0705 Contouch Room Controller 970003

Use of the application program

Product family:	Display
Product type:	Display units
Manufacturer:	Siemens AG
Name:	Contouch Room Controller UP 204
Order no.:	5WG1 204-2AB11, titanium white, 5WG1 204-2AB21, carbon metallic, 5WG1 204-2AB31, aluminium metallic, 5WG1 204-2AB51, piano black

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1 About this manual

This manual describes the application program and the Contouch Manager (Plug-in) for the configuration of the operating and display systems of the Contouch Room Controller.

The manual is designed for qualified specialists with detailed knowledge of control systems in building technology. The following is particularly expected:

- In-depth knowledge of the design and operation of the KNX bus system,
- In-depth knowledge of the ETS configuration software.

Notes on using the manual

Certain facts are highlighted in the manual.

Note:
Notes and further information are highlighted from the usual text by lines.

1. Instructions are presented as a numbered list.
   - ➢ The typically expected results of an action are described at the end of the instruction.

Parameters, parameter values, names of communication objects and buttons and displayed in **bold**.

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2 System description

2.1 Overview

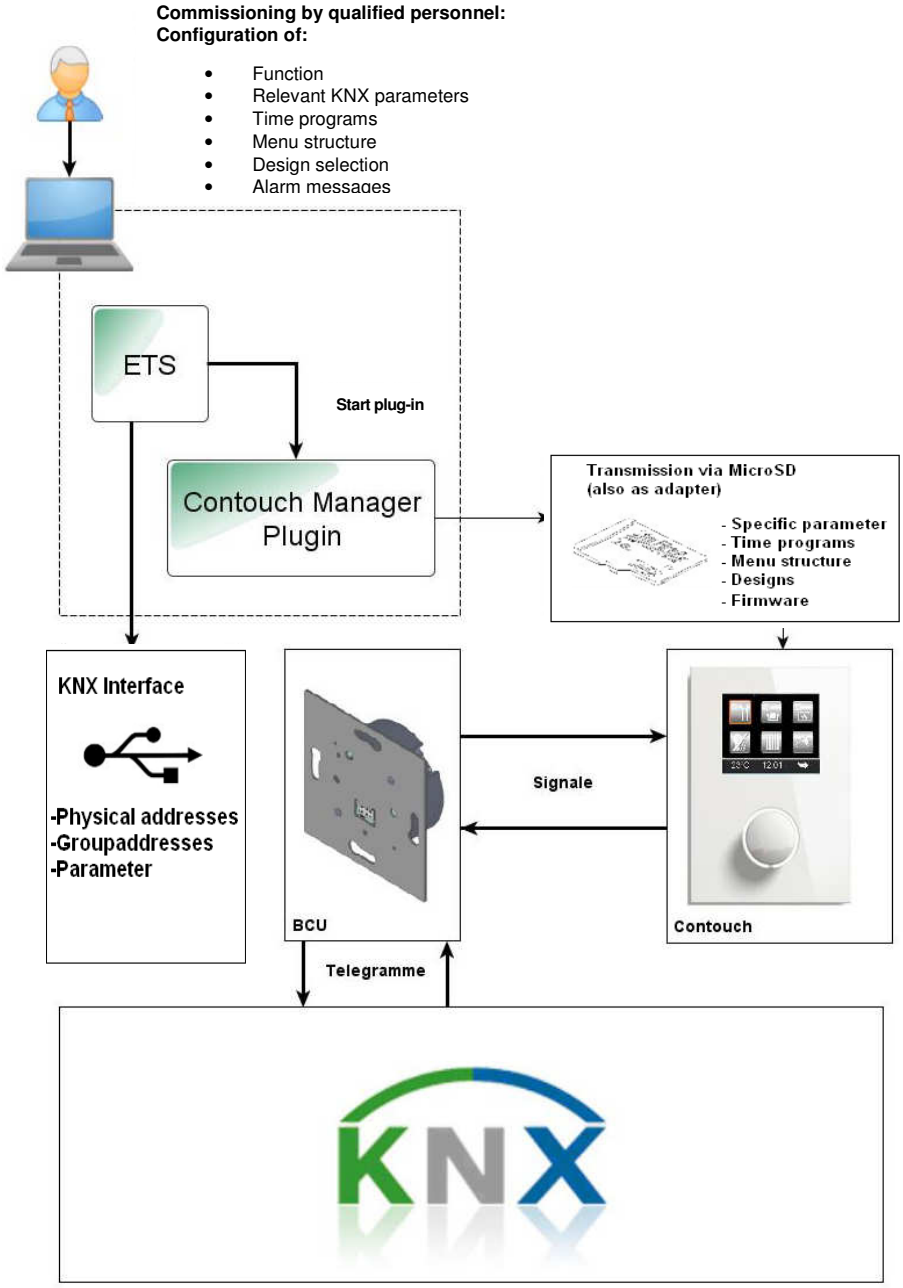

Figure. 1. System overview

2.2 Contouch Room Controller

The multifunctional Contouch display and operating system serves to display the conditions and to operate and control devices in connection with the KNX building bus system.

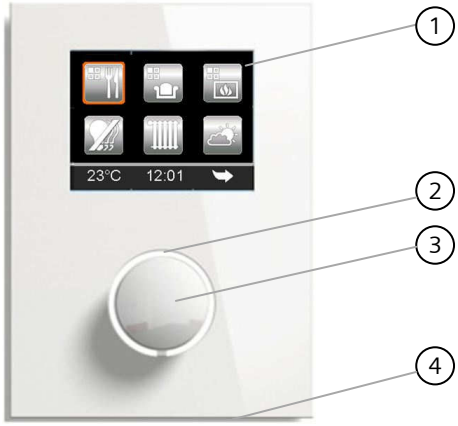

Figure. 2. Contouch display and operating system

1) Touch-Display
2) Status and orientation LED
3) Rotary control with print function
4) Temperature sensor

Function:
The buttons presented on the display can be used for switching, dimming, controlling room temperature, as control commands for shutters, roller blinds and fans or for the retrieval and storage of scenes.

Properties:
- TFT Color display 2.8" 320x240 Pixel,
- Display with touch function and rotary control with print function for operation,
- Status and orientation LED on the rotary knob,
- Internal temperature sensor,
- Interface to the BCU (AST)
- Slot for MicroSD card.

Note:
Details about the product can be found in the Technical Product Information (TPI) and the Operating and Assembly Manual (BMA) of the device.

Communication
Communication with the KNX building bus system occurs exclusively through the attached BCU bus coupling unit.

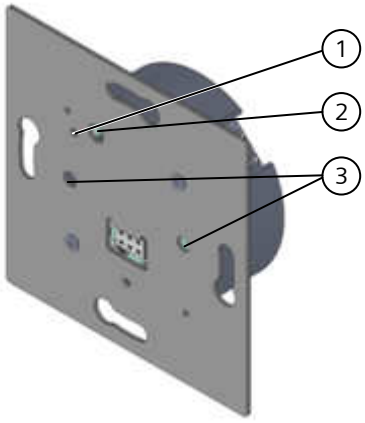

Figure. 3. BCU bus coupling unit

1) Programming LED
2) Programming knob
3) Holes for the centering spike for attaching the Contouch

Note:
Details about the product can be found in the Technical Product Information (TPI) and the Operating and Assembly Manual (BMA) of the device.

2.3 Contouch Manager (Plug-In)

The Contouch Manager (Plug-In) makes it possible to configure and set parameters for the Contouch Room Controller. The program is run as a plug-in in the ETS application program.

The ETS application program in Version 3.0f or higher is required for the plug-in.

Function:
- Configuration of the Room Controller functions,
- Configuration of all parameters for controlling the connected devices,
- Configuration of time programs,
- Configuration of the menu structure and selection of the menu design,
- Configuration of alarms and status reports.

System criteria
- Operating system: Windows XP SP3, Vista SP1 or Windows 7,
- Screen resolution: 1024*768 or higher,
- Reader for storage card format microSD or microSDHC (possibly using adapter SD on microSD or USB microSD readers) to describe microSD card or microSDHC card.
- Microsoft .Net Framework 3.5 SP1,
- ETS Version 3.0f or higher.

Data transmission
The complete configuration of the Contouch operating and display system via the KNX bus is not recommended by reason of its bandwidth restriction (very long transmission time). Therefore a MicroSD card is used as a second medium for transmitting the configuration data.

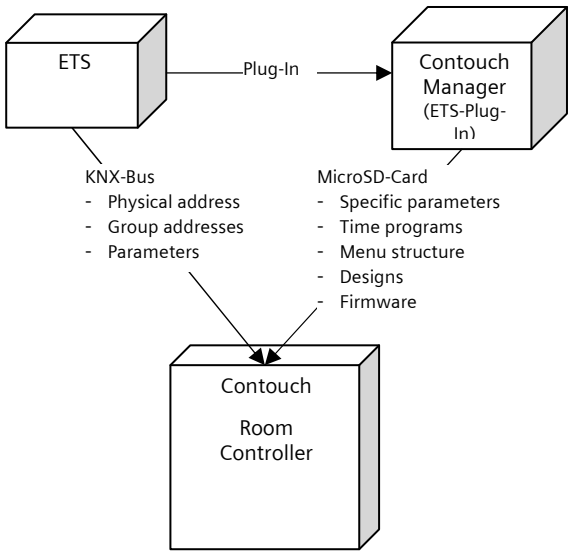

Figure. 4. Interfaces of the Contouch Manager

3 Editing parameters

3.1 Overview of the configuration steps

The application program is thematically organized by configuration steps. The sequence supports the user in the recording of the parameters, the arrangement of the time program, the determination of the menu structure and selection of the design.

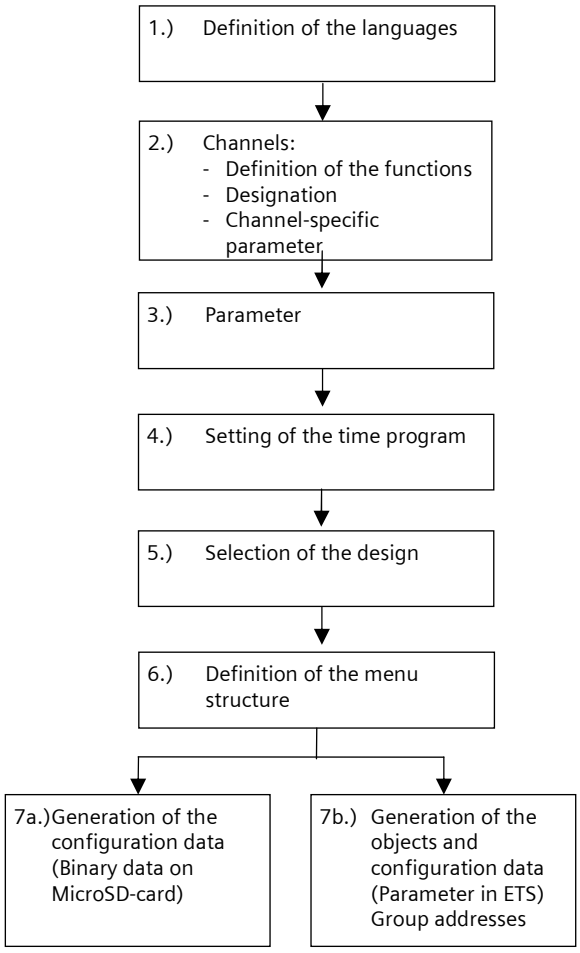

Figure. 5. Configuration steps

3.2 Work area and configuration window

1. Select the device in the ETS application program and run the **Edit parameters** function.

➢ The work area (Plug-in) opens with the configuration and input windows.

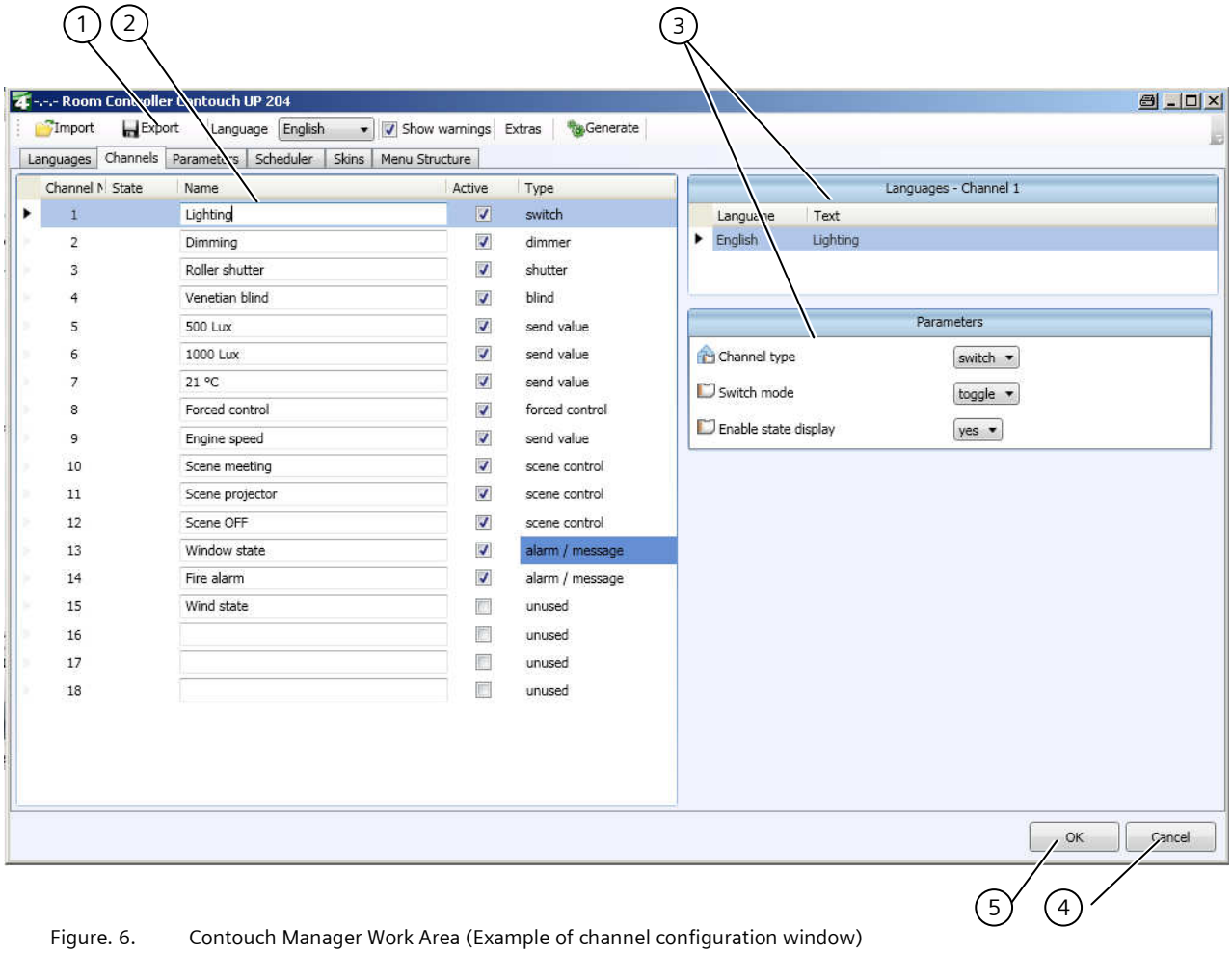

Figure. 6. Contouch Manager Work Area (Example of channel configuration window)

1) Menu and symbol bar
2) Configuration window, dependent on context
3) Additional input window, dependent on context
4) Exit work area without saving
5) Save the configuration and exit work area

3.2.1 Menu and symbol bar

The menu and symbol bar contain commands and displays required to run the application program.

Import
Importing configuration data (see Chapter 3.3.1, Page 9).

Export
Exporting configuration data (see Chapter 3.3.2, Page 9).

Language
The standard language can be selected in the dropdown menu next to the Language field.

Only those languages can be chosen which were activated in the Languages configuration window (see Chapter 3.5, page 11).

Displaying warnings
Texts and parameters are checked continuously for correctness and completeness during input.

Missing inputs are displayed by warning symbols (yellow or red triangle with exclamation mark). An explanatory error text is displayed when the warning symbol is clicked or as a tooltip text when the mouse crosses over it.

Checks are made for the following:
- Existence of the texts in all active languages,
- Compliance with the maximum allowed text length.

1. Activating the Display warnings control box.
   ➢ The warning symbols are displayed.
2. Deactivating the Display warnings control box.
   ➢ The warning symbols are not displayed.

Extras
About...: Display of the current software version.

