameter should be sent automatically. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	
Cycle time for cyclical sending of the control value	N/A; **5**; 6; 7; 8; 9; 10; 12; 15; 17; 20; 25; 30; 40; 50; 60; 90; 120 minutes
This parameter is only visible if the type of Control value output was set to constant (8-bit). This specifies the time interval at the end of which the heating or cooling control parameter, as well as automatic sending on change, should be resent. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	

Sequence 2

Parameter	Setting
Type of control value output	continuous (8-bit)
The parameter output is implemented via an 8-bit object. This is an information bit. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	
Change of control value for automatic sending	1%; 2 %; 3%; 4%; 5%; 7%; **10%;** 15%; 20%; 25%; 30%; 35%; 40%; 45%; 50%;
This parameter specifies from which control parameter change the heating or cooling control parameter for the second valve should be sent automatically. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	
Cycle time for cyclical sending of the control value	N/A; **5**; 6; 7; 8; 9; 10; 12; 15; 17; 20; 25; 30; 40; 50; 60; 90; 120 minutes
This specifies the time interval at the end of which the heating or cooling control parameter, as well as automatic sending on change, should be resent. This parameter is only displayed if the device feature is set to "Operating device/Controller". The parameter „Controller mode heating"/"Controller mode cooling" has the „PI control" „with sequence control" setting.	

9.7.11 Communication objects room temperature controller

Obj	Object name	Feature	Type	Flag
102	Temperature, actual value internal sensor (°C)	send	2 bytes	KLÜ

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Obj	Object name	Feature	Type	Flag
This object contains the current temperature actual value, which is measured via the sensor integrated with the controller. A configurable offset corrects the measured value if necessary.				
103	Temperature, actual value ext. sensor (°C)	receive	2 bytes	KSÜA
This object contains the current temperature actual value, which is measured via an external sensor.				
104	Temperature, actual value int. + ext. sensor (°C)	send	2 bytes	KLÜA
This object contains the current temperature actual value of the controller which can contain a weighting.				
105	Temperature, outside sensor (°C)	receive	2 bytes	KSÜA
This object contains the current outside temperature value for the controller. The outside temperature has to be determined via this object so that nominal temperature tracking in cooling mode is possible.				
106	Presence	On/Off	1 bit	KSÜA
This object is available only if the parameter "Presence Object" in the parameter window "Controller - General" is set to "Yes". The Presence detector status is received via this object. It serves as a switch to operating mode “comfort”.				
107	Status extended comfort mode	On/Off	1 bit	KLÜ
This object is available only if the parameter "Status object for extended comfort mode" in the parameter window "Operating mode, room" is set to "Yes". The controller reports via this object that "Comfort extension" mode has been switched on or off.				
108	Permanent protection mode	On/Off	1 bit	KSÜA
This object is available only if the parameter "Object permanent protection mode" in the parameter window "Controller - General" is set to "Yes". This object switches the controller permanently into "Protection Mode" (Frost/Heat protection).				
109	Window 1	0 = open / 1 = close	1 bit	KSÜA
This object is available only if the parameter "Number of window contacts" in the parameter window "Controller - General" is set to ”1”,”2”, ”3” or ”4”. The Window status is received via this object.				
110	Window 2	0 = open / 1 = close	1 bit	KSÜA
This object is available only if the parameter "Number of window contacts" in the parameter window "Controller - General" is set to ”2”, ”3” or ”4”. The Window status is received via this object.				
111	Window 3	0 = open / 1 = close	1 bit	KSÜA
This object is available only if the parameter "Number of window contacts" in the parameter window "Controller - General" is set to "3" or ”4”. The Window status is received via this object.				
112	Window 4	0 = open / 1 = close	1 bit	KSÜA
This object is available only if the parameter "Number of window contacts" in the parameter window "Controller - General" is set to "4". The Window status is received via this object.				
113	Basic setpoint (°C)	receive	2 bytes	KLSÜA
This object reads the basic nominal value and changes it via the bus by means of a telegram. Setting the basic nominal value via this object deletes a shift of nominal value.				
114	Setpoint adjustment (in Kelvin)	send/receive	2 bytes	KLSÜ
This object sends any change to the setpoint (in degrees Kelvin). Simultaneously an adjustment of setpoint can be received via this object.				
115	Temperature, setpoint value (°C)	send	2 bytes	KLÜ