Generate
Creates the configuration data not transmitted by KNX Bus (see Chapter 4.1.1, Page 45).

OK
Save current settings and close the work area window.

Cancel
Close the work area window without saving.

3.2.2 Text input

All text inputs are checked for length in the context of their usage (e.g. button labels).

Note:
The text length is evaluated on a pixel basis to ensure the display on the Contouch operating and display system. A check based on character number is not possible, since the text length depends on the type of letters.

The texts are once again checked for completeness and maximum length when the output data for the operating and display system are generated.

3.2.3 Labeling of the parameter types

The parameters are transmitted in various ways for the configuration of the Contouch operating and display system.

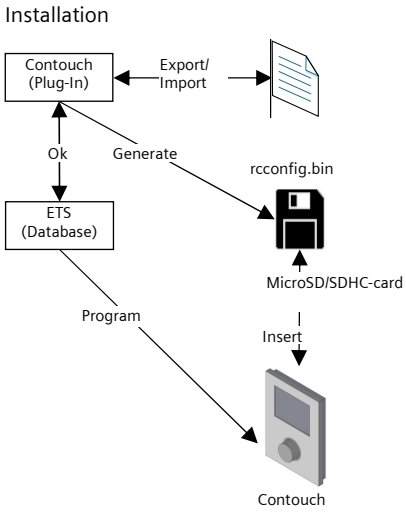

Figure. 7. Data transmission

A symbol in front of the parameter names displays the transmission route authorized for this parameter.

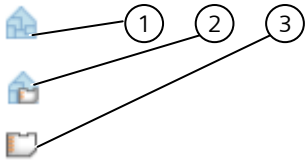

Figure. 8. Labeling of the parameter types

1) Transmission required only via KNX Bus (ETS)
2) Transmission via KNX Bus and MicroSD card required
3) Transmission only required via MicroSD card

3.3 Import and export of configuration data

3.3.1 Importing configuration data

The configuration data stored in a project file (*.Contouch) can be imported. In the process the KNX bus parameters and the group address connections are also read.

Function when importing group address connections:
- Pre-existing group address connections are deleted.
- Missing group addresses are added.
- Group address designations and comments are adopted for group addresses to be newly created.
- Group address designations and comments are not adopted for existing group addresses.

Import:
1. Click on the I**mport** button.
   ➢ The file selection window opens.
2. Search and select Contouch file.
3. Click on **Open** button.
   ➢ The parameters are imported.

3.3.2 Exporting configuration data

The current configuration data stored can be exported to a project file (*.Contouch).

1. Click on the **Export** button.
   ➢ The file selection window opens.
2. Enter the file name. File type: *.Contouch.
3. Click on **Save** button.
   ➢ The project file is saved.

3.4 Basic scenes

It is possible to directly activate two scenes with the press function of the rotary control without using the functions from the menu pages of the Touch Display. Each time the rotary control is pressed, the Contouch room controller switches between basic scene 1 and basic scene 2. This makes it possible, for example, to activate basic scene 1 (light ON) when entering a room and to activate basic scene 2 (light OFF) when leaving. This occurrence depends on the value of a status object. This allows the room controller to recognize that the light is already ON and is switched off with basic scene 2 or whether the light is OFF and switched on with basic scene 1.

The press function on the rotary control is not active unless the touch display is idle (see Chapter 3.7.1, page 23) or the home page (see Chapter 3.12, page 40) is shown on the touch display and no function is selected on it.

If the touch display shows a function or operating page or the start and operating page of the room temperature controller, then the home button in the centre of the navigation area must be used to navigate back to the home page in order to use these basic scenes.

If one is on the home page, all functions on the touch display are deselected after 5 seconds. Further activity on the touch display or rotary control within these 5 seconds causes this time interval to be reset. The functions can also be manually deselected by pressing on an empty area (no symbol for a function of navigation) on the touch display. The pure display fields (time, date, temperatures, etc.) can also be activated for this purpose.

Note:
If **On touch in idle mode jump to: last screen viewed** was set in the parameter (see Chapter 5.1.1, page 46), then the basic scenes are not necessarily operable. If the last screen viewed was a function page, an operating page, a page of the room temperature controller etc., then one must first navigate to the home page from the idle state in order to activate the basic scenes.

3.4.1 Communication objects for the basic scenes

Obj.	Object name	Function	Type	Flags
114	8-bit basic scene	Recall	1 Byte	CT
This communication object is used in dependence on a status object **Basic scene selection** to send scene 1 (value 0) or scene 2 (value 1).				
115	Basic scene select	Receive	1 bit	CWU
This communication object is used to receive the value of a status object. The scene to be sent by the 1 byte object is selected with the value of this status object. Object value: - "0" = basic scene 1 is sent - "1" = basic scene 2 is sent				

3.5 Languages

The target languages for user prompts on the Contouch operating and display system are set in this menu.

Note:
The contents of the texts to be displayed are not automatically determined by the language setting. They must be entered when defining the channels and structures.

Missing entries are labeled in the application program with a warning sign.

Up to 6 languages can be defined. This can be practical in hotels or public buildings, for example.

Every language has an index number. This index number starts with 0 in the standard setting. The index numbers can be edited in the input mask.

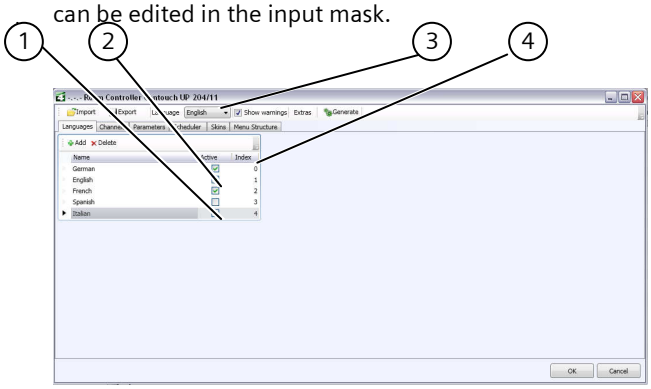

Figure. 9. Language selection input mask

1) Language added but not activated
2) Language added and activated
3) Current standard language
4) Language index

3.5.1 Add language

1. Select the **Language** tab.
2. Click **Add**.
   ➢ The selection window with the available languages opens, Fig. 10.
3. Select language.
4. Confirm choice with **OK.**
   ➢ The language is added and used (Status **Active**).
   ➢ The language ID is set automatically. It can be edited later.

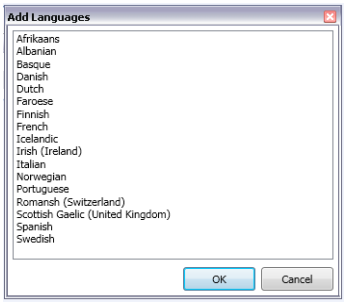

Figure. 10. Language selection

3.5.2 Activate / deactivate language

Configurations with multiple active languages require more storage space. For this reason it is possible to define languages but to also deactivate them for the actual application.

1. Mark the **Active** check box next to the desired language.
   ➢ The language is activated.

Note:
If the currently set standard language is deactivated, then the language with the next language ID in the sequence is assigned as the standard language.
All of the languages to be used should be stored before configuring the channel!

3.5.3 Delete language

Languages can be deleted.

All texts already set to a language are also deleted. They must be newly defined when re-entered.

1. Select languages to be deleted.
2. Click **Delete**.
   ➢ The language and the associated texts are deleted.

3.6 Channels

The channels used are defined in this menu and functions assigned to them.

Up to 18 channels are available, which can be assigned the following functions:

- Switch,
- Dimmer,
- Shutter,
- Roller blind,
- Send value,
- Forced control,
- Alarm / Message,
- Scene control

Depending on the selected function (channel type), additional parameters are enabled, in which the respective functions can be specified.

Note:
The configuration data in the operating and display system must be updated via ETS or the MicroSD card when then parameters are changed.

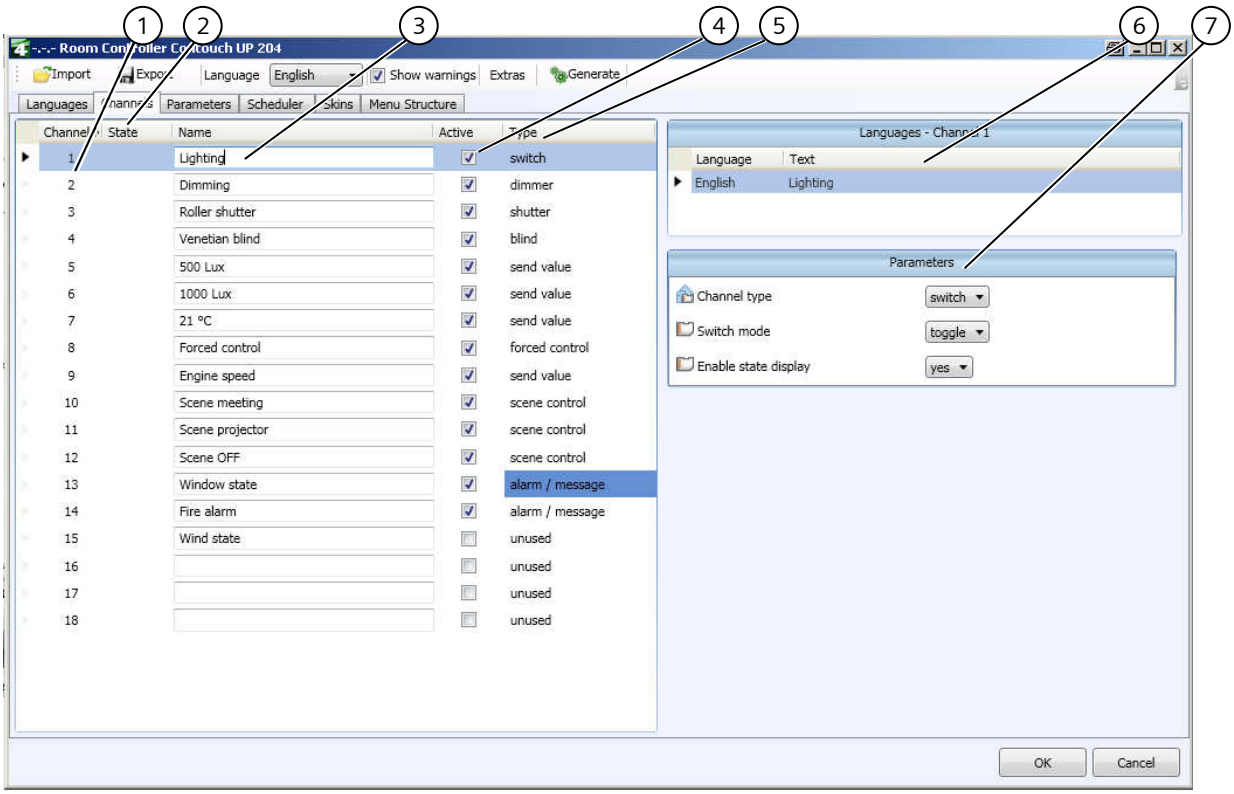

Figure. 11. Contouch Manager work area (example of channel configuration window)

1) Channel number
2) State column for displaying warning messages
3) Channel name
4) Activation / deactivation of a channel
5) Channel type display (function)
6) Languages window for designating the channel
7) Parameter window (dependent on function)

Designating the channels
The functions used are activated and named when the channels are configured. The designation under the **Name** column is used as a suggestion for the menu captions (see Chapter 3.12, Page 40) and serves as an orientation for the additional configuration steps.

Activation
The channels to be used must be marked in the **Active** column. Only then are they available in the additional configuration steps.

Text input languages
The designation of the channel is entered in the separate **Languages** window. All set languages are listed in this window. Every text field must be filled in.

If a language is not filled in, then a warning message appears in the status field.

The texts of the standard language are each displayed in the channel selection window.

Note:
See Chap. 5.2, starting on page 83, for a description of the communication objects and parameters.

3.6.1 Switch channel type

The **Switch** is used to send 1 Bit objects for various switching functions.

Switching function
The switching function is specified by the selection of a switch type. The following switching functions can be chosen:
- Switch-on only or switch-off only, independent of the current status,
- Switching: switch On/Off depending on the current status ,
- Bells: Switch on for as long as the button is pressed or not pressed (adjustable).

The status display can be deactivated by configuration. The associated status object is always visible. The status display is exclusively controlled by the status object. Thus if no status object is linked, then the status display does not change.

Status display visible
If **Status display visible** is set with **yes**, then the switching status is displayed on the operating and display system.

If **Status display visible** is set with **No** then the status display is deactivated. The associated status object is always visible.

Note:
The status display is controlled by the status object. If no status object is linked, then the status display does not change.

Status display on the operating and display system
The status is displayed by a point on the switching function.

Figure. 12. Example for switching status OFF

Figure. 13. Example for switching status ON

3.6.2 Dimmer channel type

The **Dimmer** channel type can be used to set the brightness of the lighting.

Dimming function
- Selection of the channel by pressing the button in the operating and display system.
- The border color of the button changes.
- Sending a 1 Bit switch command (ON/OFF) by pressing the rotary button.
- Sending a 1 Byte dimming value telegram by turning the rotary control. This sent dimming setpoint value is displayed for 5 s.
- After this time, the actual status of the dimmer is displayed instead of the dimming setpoint value. The connection of the 1 Byte communication object is required for this.
- Receiving the 1 Bit status object On/Off. The bar is displayed in yellow for the "on" status. The bar is displayed in grey for the "off" status.

The dimming value is changed by turning the rotary control on the operating and display system. Slow turning changes the dimming value by 1 Bit (approx. 0.4 percentage points) per click. Fast turning leads to a greater change of value.

Note:
If configured accordingly the dimmer (actuator) can also be switched using the 1 Byte communication object.

Correct connection of the status objects
If the status objects are connected incorrectly, the operating and display system cannot correctly update the internally held status.

The switching processes via the operating and display system possibly require double activation.

Display on the operating and display system
The rotary control function is displayed by an arc with two arrows (top left).

The dimming function is displayed by a bar on the lower edge of the switch area. The bar is circular at the minimum dimming value.

Figure. 14. Example of dimming (here brightness value around 60%)

Example: Dim light
1. Tough the **Dim lights button**.
   - ➢ The corresponding channel is selected.
2. Press the rotary control
   - ➢ The dimmer is switched on (1 bit)
3. Turn the rotary control until the desired brightness value is reached.
4. Press the rotary control
   - ➢ The dimmer is switched off (1 bit)

Note:
The brightness value which takes effect when switched on (1 bit) is set by configuring the dimmer.

3.6.3 Channel type priority control

The channel type **Priority control** can be used to override switching processes with priority control. For example, in energy saving or night mode the switching on of specific lights or loads can be prevented.

Priority control function
The following commands and buttons are provided for the priority control function.
- Activate priority control and switching status ON: Send **11**,
- Activate priority control and switching status OFF: Send **10**,
- Deactivate priority control without switching: Send **00**.

The command is immediately sent by pressing the button on the operating and display system.

Display on the operating and display system
Pressing the priority control button changes the display in the priority control submenu, where the commands can be selected.

Figure. 15. Example of priority control (shown above: Activate priority control and switching status ON)

3.6.4 Channel type Shutter

The functions for operating a **shutter** are set in the Shutter channel type.

Function
Two 1-bit communication objects are provided for the basic functions.
- Sun protection up/down,
- Stop sun protection and slats open/closed.
  The stop command always sends a **0**. It can end the movement of the sun protection at any time.

Note:
The stop command and the slat position are send by a joint communication object.
The sun protection movement is stopped the first time the button is pressed. Each additional press of the button changes the slat position by one step (slats open).

Reverse of rotation of slat setting
The rotational direction of the lamellae can be reversed.
- **No**: Turning clockwise sends lamellae closed (1).
- **Yes**: Turning clockwise sends lamellae open (0).

Actuator status object provided
If the shutter actuator in use provides a status object (position of the shutter), this can be evaluated for the shutter control.

Note:
The actuator status object must be connected to the channel status object.

Display on the operating and display system
Pressing the **Shutter** button changes the display on the operating page. Commands for operating the shutter can be selected here.

Figure. 16. Shutter button on the Home-page

The operating page of the shutters can be designed with or without status display.

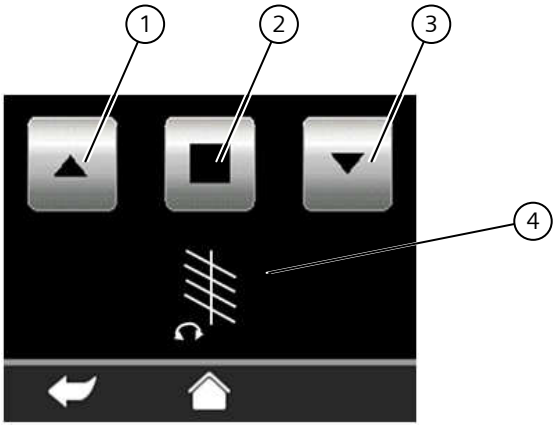

Figure. 17. Operating page of the shutters without status display

1) Sun protection button up
2) Stop button
3) Sun protection button down
4) Change of slat position (set by rotary control)

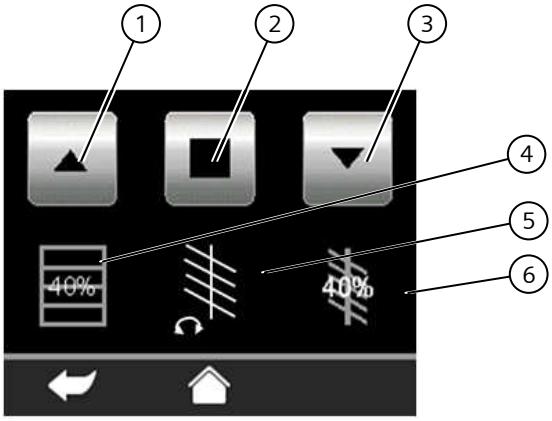

Figure. 18. Operating page of the shutters with status display

1) Sun protection button up
2) Stop button
3) Sun protection button down
4) Position display of the sun protection
5) Change of slat position (set by rotary control)
6) Position display of the slats

3.6.5 Channel type roller blinds

The functions for operating a roller blind are defined in the **Roller Blind** channel type.

Function
Two 1-bit communication objects are provided for the functions.
- Roller blinds up/down,
- Stop roller blinds.
  The stop command always sends a **0**. It can end the travel of the roller blinds at any time.

Actuator status object provided
If the roller blind actuator in use provides a status object (position of the roller blind), this can be evaluated for the roller blind control.

Note:
The actuator status object must be connected to the channel status object.

Display on the operating and display system
Pressing the roller blind button changes the display on the operating page. Commands for operating the roller blind can be selected here.

Figure. 19. Roller blind button on the Home-page

The operating page of the roller blinds can be designed with or without status display.

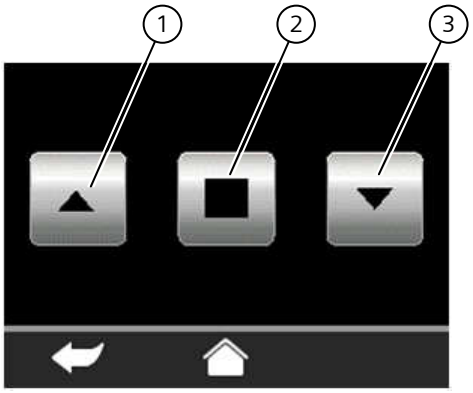

Figure. 20. Operating page of the roller blinds without status display

1) Roller blind button up
2) Stop button
3) Roller blind button down

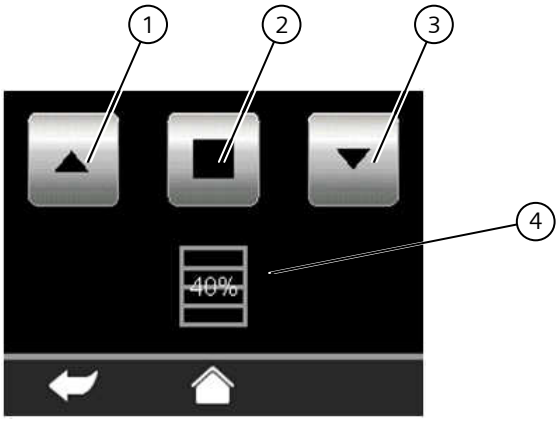

Figure. 21. Operating page of the roller blinds with status display

1) Roller blind button up
2) Stop button
3) Roller blind button down
4) Position display of the roller blind

3.6.6 Channel type Send value

The channel type **Send value** is used to send fixed or variable values to the KNX Bus. Various data types and units and be sent.

Send value function – fixed
Fixed values are send to the channel by simple assignment of a button. An operating page is not available. The rotary control on the Contouch operating and display system has no function.

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Send value function – variable
Variable values are set and sent on the Contouch operating and display system. A separate function page is available for this. The rotary control can be used to change the values.

The value range (minimum, maximum) is set in the parameter window. The smallest step size is determined by the resolution of the selected data type.

Variable value
The parameter specifies the function of the channel type.
- **No**: Send value – fixed
- **Yes**: Send value – variable. The selection of this option expands the parameter window to include the entries maximum, minimum and unit.

Data type
The following 5 data types are available: The data type consists of the size of the communication object (1 or 2 byte) and the number type (%, integer with/without sign).

The smallest step size for changing values on the Contouch operating and display system is determined by the data type:
- Integers (including percentage values) are changed as whole numbers.

Value
Only for the **Send value – fixed** function.

Sets the value to be sent when the button is pressed. This value cannot be changed on the Contouch operating and display system.

Maximum / Minimum
Only for the **Send value – variable** function.

The value range can be restricted in these fields. The maximum expanse of the value range depends on the selected data type.

When the data type is selected maximums and minimums of the respective data type are automatically entered in the respective fields and can be adapted there.

Note:
The value of the **Minimum** parameter is displayed on the operating and display system the first time the operating page is opened.
The last sent/received value is displayed with each additional call-up of the operating page.

Unit
Only for the **Send value – variable** function.

This parameter is used to set the unit displayed under the numerical value on the operating and display system.
- Maximum length: 14 characters.

Display on the operating and display system
The functions **Send value - fixed** and **Send value - variable** are displayed differently.

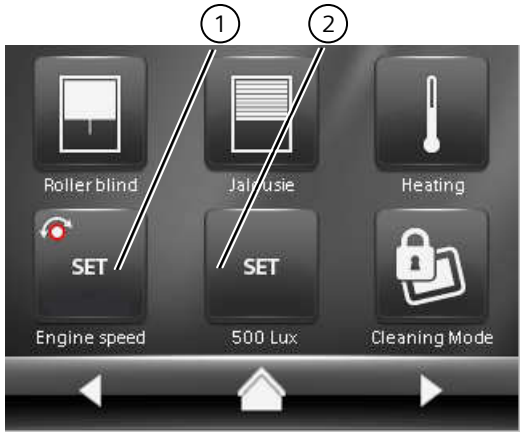

Figure. 22. Function page with "send value" buttons (example)

1) Symbol for send value – variable
2) Symbol for send value – fixed (here: activated)

Send value – fixed:
1. Touch button.
   ➢ The fixed set value is sent.

Send value – variable:
- The values are displayed on the operating page according to their data type.

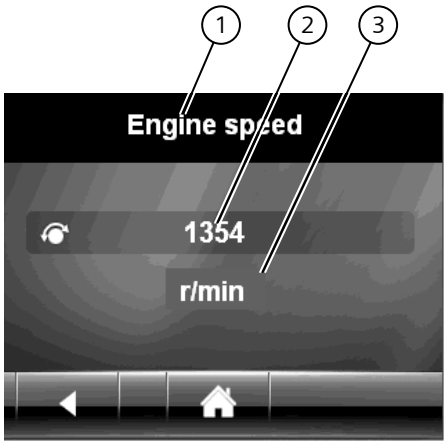

Figure. 23. Operating page for send value – variable (Example)

1) Naming, corresponds to the channel designation
2) Current value, adjustable
3) Unit

1. Touch button
   ➢ The display changes to the operating page.
2. The value to be sent is set with the rotary control. When the control is turned quickly, the step width adapts dynamically to the specified value range.
3. Press the rotary control.
   ➢ The value is sent. The sent value is permanently stored in the operating and display system. It is also available after the power supply returns.

3.6.7 Channel type Scene control

The **scene control** channel type serves to designate a scene and to specify the scene number (Scene-ID), which is to be sent by the communication object.

Scenes serve to combine switching processes, which lead to the creation of a certain, reproducible state.

The designation of the scenes is used as a suggestion for the menu-caption in the operating and display system.

Scene number (Scene-ID)
The scene number uniquely identifies a scene. It cannot be changed, not even if other scenes are deleted.
- Value range: 1...64.

Display and call-up on the operating and display system
Scenes are displayed as buttons on the home-page or function pages. Scene buttons can be identified by a film flap symbol in the upper left.

The button border color 1 changes when a scene is called up.

Figure. 24. Function page with 3 scenes (example)

Change scene settings on the operating and display system
1. Consecutively call up all operating pages of the channels to be changed and change the values.
2. Switch to the button of the changed scene.
3. Resave the scene by pressing and holding down the button.
   ➢ A signal tone sounds.

3.6.8 Channel type Alarm / Message

The channel type **Alarm / messages** is used to configure alarm and message functions. Alarms and messages are functionally differentiated in regard to resolution, signaling and acknowledgement.

Note:
The channel-specific parameters for alarms / messages are set in the **Channels** configuration window.
Global parameters for all alarms are defined in the **Parameters** configuration window (see Chapter 3.8, Page 25).

Alarm function
Alarms are automatically displayed when they occur. Along with being shown on the display, alarms can also be signaled by the LED or as a signal tone. The behavior of Display, LED and signal tone in the case of alarm is configured by the parameters specific to each channel.

Alarms are prioritized. Alarms with the highest priority are displayed first. When priorities are equal, the most recent message is displayed first.

Alarms must be acknowledge. The acknowledgement can be made using the Display on the operating and display system or externally via a communication object.

Message function
Messages are automatically displayed when they occur. They on stored on an operating page. The sequence conforms to the channel sequence.

Alarms do not need to be acknowledged.

3.6.8.1 Function-specific alarm parameters

Note:
The other parameters to be set vary depending on the selected function. The parameters described in the following apply for the **Alarm** function.

Condition for alarm activation
An alarm is activated when the operating and display system receives value set here from the object triggered by the alarm (Alarm condition).

Triggering only occurs
The alarm can be triggered on time or for each alarm.
- **Only for the first alarm**: The alarm is triggered one time when the alarm condition first occurs. Possibly received updates of the alarm condition are ignored.
- **For every alarm:** The alarm always triggers when the alarm condition is received.

Object value for acknowledging the alarm
The value set here is sent in the communication object via the Bus after acknowledgement on the Contouch and acknowledgement via the Bus is possible with this value.

Display lighting when an alarm occurs
The parameter determines the behavior of the display lighting when an alarm is triggered.
- **Switch on**: The display lighting always switches on (switches off after standard display turn-off time).
- **No change of state**: The display lighting remains in the current state (ON or OFF).

Alarm text
The alarm text is displayed on the operating and display system when the alarm is triggered. The maximum text length is 64 characters.

Alarm symbol
The alarm symbol is displayed on the operating and display system when the alarm is triggered.

LED behavior in case of alarm
The parameter determines the behavior of the Status LED on the operating and display systems when an alarm is triggered.

The LED color cannot be influenced. Depending on the set behavior, alarms are always displayed with a red illuminating LED.

Behavior when an alarm occurs
The parameter determines the acoustic behavior of the operating and display systems when an alarm is triggered.
- **Without alarm tone**: No acoustic signal sounds when the alarm is triggered.
- **One-time alarm tone**: A one-time alarm tone sounds when the alarm is triggered. The length of the alarm tone is set in the global parameter **Automatic shut-off of the alarm tone after**.
- **Alarm tone repeats permanently**: An alarm tone sounds for a defined time period when triggered. Then the alarm message is displayed silently to then be sounded again acoustically. The length of the alarm tone and the repetition interval are set in the global parameters **Automatic shut-off of the alarm tone after** and **Repetition of the alarm tone after automatic shut-off after**.

Priority
Alarms are sorted in the events list according to priority. The parameter specifies the priority of the alarm.

Up to 18 priorities can be defined. The value 1 indicates the highest priority, the value 18 the lowest.

Alarm text to be sent
The alarm text is sent through the communication object when the alarm is triggered. The text length is 1 - 14 characters. Input of an empty character string is not possible.

3.6.8.2 Function-specific message parameter

Note:
The further parameters to be set change depending on the selected function. The parameters described in the following apply for the **Message** function.

Symbol for value = "1"
The symbol is shown on the operating and display system when the communication object supplies the **Value 1** for the message condition.

Symbol for value = "0"
The symbol is shown on the operating and display system when the communication object delivery the **value 0** for the condition of the message.

Text display for value = "1"
The text is shown on the operating and display system when the communication object supplies the **Value 1** for the message condition.

The maximum text length is 64 characters.
- Example: "Window open"

Text display for value = "0"
The text is shown on the operating and display system if the communication object delivers the **value 0** for the condition of the message.

The maximum text length is 64 characters.
- Example: "Window closed"

Display on the operating and display system
The operating pages for alarms and messages can be called up by pressing separate buttons on the operating and display system.

The buttons can be placed on any desired function pages during configuration (see Chapter 3.12, starting on page 40).

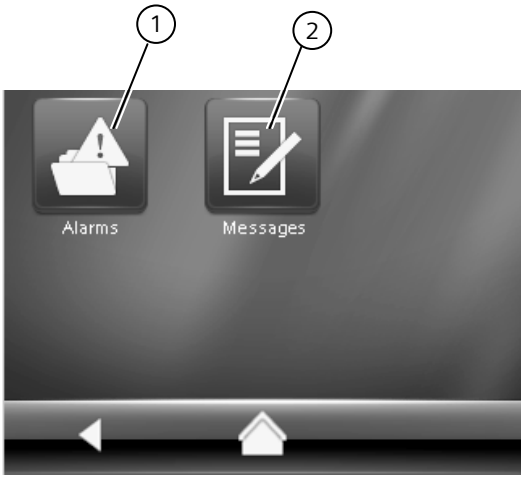

Figure. 25. Buttons for alarms and messages (example)

1) Buttons for alarms
2) Buttons for messages

Alarms can affect what is shown on the display and also be output by LED and signal tone. The behavior of the operating and display system is specified by the parameters of each channel when an alarm occurs.

Note:
The signals for the behavior of LED and signal tone are OR-linked. This means for example: If one alarm is configured with sound and a second alarm without sound and both alarms are active, then a signal tone sounds

Display and acknowledgement of alarms
Alarms are automatically displayed when they occur. An overview of all active alarms is shown on the operating page.
- After the button for alarms is pressed, the operating page with the first alarm is displayed. If no alarm is active, the operating page contains a corresponding symbol (Figure. 26).
- The sequence of alarm displays corresponds to the set priority. The alarm with the highest priority is displayed first.
- For alarms with equal priority, the time of occurrence is decisive: the most recent message appears first.
- Alarms are not removed from the list until they have been acknowledged and deactivated.

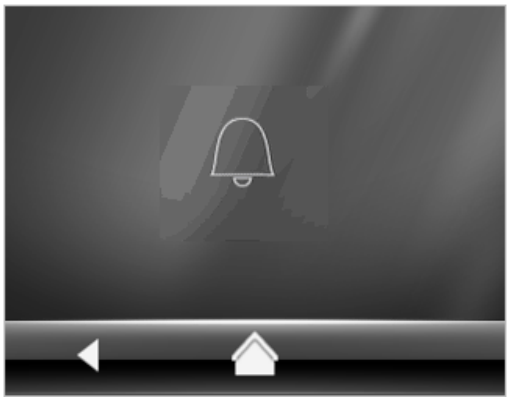

Figure. 26. Operating page, when no alarm is active

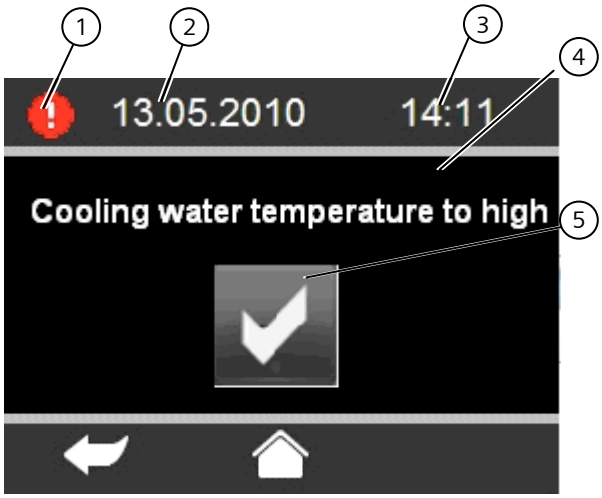

Figure. 27. Operating page with active alarm (example)

1) Alarm symbol (configured)
2) Time stamp for occurrence of the alarm – date
3) Time stamp for occurrence of the alarm – time
4) Alarm text (configured)
5) Button for acknowledging the alarm

Notes for acknowledging an alarm:
- Pressing the confirm button acknowledges the alarm.
- A communication object received via the KNX Bus can also acknowledge an alarm.
- After acknowledgement, the alarm goes into the background; LED and signal tone are deactivated. The confirm button vanishes. (Observe: the parameter *„alarm repetition after acknowledgement after"* resets the acknowledgement symbol after the configured time).
  The next, non-acknowledged alarm is displayed.
- Alarms are not removed from the list until they have been acknowledged and deactivated.