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Obj	Object name	Feature	Type	Flag
This object contains the current room temperature nominal value, which is computed taking into account the basic nominal value, mode and shift as required.				
116	Thermostat	On/Off	1 bit	KSÜA
This object switches the thermostat on and off. If the thermostat is set to "Heating and Cooling", then both thermostat s are switched on and off together.				
117	Heating/Cooling (Output)	1 = Heating/0 = Cooling	1 bit	KSÜA
The object (input) is only available if the parameter "Change between heating/cooling" in the parameter window "Mode, controller" is set to "via object 117 – Heating/Cooling" or the Control value output is executed on common objects. This object switches the controller into heating mode or cooling mode. The object (output) is only available if the parameter "Change between heating/cooling" in the parameter window "Operating mode, controller" is set to "automatic" and the Control value output is executed on separated objects. The controller sends heating or cooling mode via this object.				
118	Frost alarm	On/Off	1 bit	KLÜ
If the measures temperature falls below the frost alarm threshold, "Frost alarm = ON" is sent automatically.				
119	Heat alarm	On/Off	1 bit	KLÜ
If the measured temperature exceeds the heat alarm threshold, "Heat alarm = ON" is sent automatically.				
120	Dew point alarm	On/Off	1 bit	KSÜA
In cooling mode, this object receives a dew point alarm sent by a dew point monitor. A dew point alarm causes a switch off of cooling mode.				
121	Controller-Status (Eberle)	8-bit status	1 bytes	KLÜ
This object is available only if the parameter "8-bit object status (Eberle)" in the parameter window "Controller - General" is set to "Yes". It includes the current controller status which is sent automatically with status changes. The individual bits have the following meanings: Bit 0: 1 = Comfort mode ON Bit 1: 1 = Pre-comfort mode ON Bit 2: 1 = Economy mode ON Bit 3: 1 = Protection mode ON Bit 4: 1 = Dewpoint alarm Bit 5: 1 = Heating mode, 0 = Cooling mode Bit 6: 1 = Controller On, 0 = Controller Off Bit 7: 1 = Frost/Heating alarm (depending on value from bit 5)				
122	Controller-Status (RHCC)	16-bit status	2 bytes	KLÜ
This object is available only if the parameter "16-bit object controller status (RHCC)" in the parameter window "Controller - General" is set to "Yes". It includes the current controller status which is sent automatically with status changes. The individual bits have the following meanings: Bit 7: 1 = Heating mode disabled Bit 8: 1 = Heating mode, 0 = Cooling mode Bit 11: 1 = Cooling mode disabled Bit 12: 1 = Dewpoint alarm Bit 13: 1 = Frost alarm Bit 14: 1 = Heat alarm The bits: 0, 1, 2, 3, 4, 5, 6, 9, 10 and 15 are set firmly to the value = 0. *Note:* *Behavior according to KNX manual description, DPT 22.101*				
123	Automatic mode	Activate (1)	1 bit	KSÜA
This object switches the "Automatic" room mode on via the bus. On receipt, only the value 1 is analyzed (automatic); the value 0 is not analyzed.				
124	Automatic mode status	On/Off	1 bit	KLÜ
This object sends the "Automatic" room mode via the bus.				

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Obj	Object name	Feature	Type	Flag
125	Comfort mode	On/Off	1 bit	KLSÜA
This object switches the "Comfort" room mode on via the bus. The status is also sent via the object.				
126	Pre-comfort mode	On/Off	1 bit	KLSÜA
This object is available only if the parameter "Room modes" in the parameter window "Mode, room" is set to "Comfort/Pre-comfort/Economy/Protection mode". This object switches the "Pre-comfort" (standby mode) room mode on via the bus. The status is also sent via the object.				
127	Economy mode	On/Off	1 bit	KLSÜA
This object is available only if the parameter "Room modes" in the parameter window "Operating mode, room" is set to "Comfort/Pre-comfort/Economy/Protection mode" or to "Comfort//Economy/Protection mode". This object switches the "Economy" (Night mode) room mode on via the bus. The status is also sent via the object.				
128	Protection mode	On/Off	1 bit	KLSÜA
This object switches the "Protection" (standby mode) room mode on or off via the bus.				
129	Room operating mode	1...4	1 bytes	KSÜA
This object is available only if the parameter "8-bit objects room mode/room mode status" in the parameter window "Controller - General" is set to "Yes". This object changes the room mode independently of the received value. The following classifications apply: 0 = Automatic mode 1 = Comfort mode 2 = Pre-comfort mode 3 = Economy mode 4 = Protection mode. If a telegram with a value other than 0...4 or with a mode value that is not available at the controller is received via this 8-bit object, then the telegram is discarded as invalid.				
130	Status room operating mode	0...4	1 bytes	KLÜ
This object is available only if the parameter "8-bit objects room mode/room mode status" in the parameter window "Controller - General" is set to "Yes". This object reports the current room mode after a room mode change. The following assignments apply to the transferred value: 1 = Comfort mode 2 = Pre-comfort mode 3 = Economy mode 4 = Protection mode.				
131	Heating & cooling, control value switching	On/Off	1 bit	KLÜ
This object is only available if the parameter "Controller mode" in the parameter window "Operating mode, controller" is set to "Heating and Cooling" and the parameter "Control value output" is set to "Common object". The parameter "Controller mode heating / cooling" is on "Two level control". This object then sends the control parameter as an On/Off switching command in both heating and cooling modes.				
131	Heating & Cooling, control value continuous	0...100 %	1 byte	KLÜ
This object is only available if the parameter "Operating mode of controller" in the parameter window "Operating mode, controller" is set to "Heating and Cooling" and the parameter "Control value output" is set to "Common object". The parameter "Controller mode heating / cooling" is on "PI control". This object then sends the control parameter as a percentage value in both heating and cooling modes.				
132	Heating, control value switching	On/Off	1 bit	KLÜ
This object is only available if the parameter "Operating mode of controller" in the parameter window "Operating mode, controller" is set to "Heating and Cooling" or "Heating" and the parameter "Control value output" is set to "Separate objects". The parameter "Controller mode heating" is on "Two level control". This object then sends the control parameter as an On/Off switching command in heating mode.				

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Obj	Object name	Feature	Type	Flag
132	Heating, control value contionuous	0...100 %	1 bytes	KLÜ
This object is only available if the parameter "Operating mode of controller" in the parameter window "Operating mode, controller" is set to "Heating and Cooling" or "Heating" and the parameter "Control value output" is set to "Separate objects". The parameter "Controller mode heating" is on "PI control". In heating mode, this object sends the control parameter as a percentage value.				
133	Cooling, control value switching	On/Off	1 bit	KLÜ
This object is only available if the parameter "Operating mode of controller" in the parameter window "Operating mode, controller" is set to "Heating and Cooling" or "Cooling" and the parameter "Control value output" is set to "Separate objects". The parameter "Controller mode cooling" is on "Two level control". This object then sends the control parameter as an On/Off switching command in cooling mode.				
133	Cooling, control value constant	0...100 %	1 bytes	KLÜ
This object is only available if the parameter "Operating mode of controller" in the parameter window "Operating mode, controller" is set to "Heating and Cooling" or "Cooling" and the parameter "Control value output" is set to "Separate objects". The parameter "Controller mode cooling" is on "PI control". In cooling mode, this object sends the control parameter as a percentage value.				
134	Heating, control value continuous, sequence 2	0...100 %	1 bytes	KLÜ
This object is available only if the parameter "Operating mode of controller" in the parameter window "Operating mode, controller" is set to "Heating and Cooling" or "Heating". The parameter "Controller mode heating" is on "PI control". In heating mode with sequential control, the control parameter for the second sequence is sent via this object as a percentage value				
135	Cooling, control value continuous, sequence 2	0...100 %	1 byte	KLÜ
This object is available only if the parameter "Operating mode of controller" in the parameter window "Operating mode, controller" is set to "Heating and Cooling" or "Cooling". The parameter "Controller mode cooling" is on "PI control". In cooling mode with sequential control, the control parameter for the second sequence is sent via this object as a percentage value				
146	Temperature, setpoint blocking	block/enable	1 bit	KSÜA
This object is available only if the parameter "Block setpoint adjustment" in the parameter window "Controller - General" is set to "Yes". If the value "0" or "1" is received via this object, adjustment of the nominal value is blocked locally on the device. The object value for blocking nominal value adjustment can be configured.				
147	Operation mode blocking	block/enable	1 bit	KSÜA
This object is available only if the parameter "Block operating mode" in the parameter window "Controller - General" is set to "Yes". If the value "0" or "1" is received via this object, mode adjustment is blocked locally on the device. The object value for mode blocking can be configured.				