Notes for deactivating an alarm:
- An alarm can only be deactivated by a corresponding bus telegram (Condition for alarm deactivation).
- If an alarm is deactivated which has not yet been acknowledged, then the LED and signal tone and shut off for this alarm and the alarm continues to be displayed. It is assigned the deactivated status.

Display of messages
Messages are not automatically displayed. Display by LED or signal tone is not possible.
- After the button for messages is pressed, the operating page with the first message is displayed.
- The sequence of message displays corresponds to the channel sequence.
- Messages are not removed from the list since a valid state is always present.
- If the request of the object value fails before a corresponding bus telegram arrives, then the message is output for an undefined state. The message contains the channel name as a heading and ? as the message text (Figure 29).

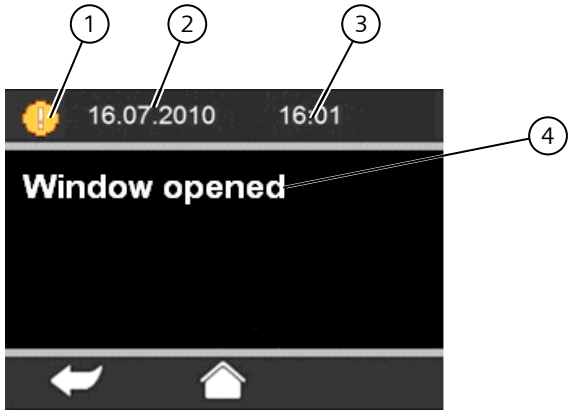

Figure. 28. Message window (Example)

1) Symbol (configured)
2) Time stamp for change of the object value – date
3) Time stamp for change of the object value – time
4) Message text (configured)

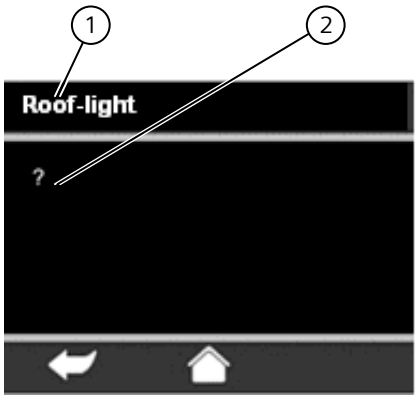

Figure. 29. Message for undefined state (example)

1) Channel name
2) Message text always ?

3.7 General parameters

Additional parameters are configured in the **Parameters** configuration window and organized thematically.

Settings for the display and operating system are defined under **General**. Different parameters can be displayed, depending on the configured settings.

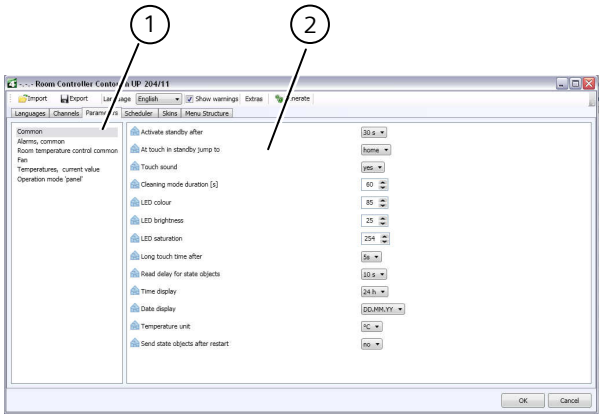

Figure. 30. Common parameters window

1) Selection of topics
2) Control elements for setting the parameters

3.7.1 Standby mode

The display shuts off when the operating and display system is not operated for a longer period of time.

Standby mode is deactivated by:
- touching the display,
- operating the rotary control.

Activate standby after
The parameter specifies the time interval after which the display switches to standby mode when it is not operated.

At touch in standby jump to
The parameter specifies which page is shown in the display after deactivation of the idle mode.

3.7.2 Pressing buttons

Pressing of buttons on the operating and display system can be emphasized acoustically in the form of short beep tones.

Touch Sound
The parameter specifies whether a signal tone should be output when a button is pressed. The type and duration of the signal tone cannot be set.

3.7.3 Cleaning mode

In cleaning mode, the usage of the touchscreen and the rotary control is prevented for a specified time. This also deactivates the use of the press function of the rotary control for operating the basic scenes.Cleaning mode cannot be deactivated until this time has passed.

The **Cleaning mode duration [s]** specifies the duration of the cleaning mode.

Display on the operating and display system
The button for cleaning mode activation can be placed on both a function or operating page as well as in the function list.

Figure. 31. Cleaning mode button

Note:
Alarm messages are displayed during cleaning mode. These, however, cannot be acknowledged by the Contouch.

3.7.4 LED orientation light

The Contouch operating and display system contains an RGB-LED (multi-color LED) as an orientation light and for display of alarms.

Figure. 32. LED orientation light on the device

1) RGB-LED

Color, brightness and saturation are configured according to the HSV color model.

LED colour
The parameter specifies the LED color as orientation light in the normal state.

Examples of parameter values:
- **0 =** Red
- **42** = Yellow
- **85** = Green
- **128** = Turquoise
- **170** = Blue
- **213** = Violet

Note:
The color red should not be used as the orientation color, since this color is only used to display alarms.

LED brightness
The parameter specifies the brightness of the LED as orientation light in the normal state.

Examples of parameter values:
- **0** = Off
- **255** = 100%

LED saturation
The parameter specifies the saturation of the LED as orientation light in the normal state.

Examples of parameter values:
- **0** = No saturation, white light
- **255** = maximum saturation

3.7.5 Holding down a pushbutton

Certain functions of the operating and display system are called up when the operation holds down a button longer than usual (e.g. storing of scenes).

The parameter **Long touch time after** determines the minimum amount of time the button needs to be pressed for this to be considered a long button press.

3.7.6 Query and sending of status objects

After the power is restored, the operating and display system automatically queries the status objects of the following bus devices:
- External indoor temperature sensor,
- Outdoor temperature sensor,
- Time / date,
- Basic setpoint value,
- Window 1 to window 4,
- Presence,
- Status objects of the switching and dimming channels,
- Status objects of the roller blinds – and shutter channels,
- Input objects of the message-type channels
- Room operating mode , query only if the parameter "*Room operating mode after power restoration"* is set to *"automatic"* and the parameter "*automatic mode via"* is set to *"bus telegrams"*.

Read delay for state objects
The parameter specifies the time delay preceding the query.

3.7.7 Time and date

The Contouch operating and display system requires the correct time and day of week for the time program and the time stamp for alarms and messages.

The Contouch operating and display system is not equipped with its own real time clock, so that time and date must each be provided by a communication object of data type DPT_TimeOfDay (10.001) and DPT_Date (11.001).

If the weekday is not provided in data type DPT_TimeOfDay, the DPT date is to calculate the day of week.

Note:
The day of week or date must absolutely be placed in the telegram. The time program and time stamp of the alarms remain locked until a time/date telegram is received.

If the external time sensor fails, the operating and display system can independently compute the time and day of week further, however with limited precision.

Updating the time / changing the clocks
The time should be updated once a day.

Time display
The parameter determines the format for the time display. The indicators **am** (morning) or **pm** (afternoon) are added to the time display for the **12 h** format.

Date display
The parameter determines the format for the date display. The following settings are possible: **TT.MM.JJ** or **MM/DD/YY**.

3.7.8 Temperature unit

The **temperature unit** parameter determines the unit system for the temperature display. The temperature can be set to display °**C** or °**F**.

Note:
Temperature values are only transmitted to the KNX Bus in °C or K.

Send state objects after restart
The parameter determines whether and after which delay the following objects are sent after power is restored:
- Actual value of internal temperature sensor,
- Actual value of indoor temperature, rated
- Setpoint value shifting,
- Setpoint temperature value,
- Status objects for the operating mode,
- Controller status (Eberle),
- Controller status (RHCC),
- Fan mode.

3.8 General alarms

The global parameters for alarms are set in the **General Alarms** configuration window. The specifications set here apply for all alarms.

Note:
The channel-specific parameters for alarms are defined in the **Channels** configuration window of the respective channel (see Chapter 3.6.8, Page 19).

Automatic switching off of the alarm sound after
This parameter sets the time after which the acoustic signal is switched off. Alone tone sounds for this time duration until the alarm is acknowledged.

Repeat alarm after acknowledgement after
This parameter sets the time, after which an alarm is newly displayed after acknowledgement if it is still active.

Repeat the alarm tone after automatic switching-off after
This parameter sets the time, after which the acoustic signal sounds again after automatic switch-off, if the alarm has not yet been acknowledged and the "*Repeat alarm after acknowledgement after*" takes effect.

This setting only works for alarms, for which the channel-specific parameter **Behavior when an alarm occurs** is set to **Alarm tone repeats permanently**.

3.9 Room temperature control

3.9.1 Functional overview

The room temperature control function contains several function blocks which can be combined with each other.

The room temperature control can be set as:
- heating only,
- cooling only,
- heating and cooling.

The room temperature can optionally be controlled using a two-point controller, a constant PI controller or a constant PI controller with sequence control.

The following functions are available:
- Toggling between automatic/manual operation via the display or communication object,
- Switching the room operating mode via the display or communication object,
- Shifting the setpoint value using the rotary control,
- Display and adjustment of the fan speeds,
- Display of the active operating mode,
- Display of an opened heating or cooling valve,
- Display of a melting point alarm and open window.

The following partial functions are part of the room temperature control:
- Room temperature measurement using the internal temperature sensor,
- Consideration of a room temperature measurement made by an external temperature sensor,
- Calculation of the current room temperature actual value (internal and external room temperature sensors weighted),
- Calculation of the current room temperature setpoint value from the basic setpoint value, operating mode and setpoint value shifting,
- Extension of comfort mode by time-restricted deactivation of the pre-comfort, energy-saving and protection modes,
- PI-control for heating and cooling with constant variable output (in %) or switching variable outputs (PWM).

Note:
See Chap. 5.1, starting on page 46, for a description of the communication objects and parameters.

3.9.2 Parameter pages

The room temperature control is configured on several parameter pages.

General room temperature controller
The parameter page **General room temperature controller** is the main page for the configuration of the room temperature control. It is always visible.

The settings on this parameter page determine which additional parameters are visible.

Ventilation
The parameter page is always visible.
- The parameters for this are displayed in the setting "Fan available" set to "Yes".

Temperatures, actual value
The parameter page is always visible.

Controller operating mode
The parameter page is visible when:
- Device function = controller + control panel.

Operating mode of control panel
The parameter page is visible when:
- Device function = control panel.

Heating, two-point control
The parameter page is visible when:
- Device function = Controller + control panel and Controller mode = heating: two-point control

or
- Device function = Controller + Control panel and Controller mode = Heating & Cooling: Two-point control

or
- Device function = Controller + Control panel and Controller mode = Heating: two-point control, cooling = sequence control

or
- Device function = Controller + Control panel and mode = Heating: Two-point control, Cooling = PI-Control.

Heating = PI control
The parameter page is visible when:
- Device function = controller + control panel and
- Controller mode= Heating: PI control

or
- Device function = controller + control panel and
- Controller mode = Heating: PI control
- ,
  Cooling: Two-point control

or
- Device function = controller + control panel and Controller mode = Heating: PI control
-
  Cooling = Sequence control.

Cooling, PI control
The parameter page is visible when:
- Device function = controller + control panel and Controller mode = Cooling: PI control

or
- Device function = controller + control panel and Controller mode = Heating: Two-point control, Cooling: PI control

or
- Device function = controller + control panel and Controller mode = Heating: Sequence control, Cooling = PI control.

Heating and cooling, PI control
The parameter page is visible when:
- Device function = controller + control panel and Controller mode = Heating & Cooling: PI control.

Heating, sequence control
The parameter page is visible when:
- Device function = Controller + control panel and Controller mode = Heating: Sequence control

or
- Device function = controller + control panel and Controller mode = Heating & Cooling: Sequence control

or
- Device function = controller + control panel and Controller mode = Heating: Sequence control, Cooling = Two-point control

or
- Device function = controller + control panel and Controller mode = Heating: Sequence control, Cooling = PI control.

Cooling, sequence control
The parameter page is visible when:
- Device function = controller + control panel and Controller mode = Cooling: Sequence control

or
- Device function = controller + control panel and Controller mode = Heating & cooling: Sequence control

or
- Device function = controller + control panel and Controller mode = Heating: Two-point control, Cooling = Sequence control

or
- Device function = controller + control panel and Controller mode= Heating: PI control
- Cooling = Sequence control.

3.9.3 Device function

The **device function** parameter specifies whether the operating and display system should function as a pure operating device or additionally take over control functions.

The device function is set on the **General room temperature controller** parameter page.

Depending on the selection, additional parameter pages are visible:
- **Controller + control panel** activate the additional parameter page **Controller operating mode**.
- **Control panel**: activates the additional parameter page **Control panel mode**.

3.9.4 Controller operating modes

The room temperature control system supports the **heating**, **cooling** and **heating and cooling** operating modes, each with different control systems.

The controller operating modes are selected on the **operating mode controller** parameter page. Depending on this selection, an additional parameter page appears for the specification of the controller mode (e.g. **heating, PI control**).

Two-point control
The two-point controller checks the current temperature setpoint value in discrete time intervals (cycle time). The heating / cooling are switched on or off depending on whether the actual value lies above or below the setpoint value.

The cycle time of the control and the hysteresis of the two-point controller are adjustable.

The two-point control is easy to configure and can be used for controls which permit a minimal fluctuation of the room temperature.

PI-Control
The PI control constantly computes a variable from the input quantities actual and setpoint value. This variable can be transmitted via the KNX bus as a variable ranging from 0...100 % (Figure. 33) or as a pulse width modulated On/Off command (Figure 34) via the KNX Bus.

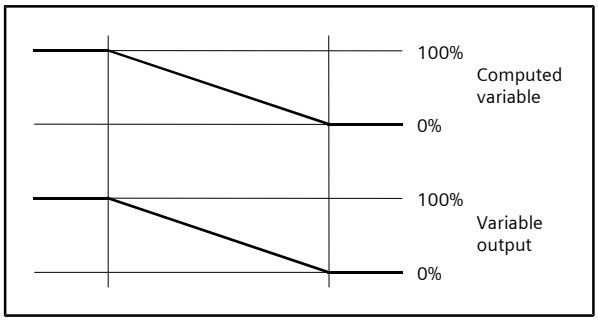

Figure. 33. Constant output of the variable (1 Byte)

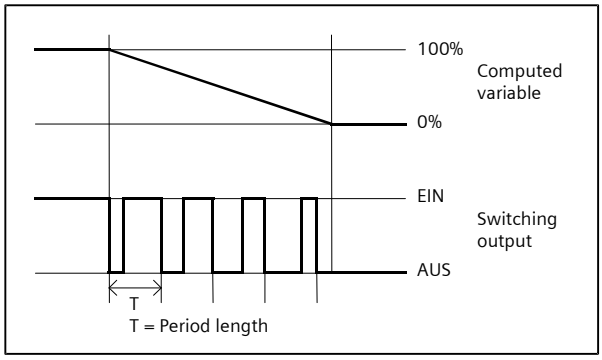

Figure. 34. Switching output of the variable (1 Bit)

the type of variable output, the proportional range and the reset time are adjustable.

Sequence control

Can a room be heated (e.g. via floor heating and radiator heating) or cooled in two different ways? Is sequence control practical? The two heating/cooling sources are then not parallel, but controlled in sequence.

An example for heating with floor heating and radiator heating in one room:

- If a room temperature is below the setpoint value, the valve for the floor heating is opened first (sequence 1).
- If the floor heating valve is 100% open and it is still not warm enough, then the radiator valve will open (sequence 2).
- If the room is too warm, the radiator valve opens first and then the floor heating valve closes.

The sequence control converts the internal variable from the constant PI control to two values (Sequence 1 variable, Sequence 2 variable).

The value of the control variable, from which Sequence 2 begins, can be set. The minimum variable change, for which the variable should be sent to the Bus, can also be separately set for each sequence.

The variables are output as constant variable in the range of 0...100 % (1 Byte) (Figure. 35). The output as a pulse width modulated On/Off command (1 Bit) is not possible.

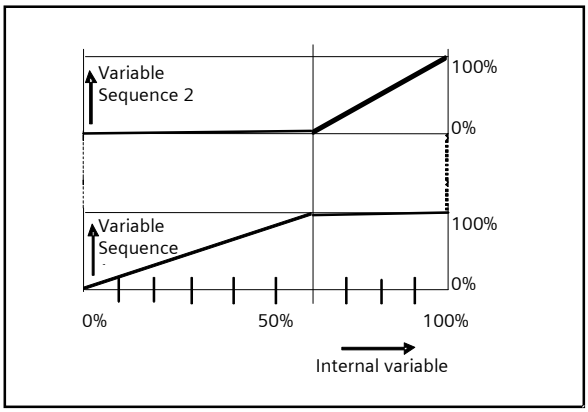

Figure. 35. Sequence control variables (1 Byte)

3.9.5 Actual value specification

The settings for the actual value specification are made on the **Temperatures, actual value** parameter page.

Internal Temperature sensor
An internal temperature sensor is installed in the Contouch operating and display system.

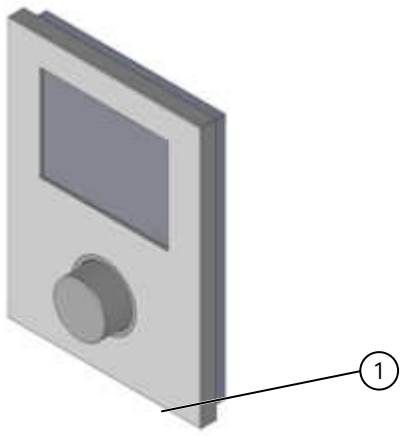

Figure. 36. Internal sensors on the operating and display system

1) Temperature sensor

The internal temperature sensor measures the ambient temperature of the device in the range of **0° C...+45° C** with a resolution of **0.1 K**. The value can be adapted to environmental influences (e.g. if mounted on an external wall) by means of an offset.

The corrected value is used to specify the actual value.

The sensor value is updated every **10 s**.

The sensor values are sent via a communication object. The sending interval can be set.

Behavior of the measured values outside of the measurement range:
- If **T < 0°** C the display shows **LOW**. The communication object continues to send **0° C**.
- If **T > 45° C** the display shows **HIGH**. The communication object continues to send **45° C.**

External indoor temperature sensor
An external indoor temperature sensor can be connected to the Contouch operating and display system.

The sensor should send every temperature change automatically. If this is not the case, the control can query the current value on the external indoor temperature sensor via an additional communication object.

After power restoration, the controller requests the current value from the external indoor temperature sensor independently.

Actual value computation
The device determines the current room temperature actual value from:
- the corrected value of the internal temperature sensor (measured value + offset),
- the value of the external indoor temperature sensor.

Note:
If no values are provided for the following objects basic setpoint value, external temperature and external indoor temperature sensor, or no values can be queried, then a configurable standard value is used.

A configurable weighting is determined to specify the proportion of the externally measured temperature included in the computation of the temperature actual value.

The room temperature actual value can be read from its own communication object or sent automatically or cyclically when a configurable value is changed (see Chapter 5.1.6, page 56).

3.9.6 Setpoint value specification

The settings for the setpoint value specification are made on the **General room temperature controller** parameter page.

The current setpoint value is determined from
- the current room operating mode,
- the basic setpoint value and
- a setpoint value shift which must possibly be considered.

The basic setpoint value can either be adapted by the communication object (basic setpoint value) or set to a fixed value by a parameter.

When the basic setpoint value is specified via the communication object, the controller independently requests the current value on the bus after restoration of power.

The setpoint value offset is either input directly in **°C / °F** or as a relative value in **K**. The relative value is internally adopted in the setpoint value computation.

Display on the operating and display system
Depending on the configuration, the setpoint is displayed on the operating and display system in **°C / °F** or as an offset from the basic setpoint value in **K** on the **Room temperature control** operating page.

The user can change the setpoint value with the rotary control on the operating and display system. The change becomes active after a 3-second delay.

3.9.7 Updating the setpoint value on the basis of outside temperature

The operating mode **cooling** offers the option of updating the setpoint value of the outside temperature.

The outside temperature is read via the object **Temperature, outside temperature**. This object can send read requests to the corresponding object of the external outside temperature sensor cyclically so that it transmits the current value.

If the outside temperature is higher than 26 °C and more than 6 K higher than the current setpoint temperature, then the target temperature is set to a value 6 K under the outside temperature. In this case the setpoint value cannot be shifted to a target temperature which would result in a lower value than the target temperature updated by the outside temperature. Operating modes also have no effect in this case (the mode is changed but the target temperature continues to be determined by the outside temperature). An exception is made when the setpoint value for frost protection or heat protection is exceeded.

3.9.8 Room operating modes

The requirements for room temperature control can vary depending on the current usage of the room.

Several operating modes are available for this, which are each assigned a different setpoint value.
- comfort mode,
- Pre-comfort mode,
- Energy-saving mode,
- Protection mode.

The operating modes can be switched automatically (automatic mode) or manually (manual mode).

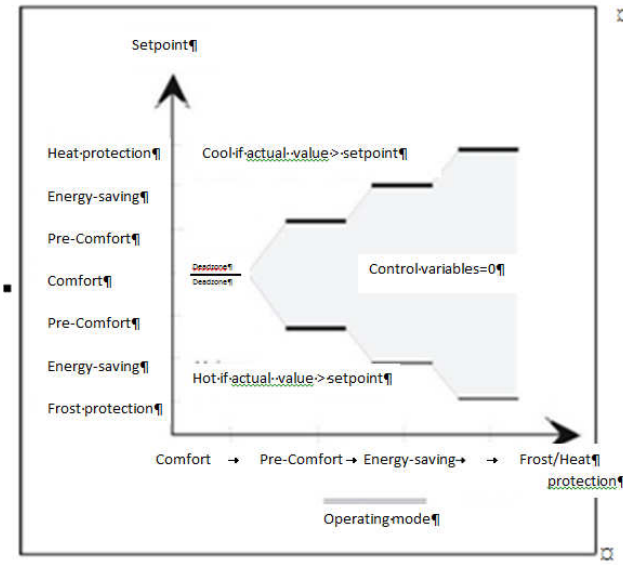

Figure. 37. Room operating modes and setpoint values

The settings for the room operating modes are made on the **General room temperature controller** and **Mode controller** or **Control panel mode parameter** pages.

3.9.8.1 Automatic / manual mode

Automatic mode
In automatic mode, the modes are either switched by external Bus telegrams (see Chapter 3.9.8.11, page 34) or internal time programs. Switching commands from each other control mode are ignored.

Automatic mode is displayed as such on the display.

The **Automatic mode via** is used to set which type of automatic mode should be active.

Manual mode
Manual mode offers the option of permanently setting the room operating mode using the display on the operating and display system.

The mode which is permanently activated in manual mode cannot be changed by external bus telegrams, the internal time-switching program or by presence detectors. The permanent protection mode cannot be changed.

Automatic mode can be reactivated on-site by the Contouch or via the corresponding communication objects.

The settings in manual mode are only possible if the device is not in permanent protection mode

3.9.8.2 Comfort mode

Comfort mode is used to set the room temperature to a comfortable level when people are present in the room.

The setpoint value is
- directly adjusted either on the system rotary control by the user or
- computed from the basic setpoint value and the adjusted setpoint value shift.

The setpoint value in comfort mode does not depend on whether heating or cooling is active.

Presence detector
Comfort mode can be activated by a presence detector.

The **Presence detector object visible** parameter is used to define whether **Presence** communication object should be modified.

Messages sent via this communication object are evaluated for the activation of **Comfort mode**.

The following rules apply:
- Comfort mode is switched on when a **Presence = ON** telegram is received.
- If a **Presence = OFF** telegram is received when **Presence = ON**, the controller switches after **10 s** to the room operating mode which is activated by the internal time program or by bus telegram.
- Opening a window during **Presence = ON** internally activates the protection mode.
- The presence detector telegrams are ignored in manual mode.

Dead zone
A symmetrical dead zone between heating and cooling is defined in the **Heating & Cooling** controller mode to ensure that the heating valve and the cooling valve are not open at the same time.

The size of the dead zone is specified by the parameter **Dead zone between heating and cooling**.

The following rules apply:
- The dead zone takes effect symmetrically around the range of the target temperature.
- The **actual room temperature value T** is queried when power is restored, and heating or cooling is activated depending on the result:
  T < Setpoint value: Heating;
  T ≥ Setpoint value: Cooling.
- The dead zone is only active in comfort mode.

3.9.8.3 Pre-comfort mode (standby)

The pre-comfort mode serves to keep the room temperature at a specified standby value when no people are present and thus to save heating or cooling energy.

The setpoint value depends on whether heating or cooling is active.

The setpoint value is computed:
- Heating: basic setpoint value – temperature reduction for pre-comfort mode + setpoint value shift.
- cooling: basic setpoint value + temperature increase for pre-comfort mode + setpoint value shift.

3.9.8.4 Energy-saving- mode (nighttime reduction)

An additional adjustable value is provided for energy-saving mode, in which the room temperature can be controlled during longer periods of absence (or in the nighttime hours).

The setpoint value depends on whether heating or cooling is active.

The setpoint value is computed:
- Heating: basic setpoint value – temperature reduction for energy-saving mode + setpoint value shift.
- cooling: basic setpoint value + temperature reduction for energy-saving mode + setpoint value shift.

3.9.8.5 Protection mode (frost protection / heat protection)

Protection mode is used to ensure that the room temperature does not exceed or drop below a critical value.

These setpoint values can be set separately for heating or cooling.

3.9.8.6 Permanent protection mode

The room temperature control can be permanently switched to protection mode during longer periods of absence (e.g. during holidays).

The parameter **Permanent protection mode object visible** specifies whether the permanent protection mode object, which can be used to permanently switch the controller to protection mode, should be modified.

The following rules apply:
- If protection mode is activated by the **permanent protection mode** communication object, it can also be switched off by this communication object.
- Display inputs and telegrams from timers, presence detectors and window contacts are ignored in permanent protection mode.
- The symbol for permanent protection mode appears when the **heating** operating page is called up. Operation is not possible (Figure. 38).
- If the permanent protection mode is switched off by telegram in automatic mode, then the controller switches to the room operating mode which is activated at this time by the internal time program or by bus telegram.
- If the permanent protection mode is switched off by telegram in manual mode, the controller switches to energy-saving mode after deactivation of the permanent protection mode (if this mode is not available, protection mode remains active).

Figure. 38. Heating operating page in permanent protection mode

3.9.8.7 Evaluation of the window states

The evaluation of the window conditions makes it possible for the controller to react to the opening of windows or doors.

Four 1-bit communication objects (# 134 to #137), the messages of which are linked by a logical OR function, are provided for the evaluation of the window conditions.,

The following rules apply:
- If at least one of the communication objects reports an open window, the controller switches to internal protection mode. This means that although the target room temperature value changes (for heating to the value for frost protection, for cooling to the value for heat protection), it is not reported to the bus.
- Changing the target room temperature value to the target frost protection value or target heat protection value causes (reaction time can be configured) the heating or cooling valve to close (reaction time can be configured).
- If at least one of the communication objects reports an open window, this is shown on the display as a symbol.
- Switching to a different mode when a window is open (e.g. by a bus telegram, an internal time program or directly on the Contouch), immediately activates the new mode, but the setpoint value is not activated until the window is closed.

The **reaction to open window** parameter can be used to set a time delay for switching to internal protection mode. This is of practical use if no reaction should occur for every brief opening of a window.

The **Invert window contact** parameter can be used to set the signal value of the status report for each individual window contact:
- **No**: 0 = closed; 1 = open.
- **Yes:** 0 = open; 1 = closed.

3.9.8.8 Comfort extension

The comfort extension can be used to control the room at the comfort temperature for a certain time period if the room is used outside of the specified comfort operating time (e.g. in the nighttime hours).

The user presses the comfort extension button on the **room temperature control** start screen of the operating and display system to activate the comfort extension (Figure. 39). The rotary control is then used to set the length of the comfort extension.

An on-going comfort extension can be prematurely ended at any time by:
- Setting the time of the comfort extension to 0 on the rotary control,
- Manually changing the room operating mode.

The following rules apply:
- If a presence detector is used for presence control, (**presence visible object = yes**), then the comfort extension cannot be manually activated (button is then not visible).
- The comfort extension can be activated from comfort mode, pre-comfort mode, energy-saving mode and protection mode.
- The comfort extension cannot be activated from permanent protection mode.
- The comfort extension can be set to a new value at any time.
- The following applies in automatic mode via an internal time program:
  After the comfort mode extension ends, the mode is switched to the mode which is currently active according to the internal time program.
- The following applies in automatic mode via bus telegrams:
  After the comfort mode extension ends, the mode is switched to the mode most recently set by bus telegram.
- The following applies in manual mode:
  After the comfort mode extension ends, the mode is switched to energy-saving mode. If this is not available, the mode is switched to protection mode.

3.9.8.9 Dew point mode

The controller switches to dew point mode if the **dew point alarm** (#133) communication object sends an **ON** signal from a dew point monitor.

The cooling valve closes. It cannot be opened again until the controller has received an approval from the dew point alarm (value = OFF) communication object.

The dew point alarm is shown by a signal on the display.

If one switches to a different mode in dew point mode (e.g. by bus telegram or the internal time program), then the new mode will not become active until the dew point mode ends.

3.9.8.10 Display on the operating and display system

The room temperature control is shown on the operating and display system in a multi-level menu structure.

The room temperature control buttons can be placed on the home-page or on a function page. The room temperature control start screen, which on its part refers to operating pages, can be called up by this button.

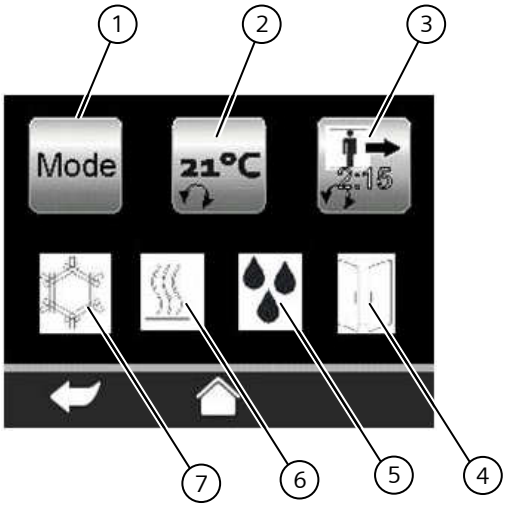

Figure. 39. Room temperature control start screen

1) Button for mode-toggling operating page
2) Temperature specification button (direct target value setting in this case)
3) Comfort extension button (with display of the current time remaining)
4) "Window open" status symbol
5) "Dew point alarm active" status symbol
6) "Heating valve open" status symbol
7) "Cooling valve open" status symbol

The user can switch manually between operating modes and change to automatic mode on the mode-toggling operating page.

Note:
The modes can only be selected manually when the device is not in **permanent protection mode**.

The number of visible buttons depends on the configuration (available modes, fans).

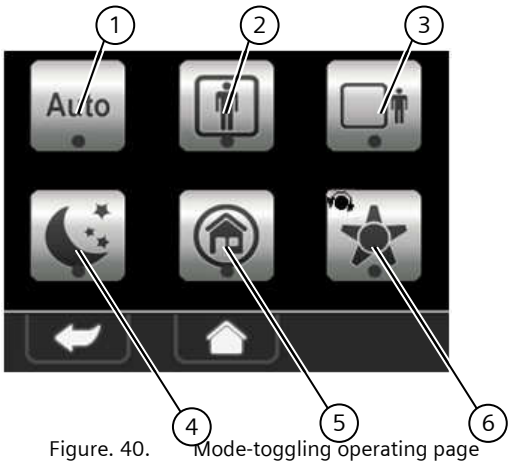

Figure. 40. Mode-toggling operating page

1) Mode-toggling button - automatic mode
2) Comfort mode (present) button
3) Pre-comfort mode (absent) button
4) Energy-saving button (nighttime lowering)
5) Protection mode button
6) Fan level (automatic, 0, 1, 2, 3) button

3.9.8.11 Mode toggling via the bus

In automatic mode, the mode can be toggled among other ways by external bus telegrams.

3.9.8.12 Control via 1-bit objects

Five 1-bit communication objects are provided for switching the room operating modes (Chapter 5.1.15, objects # 124 to #128).

The following rules apply:

- The communication object switching command **ON** of the mode to be activated is sufficient for mode toggling.
- Mode-switching per telegram is immediately shown on the display but not adopted by the controller until after 3 seconds.
- All communication objects where the switching states have been changed by switching to the new room operating modes, are sent without delay.
- The communication object of the previous mode automatically sends the switching command **OFF**.

In the case of 2-conductor systems with only one heat exchanger and one control valve, where either cold of warm water flow through the piping network, the **heating/cooling** (#130) communication object additionally serves to toggle the control between heating and cooling mode.

3.9.8.13 Control via 1-byte objects

Two 1-byte communication objects can also be used for switching the room operating mode and for the status display (Chapter 5.1.15, Object # 140, #141).

The **8-bit object room operating mode / room operating mode status** parameter must be set to **Yes** for this.

The following applies for the 1-byte object of room operating mode:

- An incoming **0** (automatic mode) deactivates manual mode and activates automatic mode. The room operating mode is set to the last mode received via the bus.
- In automatic mode via an internal time program, only the **0** is evaluated. Other values are rejected. The room operating mode is set to the mode which is active in the internal time program.
- Telegrams with other values besides 0,1,2,3,4, are rejected as errors.
- Telegrams with modes which are not available for the controller are rejected as errors.

Controller Status (Eberle)

The controller status (according to the Eberle standard) can be transmitted by an additional 1-byte communication object (Chapter 5.1.15, Object # 142).

Both the room operating mode and the controller mode are provided by these objects when changes occur.

The **8-bit object controller status (Eberle)** parameter must be set to **Yes** for this.

Controller Status (RHCC)

The status of special controller types (RHCC) can be transmitted by an additional 2-byte communication object (Chapter 5.1.15, # 143).

The controller mode and various states are provided by this object when changes occur.

In addition the **16-Bit Object Controller Status (RHCC)** parameter must be set to **Yes**.

3.9.8.14 Switching off the controller via the bus

The controller (#129) communication object can be used to switch the controller on and off.

Switch off controller:
- The variable is internally set to OFF.
- All operating modes are shown as inactive on the display.
- The actual temperature value continues to be defined. Telegrams for temperature, frost alarm and heat alarm continue to be sent.
- The last active setpoint temperature value is stored.
- The status is provided on the 1-bit and 1-byte communication objects (bits for operating modes = 0).

Switch controller back on:
- In automatic mode via bus telegrams, the controller sets itself to the last room operating mode selected by bus telegram.
- In automatic mode via an internal time program, the room operating mode is switched to the mode which is active according to the internal time program at the current time.
- In manual mode, the mode is switched to protection mode.

3.9.9 Ventilation

The **ventilation** parameter page is used to configure a fan. The parameter page is not displayed unless the **fan available** parameter is set to **Yes**.

Settings
The following is specified on the parameter page:
- the number of fan speeds and the speed for each individual fan speed.
- the release of the fan for manual mode,
- the behavior when switching over and then switching on again,
- the display type on the device,
- the value for sending the fan mode via the bus.

Automatic fan mode
The fan switches to automatic mode when one of the following conditions occur:
- Change in room operating mode by bus telegram or the internal time program,
- Manual change of the room operating mode at fan speed 0,
- Activation of the room operating mode protection mode.

Note:
With two-point control, there is no automatic activation of the fan speeds. The fan speeds are set manually in this case.

Manual fan mode
The manual fan mode must be released via the **fan manually operable** parameter.

Manually switching to **fan speed 0** turns off the fan. An open heating or cooling valve closes.

This means that the room can neither be cooled nor heated. If, as a result of this, the setpoint value for heating protection is exceeded or the value for frost protection fallen short of, the controller reacts in different ways, depending on the selected mode.

With constant controller:
- The fan switches to automatic fan mode.
- The controller heats or cools until the frost or heat protection setpoint value is reached.
- The fan also remains in automatic mode after these setpoint values are achieved.

With two-point control:
- The fan switches to the next highest fan speed.
- The controller heats or cools until the frost or heat protection setpoint value is reached.
- After reaching the setpoint value the fan switches to fan speed 1. The fan speed can now be switched manually.

Note:
A manual change in the fan speed does not take effect until the target temperature is reached. The fan then switches to the set value.

Automatic activation of the fan speeds
The fan can take on up to 3 fan speeds.

With automation activation, the fan speeds are linked to fixed valve settings of the heating or cooling valve (Figure. 41). With pulse width modulated PI control, the relative time of the **open** valve setting is used.

Fan speed	Number of configured fan speeds		
	1	2	3
OFF	0 %	0 %	0 %
1	0,5 – 100 %	0,5 – 50 %	0,5 – 33 %
2	0	50,5 – 100 %	33,5 – 67 %
3	0		67,5 – 100 %

Figure. 41. Activation of the fan speeds depending on their number and the setting of the heating valve.

The **fan speed in levels** parameter can be used to set the fan speed for each separate fan level.

Note:
It is practical to assign the fan speed for the fan levels in ascending order (Level 1 = lowest speed, Level 3 = highest speed).
If this is not the case, then the lower level is retained when the mode is automatically switched to automatic mode.

Since some fans do not start up properly which switched on at fan level 1, the parameter **If fan = OFF, start-up in level** can be used to set a different fan level for the start-up.

Note:
The active level is shut off for **0.5 seconds** before switching to a new fan level since two fan levels cannot be switched on simultaneously.
It is recommended that the operating and display system and the fan switching actuator be connected to the same bus line so that this timing of the switching actuator can be maintained.

Display on the operating and display system
If the fan control is activated in the **fan available** parameter, then the fan button is shown on the display.

Figure. 42. Button for fan control (here, the fan is in automatic mode)

The fan button can be used to switch the fan to automatic mode, set the fan to a certain fan level or to switch it off:

1. Select fan button.
2. Set fan mode / fan level with the rotary control and press the rotary knob.

3.10 Time programs

The time planner can be used to set time programs for the controller modes and for individual channels.

The following rules apply for the time programs:
- A program can be defined by day of week for temperature control and every single channel.
- A maximum of 16 switching points can be defined for each program.
- After a power loss, the current operating condition is adopted for the **controller mode**, even if the last switching point lies in the past.
- After a power loss, a past switching point is not executed again for the **channels**.
- The **Temperature control** time program is activated by the **automatic** heating mode.

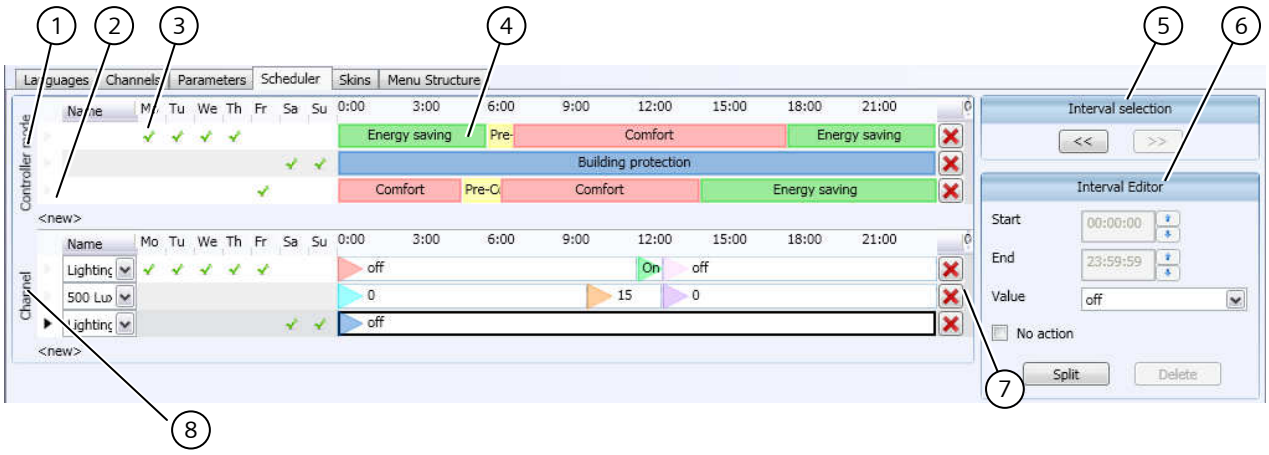

Figure. 43. Operational range of the time program

1) Time program for controller mode
2) Create new line
3) Week planner area
4) Interval display (time range)
5) Interval selection
6) Interval editor
7) Delete time program
8) Time program for channels

3.10.1 Time program for temperature control

The time program for temperature control is created and adapted in the **controller mode** (Figure. 43).

Create time program

1. Click on the <**new**> button in the week planner area.
   - ➢ A new line with a pre-set distribution of the room operating modes appears.

Adapt time program

1. Click on the fields in the **week planner area** of the weekdays on which the time program is to be active.
   - ➢ The selected weekdays are marked by a green checkmark.

Note:
It is not possible to select the same weekday for multiple time programs for temperature control.

2. Select interval.
   The interval can either be selected directly by mouse click or in the **Interval selection** area.
   - ➢ The current setting of the selected interval are displayed in the interval editor area.

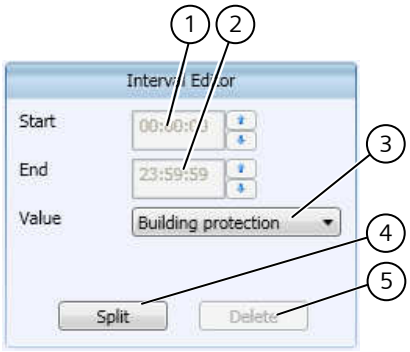

Figure. 44. Interval editor (time program for temperature control)

1) Input of time interval beginning
2) Input of time interval end
3) Selection of room operating mode
4) Divide time interval
5) Delete time interval

3. Select room operating mode.
4. Input start and end of the interval (only possible when multiple intervals exist).

Note:
The shortest interval is 15 min.
Intervals can only be changed in 15-minute steps. The start time must precede the end time.

Recreate interval (divide)
If a new interval is to be created, a pre-existing interval must be divided for this purpose.

1. Select interval to be divided.
2. Click on the **divide** button.
   - ➢ The interval is divided into two intervals of the same size.
3. Adapt both intervals to meet the requirements.

Delete interval
A marked interval can be deleted with the **delete** button.

Since a time program always requires values defined for the entire day, the following rules apply for deletion:
- Deleting a time interval automatically extends the subsequent interval by this time.
- Deleting a day's last time interval automatically extends the preceding time interval until the end time 23:59:59.

3.10.2 Time program of channels

Every single channel can be separately controlled by a time program. This allows, for example, the light to be switched on and off several times a day.

Note:
See Chapter 3.6, starting on page 12 for the definition of channels.

The time program for channels is created and adapted in the **Channel area** (Figure. 43).

Create time program

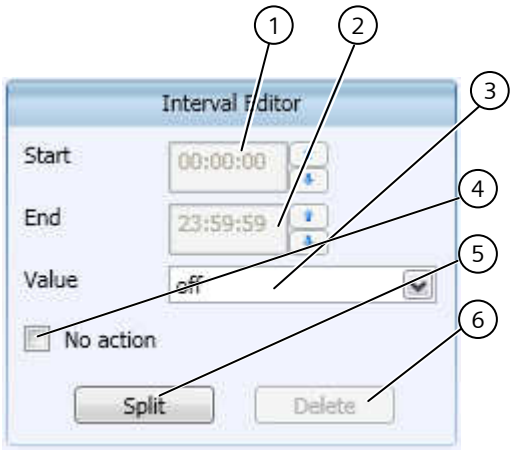

Figure. 45. Interval editor (time program for channels)

1) Input of time interval beginning
2) Input of time interval end
3) The channel value to be sent (dependent on channel)
4) Deactivate time interval
5) Divide time interval
6) Delete time interval

1. Click on the <**new**> button in the week planner area.
   ➢ An empty line is added.
2. Select channel in the **name** selection field.
3. Select interval.
4. Select **value** in the value selection field.
   ➢ The time program is created with an interval of 00:00:00 to 23:59:59.
5. Click on the fields in the **week planner** area of the weekdays on which the time program is to be active.
   ➢ The selected weekdays are marked by a green checkmark.

Note:
It is not possible to select the same weekday for multiple time programs of one channel.
Different channels can be assigned to the same weekdays.

The interval can be divided and adapted for sending additional values to the channel.

Divide and adapt interval

1. Select interval to be divided.
2. Click on the **divide** button.
   ➢ The interval is divided into two intervals of the same size.
3. Select value in the **value** field.
4. Define the beginning and end of each interval.

Note:
The shortest interval is 15 min.
Intervals can only be changed in 15-minute steps. The start time must precede the end time.

Deactivate interval

The first interval can be deactivated.

1. Place a checkmark in the **no action** selection field.
   ➢ The channel cannot be called up in the marked interval.

Delete interval

A marked interval can be deleted with the delete button.

Since a time program always requires values defined for the entire day, the following rules apply for deletion:

- Deleting a time interval automatically extends the subsequent interval by this time.
- Deleting a day's last time interval automatically extends the preceding time interval up to the end time 23:59:59.

3.10.3 Delete time program

1. Click on the button to delete the time program.
   ➢ The time program is deleted immediately without a repeated request.

3.11 Skins

Predefined skins are provided for the button arrangement.

The skin is used for the entire menu structure.

Note:
The skins require storage spaces of various sizes.

The configuration data must be transferred to the operating and display system by MicroSD card.

Figure. 46. Skins selection with preview window

3.12 Menu structure

The menu structure for the display on the operating and display system is defined in this menu.

3.12.1 Surface concept of the control panel

The display and operation using the touchscreen is subdivided into pages. The pages can be configured individually.

The following switching modes are available:
- Home-page
- Function pages,
- Operating pages.

The selection of the configurable pages depends on the available storage space of the operating and display system. Configurations with multiple languages or extensive designs, for example, required more storage space.

Home-page
The home-page is the top page in the menu structure.

On the home-page,
- functions can be called directly,
- jumps can be made to other function pages,
- jumps can be made to operating pages of functions,
- and data displayed.

Figure. 47. Example of a home-page

1) Button area (max. 6 buttons)
2) Navigation area (here with temperature and time display)

The left and middle field of the navigation area can be configured.

For displaying data:
- Time,
- Date,
- Outside temperature
- Indoor temperature (current temperature value of internal and external sensors),
- Heating mode,
- Current fan speed.

As button:
- Language change,
- Cleaning function,
- Heating mode,
- Comfort extension,
- Navigation elements (forwards, back, level, start screen)

Function pages
On a function page:
- functions can be called directly,
- jumps can be made to the home-page or to additional function pages,
- jumps can be made to operating pages of functions,
- and data displayed.

Multiple function pages can be configured.

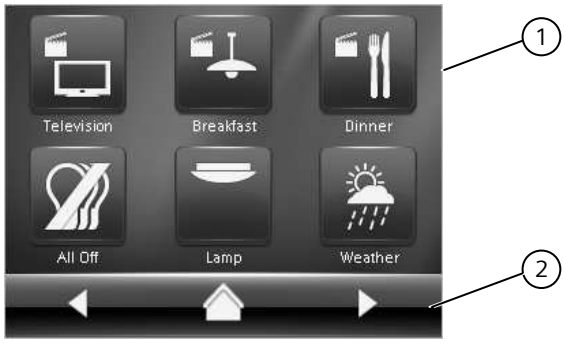

Figure. 48. Example of a function page

1) Button area (max. 6 buttons)
2) Navigation area

Operating pages
Operating pages serve to control individual functions. They are preconfigured. When a function is added to the home-page or to a function page, the operating page associated with the function is automatically added to the menu structure.

The button area is designed in different ways depending on the function.

Manual modification of the operating pages is not possible.

On an operating page:
- Values can be selected and functions run,
- Jumps can be made to addition operating pages, to the associated function pages or to the home-page,

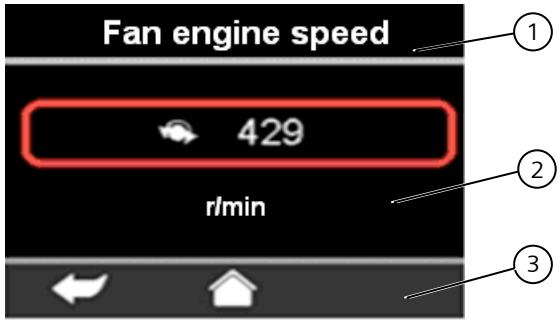

Figure. 49. Example of an operating page

1) Display of the function (channel name)
2) Switching area (dependent on function)
3) Navigation area

3.12.2 Work area and configuration window

The menu structure is defined using a graphic editor. Various templates are predefined for each page. The standard layout consists of six function buttons and three navigational buttons.

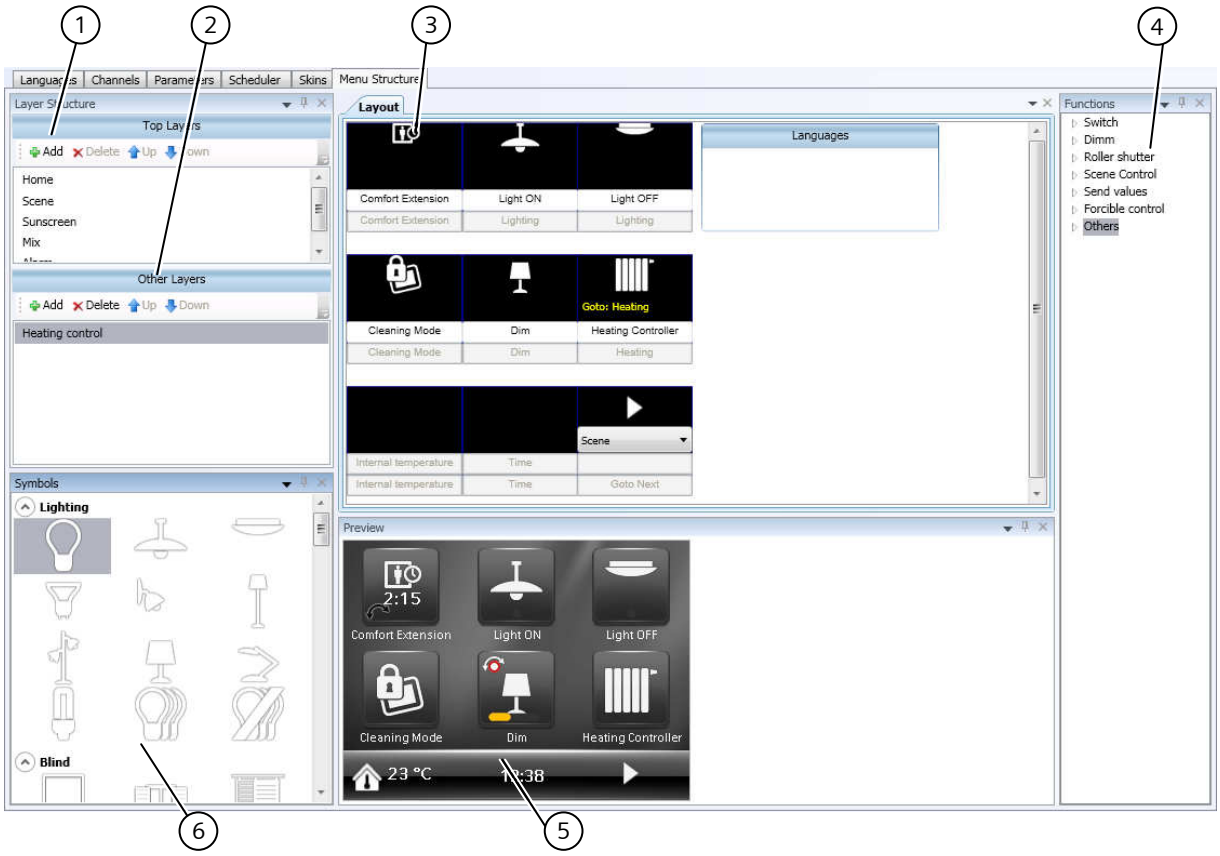

Figure. 50. Operational area of the menu structure

1) Page administration (main levels)
2) Page administration (subordinate levels)
3) Configuration of the selected page (allocation of the functions)
4) Available functions
5) Preview window
6) Symbol library

Page administration (Main levels)
Function pages can be created and deleted in the **main levels** window. Their sequence can also be changed there.

The home-page is also displayed in this window. It cannot be deleted or moved.

The home-page and the function pages can be renamed in the context menu of the right mouse button.

Allocation
The page selected in the **main levels** window can be configured in the **allocation** window.
During creation of a new page, an empty template appears which can be filled with functions and symbols per Drag&Drop (see Section 3.12.3 on page 43).
The text assigned to the functions is adopted from the function description or the channel designation. It can be adapted in the **languages** window.
The symbols and the associated functions can be deleted in the context menu of the right mouse button.

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Features
All available functions and displays are listed in the **functions** window:
- functions configured by the user (e.g.: switching, shutter, scenes),
- permanently programmed functions and displays under the item **other** (e.g. navigation elements, date).

A control element must be assigned to every function. These can be:
- simple buttons,
- buttons with status displays (e.g. progress bars, rotary controls) or
- buttons which refer to other function pages or operating pages.

Standard symbols are assigned to certain functions. These symbols can be exchanged for other symbols from the **symbols** window.


Forced control:
Jump to operating page


Shutter:
Jump to operating page


Roller blind:
Jump to operating page

Send value – fixed:
Activation

Send value – variable:
Jump to operating page


Cleaning mode:
Activation

Change language:
Switching

Figure. 51. Standard symbols for functions

Preview
The **preview** window shows how the current settings are displayed on the operating and display system.

Symbols
The **symbols** window provides a thematically arranged number of symbols for displaying the functions.

The thematic arrangement of the symbols is a suggestion. Since no function has yet been assigned to the symbols in the **symbols** window, they can be freely used. The symbols are assigned to the functions in the **allocation** window.

Symbols cannot be added to or deleted from the **symbols** window.

Other levels
Function pages can be created and deleted in the other levels window. Their sequence can also be changed there.

3.12.3 Create function page

This section describes how a function page is created and configured in the main level.

Note:
Since the method is the same, the configuration of the home-page is not described separately.

1. Press the **add** button in the **main level** window.
   ➢ The **add level** dialog window appears.
2. Select the template for the page layout in the selection template.
3. Enter the name of the function page in the text field "**New page name"**.
4. Click on the **add** button.
   ➢ The **new function page** is added to the end of the list in the **main level** window.

The sequence of the function pages can be changed using the **upwards** and **downwards** buttons.

The buttons can now be consecutively assigned to the desired functions in the allocation window:
5. Grab the function from the **Functions** window with the mouse, drag it with the pressed mouse button to the button in the **Allocation** window and release the mouse button there (Drag&Drop).
   ➢ The switch field is assigned to the function.

Note:
If a switch field is already occupied, then the old functions are written over when a new assignment is made.

Continue configuration manually
For certain functions (e.g. roller blinds, send value) all required information is transferred with the assignment. For other functions the configuration of the buttons must be continued manually.

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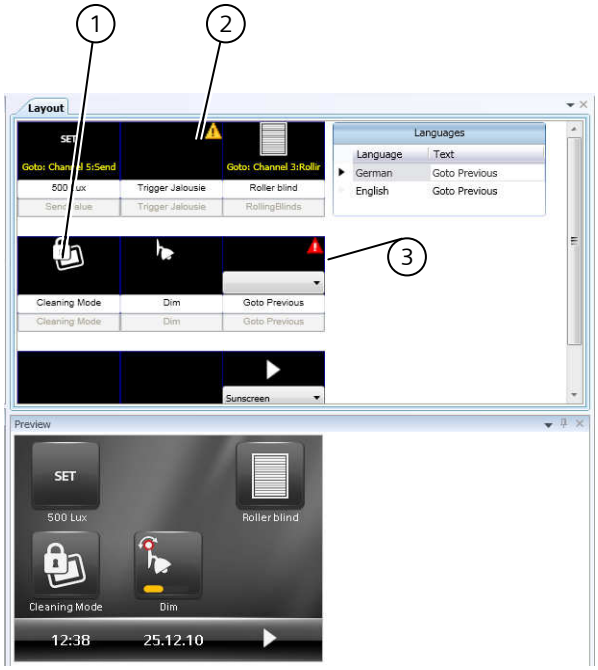

Figure. 52. Examples of warnings during button configuration

1) Button completely configured
2) Symbol is missing
3) Symbol is missing and function not completely defined

If a symbol is missing:

1. Drag a suitable symbol from the **symbols** window via Drag&Drop.
   - ➢ If the function is incomplete a selection field with the available functions (e.g. listing of the jump targets for the "**Go to Layer**" function) appears on the button in the **allocation** window.
2. Select function in the selection field.

Note:
If a warning is displayed even though the button is completely configured, then the function parameters are either incomplete or contain errors. In this case the function parameter setting should be checked.

.

4 Transfer of the configuration data

Configuration data cannot be transferred to the device unless the parameters and menu structure are complete. Therefore the configuration is continuously checked during input for:

- Existence of all texts in all languages,
- The accessibility of all functions (incl. scenes and alarm functions).

Note:
The generation will possibly be cancelled if a warning message or error exists.

4.1.1 Configuration data for MicroSD card

1. Connect MicroSD card to the PC
2. Click on the **generate** button in the menu and symbol bar.
   - ➢ A check is made for errors or warning messages.
   - ➢ Configuration data which cannot be transmitted via the KNX bus are generated and stored on the SD card as **rcconfig.bin**.
   - ➢ The project Firmware file is stored on the SD card as rc.bin.
   - ➢ If a file with the name **RC-Programming-card.info** is located in the root directory of a removable data carrier, then it is interpreted as Contouch MicroSD. Otherwise:
3. Select the removable data carrier.

Note:
Pre-existing data are written over without further inquiry.
If an attempt to write to the SD card fails or is cancelled, the data will be written to the local TEMP directory. This path will be shown.

4. Insert the MicroSD card into the Contouch; execute a bus download if required and restart the Contouch (see Chapter 2.2, page 4 and chapter 3.2.3. page 9).

Errors or warnings

If warning messages or errors are found, they are listed in a dialog. The generation of the configuration data can be continued despite errors or cancelled.

- **Generate**: The configuration data are generated and transferred to the MicroSD card.
- **Cancel**: No configuration data is generated. A new tab **generation errors** appears in the menu and symbol bar (see Chapter 4.1.3, page 45).

4.1.2 Parameters in ETS

1. Click the **OK** button.
   - ➢ All configuration data are stored in the ETS database.
   - ➢ Communication objects will possibly be faded in and out and the designations adapted according to the channel designations.
   - ➢ Create group address configuration (see Chapter 3.3.1, Page 9).
   - ➢ Plug-In is closed.
2. In ETS click on **Edit→ Program →Physical address and application program**.
   - ➢ A note appears with the request: **Please press programming button...**
3. Use a sharp object to press the programming button in the BCU (see Chapter 2.2, page 4).
   - ➢ The physical address is transmitted.

Note:
Certain parameters require an update of BCU and Contouch. For this reason the BCU must first be programmed by ETS before the update can occur via the MicroSD card.
If the update via the MicroSD card occurs before the BCU is programmed, then the copying procedure is cancelled and the Contouch displays an error message.

4.1.3 Generation errors

The **Generation errors** tab only appears if the configuration data has been generated with errors. A list of all the errors is stored here so that they can be rectified in sequence.

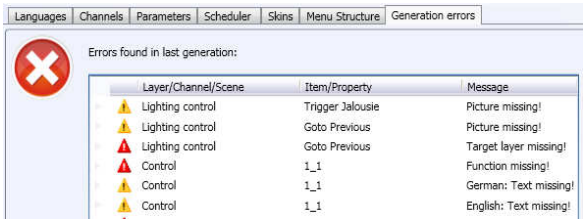

Figure. 53. Window generation errors (example)

5 Parameters and communication objects

This chapter provides an overview of the available communication objects and parameters.

The parameter settings determine which communication objects are visible and to which group addresses they can be linked.

5.1 General parameters

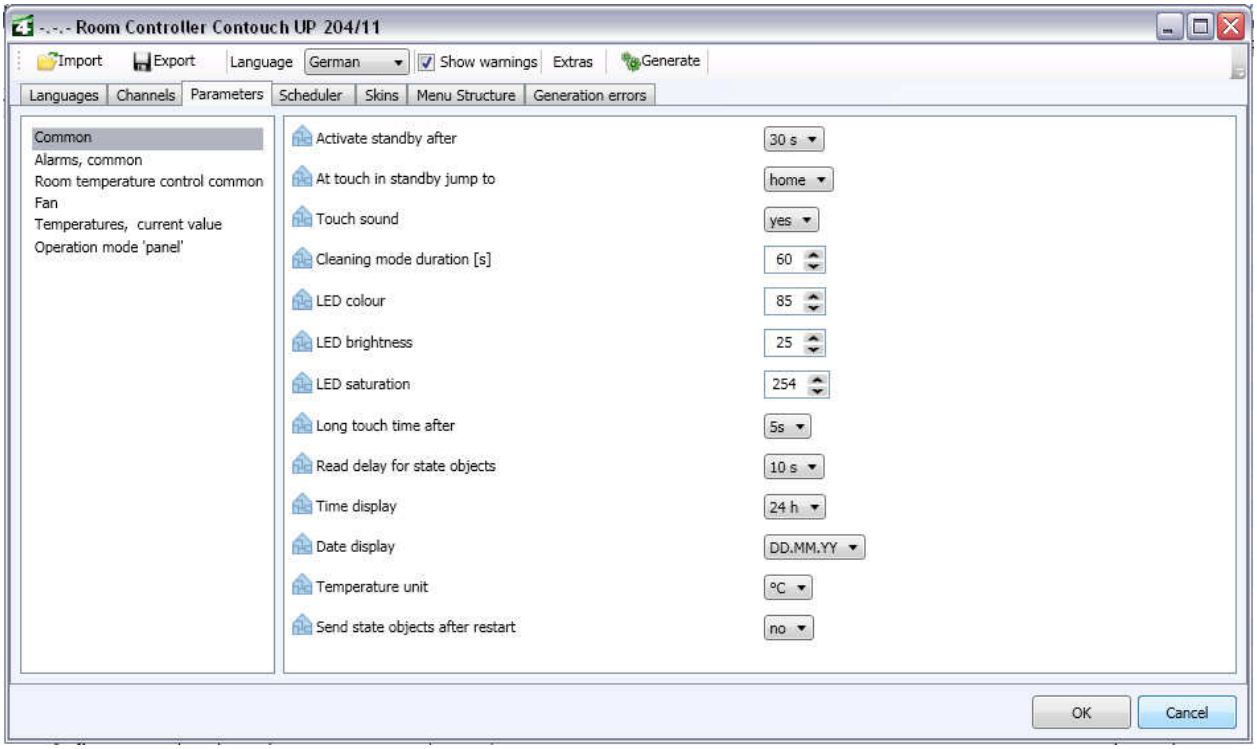

Figure. 54. Parameter view: General

5.1.1 Parameter display and operation

Parameter	Settings
Activate standby after	10 s **30 s** 1 min 2 min 5 min 10 min
Setting of the display time of the Contouch-Display. The display switches off automatically if is hasn't been used within the time set here.	
Transmission: ETS	
Parameter page: Common	

Parameter	Settings
At touch in standby jump to	**home** Last page used
Display of the Contouch-Display after standby time. Touching the display or operating the rotary control in the standby state shows the page set here.	
Transmission: ETS	
Parameter page: Common	

Parameter	Settings
Touch sound	no **yes**
Touching the display to trigger commands and functions is signaled acoustically (short beep) or not signaled.	
Transmission: ETS	
Parameter page: Common	

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Parameter	Settings
Cleaning mode durations [s]	5...255 **Default value: 60**
Defining the duration of the cleaning function	
Transmission: ETS	
Parameter page: Common	

Parameter	Settings
LED Colour	0...255 Examples of settings: 0: Red 42: Yellow **85:** Green 128: Turquois 170: Blue 213: Violet
Defining the LED color as orientation light	
Transmission: ETS	
Parameter page: Common	
LED brightness	0...255 Examples of settings: 0: Off **25**: Pre-set value 255: 100% An
Defining the LED brightness as orientation light	
Transmission: ETS	
Parameter page: Common	
LED saturation	0...255 Examples of settings: 0: No saturation, white light **254**: Pre-set value 255: Maximum saturation, complete colors
Defining the LED saturation as orientation light	
Transmission: ETS	
Parameter page: General	

Parameter	Settings
Long touch time after	2 s 3 s **5 s** 10 s
Defining the time period, after which a prolonged key activation is evaluated as holding down the key. Holding down the key is required, for example, to store scenes.	
Transmission: ETS	
Parameter page: Common	

Parameter	Settings
Read delay for state objects	0 s **10 s** 20 s 30 s 1 min 2 min 3 min 4 min 5 min
Setting the delay time, after which the following status objects are queried when the power is restored. – External indoor temperature sensor (#118), – Outdoor temperature sensor (#116), – Time (#111), – Date (#112), – Basic setpoint value (#120), – Window 1 to window 4 (#134, #135, #136, # 137), – Presence (#138), – Room operating mode (#140), – Status objects of the switching and dimming channels,	
Transmission: ETS	
Parameter page: Common	

Parameter	Settings
Time display	**24 h** 12 h
Specification of the time display format. With the **12 h** format the indicator **am** (morning) or **pm** (afternoon) is added to the time display.	
Transmission: ETS	
Parameter page: Common	

Parameter	Settings
Date display	**TT.MM.JJ** MM/DD/YY
Definition of the date display format.	
Transmission: ETS	
Parameter page: Common	

Parameter	Settings
Temperature unit	**°C** °F
Definition of the unit system for the temperature display	
Transmission: ETS	
Parameter page: Common	

Parameter	Settings
Send state objects after restart	**No** delayed by 10 s delayed by 15 s delayed by 18 s
Settings defining whether and with which the delay time the following status objects are sent when the power is restored. – #113: Brightness, actual value – #117: Temperature, actual value of internal sensor, – #119: Temperature, actual indoor value, weighted, – #121: Setpoint value shifting, – #122: Temperature, setpoint value, – #123 to #127: Status objects of the mode (only the objects of the active mode are sent here) – #142: Controller status (Eberle) – #143: Controller status (RHCC) – #154: Fan mode	
Transmission: ETS	
Parameter page: Common	

5.1.2 Parameter objects for display and operation

Obj.	Object name	Function	Type	Flags
111	Time / day of week	Receive	3 Byte DPT_TimeOfDay	CWTU
This communication object can be used to receive time and weekday data from an external sensor via the KNX bus. The communication object sends a read request when power is restored.				
112	Date	Receive	3 Byte DPT_Date	CWTU
This communication object can be used to receive the date from an external sensor via the KNX bus. The communication object sends a read request when power is restored.				

5.1.3 General alarm parameters

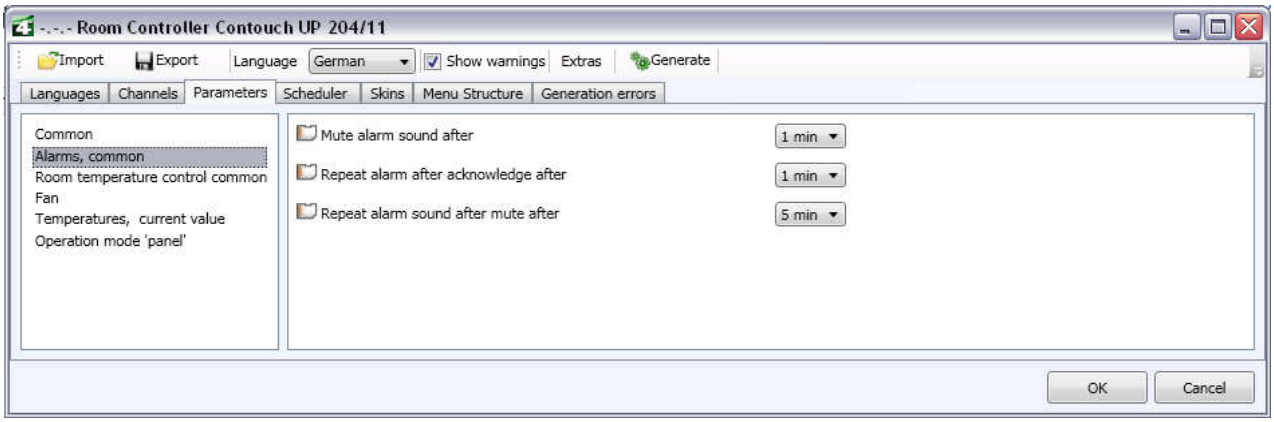

Figure. 55. Parameter view: General alarms

Parameter	Settings
Mute alarm sound after	10 s / 30 s / **1 min** / 2 min / 3 min / 4 min / 5 min / 6 min / 10 min / 15 min / 20 min / 25 min / 30 min
Setting the length of the acoustic signal tone when the alarm is not acknowledged.	
Transmission: sdCard	
Parameter page: Alarms, common	

Parameter	Settings
Repeat alarm after acknowledgement after	Never / **1 min** / 2 min / 3 min / 4 min / 5 min / 6 min / 10 min / 15 min / 20 min / 25 min / 30 min / 60 min / 120 min
Setting the time period after which an alarm is displayed again after acknowledgement, if it is still set to active by the alarm input communication object.	
Transmission: sdCard	
Parameter page: Alarms, common	

Parameter	Settings
Repeat alarm sound after mute after	10 s / 30 s / 1 min 2 min / 3 min / 4 min / **5 min** / 6 min / 10 min / 15 min / 20 min / 25 min / 30 min
Setting the time period after which the acoustic signal sounds again after it was switched off automatically. The alarm tone is only repeated if the alarm has not been acknowledged. The alarm repetition only works for alarms, for which the channel-specific parameter **Behavior when an alarm occurs** is set to **Alarm tone repeats permanently**.	
Transmission: sdCard	
Parameter page: Alarms, common	

5.1.4 General room temperature control parameters

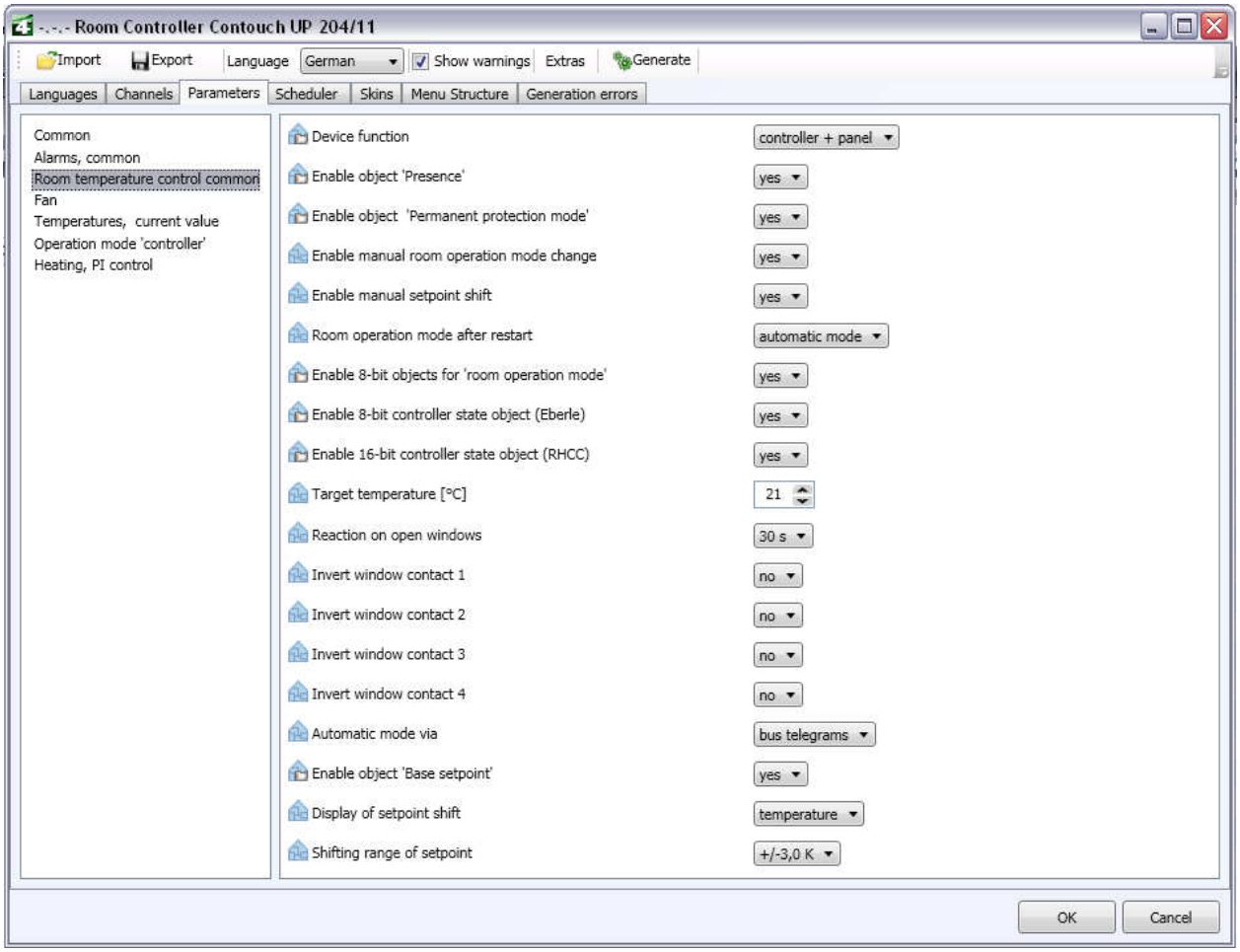

Figure. 56. Parameter view: General room temperature controller

Parameter	Settings
Device function	**Controller + control panel** Control panel
Setting the device function. The setting controls the visibility of the parameter pages **mode controller + control panel** and **control panel mode** and also that of the specific parameter pages for heating and cooling.	
Transmission: ETS and sdCard	
Parameter page: Room temperature control common	

Parameter	Settings
Enable Object 'Presence'	**No** Yes
Specification of whether the **presence** communication object should be modified. Messages sent via this communication object are evaluated for the activation of **Comfort mode**.	
Transmission: ETS und sdCard	
Parameter page: Room temperature control common	

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Parameter	Settings
Enable object 'permanent protection mode'	**No** Yes
Specification of whether the **permanent protection mode** communication object should be modified. The **Yes** setting permanently switches the controller to the room operating mode **protection mode** via the communication object.	
Transmission: ETS and sdCard	
Parameter page: Room temperature control common	

Parameter	Settings
Enable manual room operation mode change	No **Yes**
Defines whether the user can change the room temperature controller mode (in manual mode).	
Transmission: ETS	
Parameter page: Room temperature control common	

Parameter	Settings
Enable manual setpoint shift	No **Yes**
Defines whether the user can change the setpoint value.	
Transmission: ETS	
Parameter page: Room temperature control common	

Parameter	Settings
Room operation mode after restart	as before voltage failure Comfort mode Pre-comfort mode Energy-saving mode Protection mode **Automatic mode**
Specification of the room operating mode to be automatically activated after power is restored. The controller is switched in manual mode for comfort mode, pre-comfort mode, energy-saving mode and protection mode.	
Transmission: ETS	
Parameter page: Room temperature control common	

Parameter	Settings
Enable 8-Bit objects for 'room operation mode'	**No** Yes
Specification of whether the **room operating mode** and **room operating mode status** communication objects should be modified. The values transmitted with these objects are used to set the room operating mode or to report the current room operating mode.	
Transmission: ETS and sdCard	
Parameter page: Room temperature control common	

Parameter	Settings
Enable 8-Bit controller state object (Eberle)	**No** Yes
Specification of whether the **controller state (Eberle)** communication object should be modified. This object is used to send the controller status and the room operating mode status. This object can also be used to query the status. – Bit 0: 1 = comfort mode On – Bit 1: 1 = pre-comfort mode On – Bit 2: 1 = energy-saving mode On – Bit 3: 1 = protection mode On – Bit 4: 1 = dew point alarm On – Bit 5: 1 = heating mode – Bit 5: 0 = cooling mode – Bit 6: 1 = controller Off – Bit 6: 0 = controller On – Bit 7: 1 = frost alarm / heating alarm	
Transmission: ETS and sdCard	
Parameter page: Room temperature control common	

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Parameter	Settings
Enable 16-bit controller state object (RHCC)	**No** Yes
Specification to define whether the communication object **Controller state (RHCC)** should be modified. This object is used to send the controller status and the room operating mode status. This object can also be used to query the status. - Bit 7: 1 = heating mode deactivated - Bit 8: 0 = cooling mode - Bit 8: 1 = heating mode, - Bit 11: 1 = cooling mode deactivated - Bit 12: 1 = dew point alarm On - Bit 13: 1 = frost alarm On - Bit 14: 1 = heat alarm On The bits: 0, 1, 2, 3, 4, 5, 6, 9, 10 and 15 are permanently set to Value = 1. *Note:* *Behavior as described in the KNX-Manual, DPT 22.101*	
Transmission: ETS and sdCard	
Parameter page: Room temperature control common	

Parameter	Settings
Maximum duration of comfort extension	Inactive / 15 min / 30 min / 45 min / 60 min / 90 min / 120 min / 180 min / 210 min / 240 min
Definition of the maximum time period of the comfort - extension which can be set by the user on the device (value range). – **Inactive**: Comfort extension is not possible. The function is not available on the device – **15...240 minutes**: The function is available on the device The length of the comfort extension can be set on the display at 15-minute intervals within the set value range.	
Transmission: ETS and sdCard	
Parameter page: Room temperature control common The parameter is only visible when: **Presence object visible** = **No**.	

Parameter	Settings
Enable object 'State comfort extension'	**No** Yes
Specification of whether the **comfort extension status** communication object should be modified.	
Transmission: ETS and sdCard	
Parameter page: Room temperature control common The parameter is only visible when: **Presence object visible** = **No** and **maximum time of comfort extension ≠ inactive**	

Parameter	Settings
Target temperature [°C]	16 ... 26 **Default value: 21**
Setting the basic setpoint value for comfort mode. The value set here can be changed using the **basic setpoint value** communication object.	
Transmission: ETS	
Parameter page: Room temperature control common	

Parameter	Settings
Reaction on open windows	Immediately 15 s **30 s** 60 s
Setting the time delay for a reaction after evaluation of the window state. The **window open** status causes the target room temperature value, depending on the setting, to switch either immediately or after the set time delay to the frost protection value in heating mode or to the heat protection value in cooling mode and also causes the protection mode to become internally activated (no message to the bus or switching of the mode on the display). Setting a delay time prevents immediately switching to internal protection mode every time a window is briefly opened.	
Transmission: ETS	
Parameter page: Room temperature control common	

Parameter	Settings
Invert window contact 1	**No** Yes
Specifies whether the signal from window contact #1 is inverted. – **No**: 0 = closed, 1 = open – **Yes**: 1 = closed, 0 = open	
Transmission: ETS	
Parameter page: Room temperature control common	

Parameter	Settings
Invert window contact 2	**No** Yes
Specifies whether the signal from window contact #2 is inverted. – **No**: 0 = closed, 1 = open – **Yes**: 1 = closed, 0 = open	
Transmission: ETS	
Parameter page: Room temperature control common	

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Parameter	Settings
Invert window contact 3	**No** Yes
Specifies whether the signal from window contact #3 is inverted. – **No**: 0 = closed, 1 = open – **Yes**: 1 = closed, 0 = open	
Transmission: ETS	
Parameter page: Room temperature control common	

Parameter	Settings
Invert window contact 4	**No** Yes
Specifies whether the signal from window contact #4 is inverted. – **No**: 0 = closed, 1 = open – **Yes**: 1 = closed, 0 = open	
Transmission: ETS	
Parameter page: Room temperature control common	

Parameter	Settings
Automatic mode via	**internal time program** bus telegram
Specification of the control for switching the room operating modes in automatic mode. The switching commands from each other control are ignored.	
Transmission: ETS	
Parameter page: Room temperature control common	

Parameter	Settings
Enable object 'Base setpoint'	No **Yes**
Specification of whether the base setpoint communication object should be visible.	
Transmission: ETS and sdCard	
Parameter page: Room temperature control common	

Parameter	Settings
Display of setpoint shift	**Temperature** Setpoint value offset
Definition of how the setpoint value adjustment should be displayed. – **Temperature**: Display of the setpoint temperature in °**C** or °**F** – **Offset**: Display of the setpoint value offset in **K**	
Transmission: ETS	
Parameter page: Room temperature control common The parameter is only visible when: **release setpoint value adjustment = Yes**	

Parameter	Settings
Shifting range of setpoint	± 2.0 K **± 3.0 K** ± 4.0 K ± 5.0 K
Setting of the value range (in Kelvin) for the offset of the basic setpoint value to a higher or lower temperature.	
Transmission: ETS	
Parameter page: Room temperature control common The parameter is only visible when: **release setpoint value adjustment = Yes**	

5.1.5 Ventilation parameters