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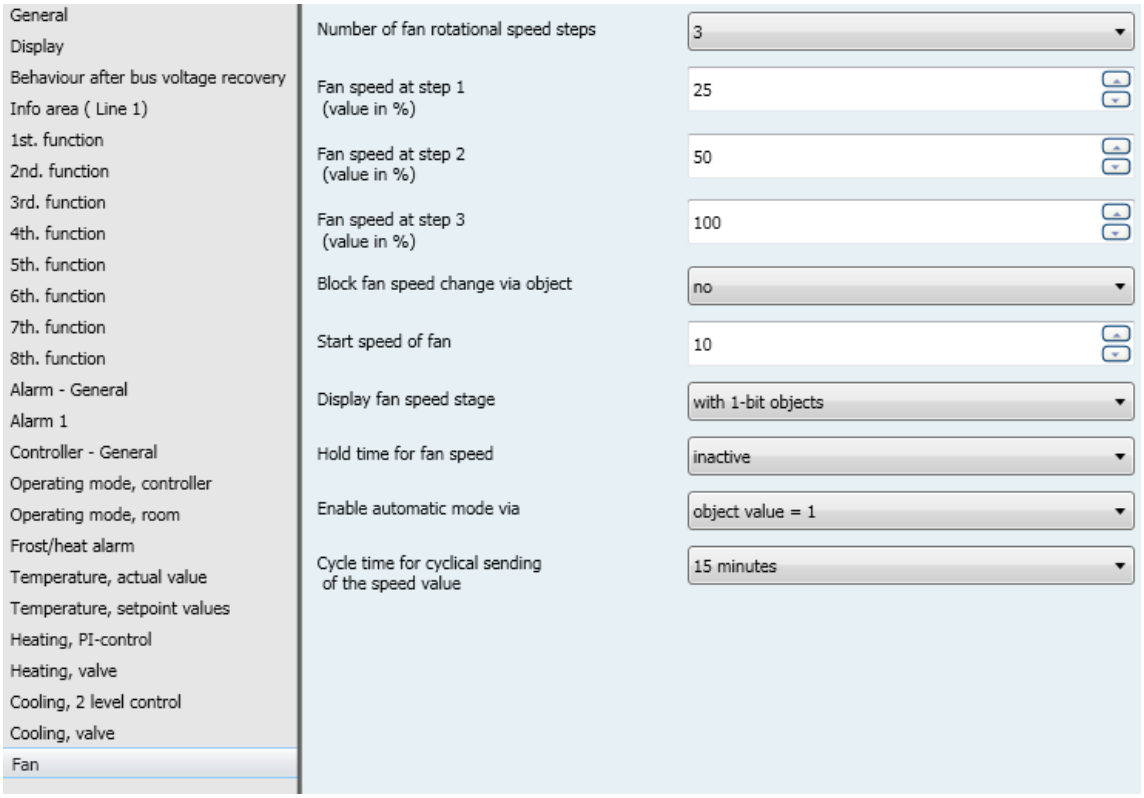
9.7.12 Fan parameter



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Parameter	Setting
Number of fan rotational speed steps	1 2 **3**
This parameter specifies how many fan speeds can be set.	
Fan speed in step 1 (value in %)	1...**25**...100
This parameter specifies the desired relative speed in stage 1 as a value between 1 and 100%, in which the value equals 100% of the max. possible speed. This is at once the recalculation of the fan speed at a constant value (see Section 6.2.5 and Figure 21)	
Fan speed in step 2 (value in %)	1...**50**...100
This parameter specifies the desired relative speed in stage 2 as a value between 1 and 100%, in which the value equals 100% of the max. possible speed. This is at once the recalculation of the fan speed at a constant value (see Section 6.2.5 and Figure 21). The parameter is visible only if 2 or 3 speeds are set.	
Fan speed in step 3 (value in %)	1...**100**
This parameter specifies the desired relative speed in stage 3 as a value between 1 and 100%, in which the value equals 100% of the max. possible speed. This is at once the recalculation of the fan speed at a constant value (see Section 6.2.5 and Figure 21). The parameter is visible only if 3 speeds are set.	
Block fan speed change via object.	**no** yes, if blocking object = 0 yes, if blocking object = 1 Block permanently
This parameter determines whether and under what condition fan speeds can be set manually via the blocking object or whether this is to be suppressed permanently.	
Start speed of fan	1...**10**...100
This parameter specifies with which speed the fans are controlled for 3 seconds from the rest position, so that they start up safely. This value defines the relevant fan speed to start with via the configured fan speed in the steps 1, 2 or 3. If a too small value is set as the appropriate speed, the start-up can be delayed equivalent.	

Parameter	Setting
Display fan speed stage	**with 1-bit objects** with 8-bit object
This parameter specifies whether the fan actuator sends its status via an 8-bit object or via three 1-bit objects. Accordingly, the value contents are analyzed for indicating the fan speed.	
Hold time for fan speed	**inactive** 1 minutes 2 minutes 3 minutes
So that the fan speed does not change constantly in the range around the fan speed thresholds, this parameter defines the minimum dwell time in the relevant fan speed. This applies only to automatic changeover via the controller using the valve setting.	
Enable automatic mode via	Object value = 0 **Object value = 1**
This parameter specifies or displays the object value to be sent. Object value = 0: The fan mode object sends or evaluates the values 0 = Automatic, 1 = Manual mode. Object value = 1: The fan mode object sends or evaluates the values 1 = Automatic, 0 = Manual mode. In this way, you can control different fan coil controllers (see Section 6.2.5).	
Cycle time for cyclical sending of the speed value	5 minutes 6 minutes 7 minutes 8 minutes 9 minutes 10 minutes 12 minutes **15 minutes** 17 minutes 20 minutes 25 minutes 30 minutes 40 minutes 50 minutes 60 minutes 90 minutes 120 minutes inactive

Parameter	Setting
This specifies the time interval at the end of which the starting speed, as well as automatic sending on change, should be resent.	

9.7.13 Fan communication objects

Obj	Object name	Feature	Type	Flag
136	Fan mode (send)	0 = Hand/1 = Automatic or 1 = Hand/0 = Automatic	1 bit	KLÜ
This object sends the changeover between automatic and manual modes. The value "0" or "1" is sent via this object accordingly. The object value corresponds to the parameter "Automatic mode released with".				
136	Fan mode (receive)	0 = Hand/1 = Automatic or 1 = Hand/0 = Automatic	1 bit	KSÜA
This object receives the fan mode, automatic or manual mode The object value corresponds to the parameter "Automatic mode released with".				
138	Ventilator speed command (send)	0...100%	1 bytes	KLÜ
This object sends the current fan speed.				
Obj	**Object name**	**Feature**	**Type**	**Flag**
139	Fan speed value (receive)	0...100%	1 bytes	KSÜA
The object receives the current fan speed as status from an actuator. This object is only visible if the “Display fan speed stage” parameter is set to “with 8-bit object”. Telegrams via the objects 143, 144 or 145 are ignored.				
140	Fan speed 1 (send)	On/Off	1 bit	KLÜ
The object determines the current speed for fan speed 1.				
141	Fan speed 2 (send)	On/Off	1 bit	KLÜ
The object determines the current speed for fan speed 2.				
142	Fan speed 3 (send)	On/Off	1 bit	KLÜ
The object determines the current speed for fan speed 3.				
143	Fan speed 1 (receive)	On/Off	1 bit	KSÜA
The object receives the current fan speed. The maximum fan speed is shown in each case.				
144	Fan speed 2 (receive)	On/Off	1 bit	KSÜA
The object receives the current fan speed. The maximum fan speed is shown in each case.				
145	Fan speed 3 (receive)	On/Off	1 bit	KSÜA
The object receives the current fan speed. The maximum fan speed is shown in each case.				
148	Fan commands	block/release	1 bit	KSÜA
If the value "0" or "1" is received via this object, fan speed adjustment is blocked. The object value for blocking fan adjustment can be configured.				

Space for notices: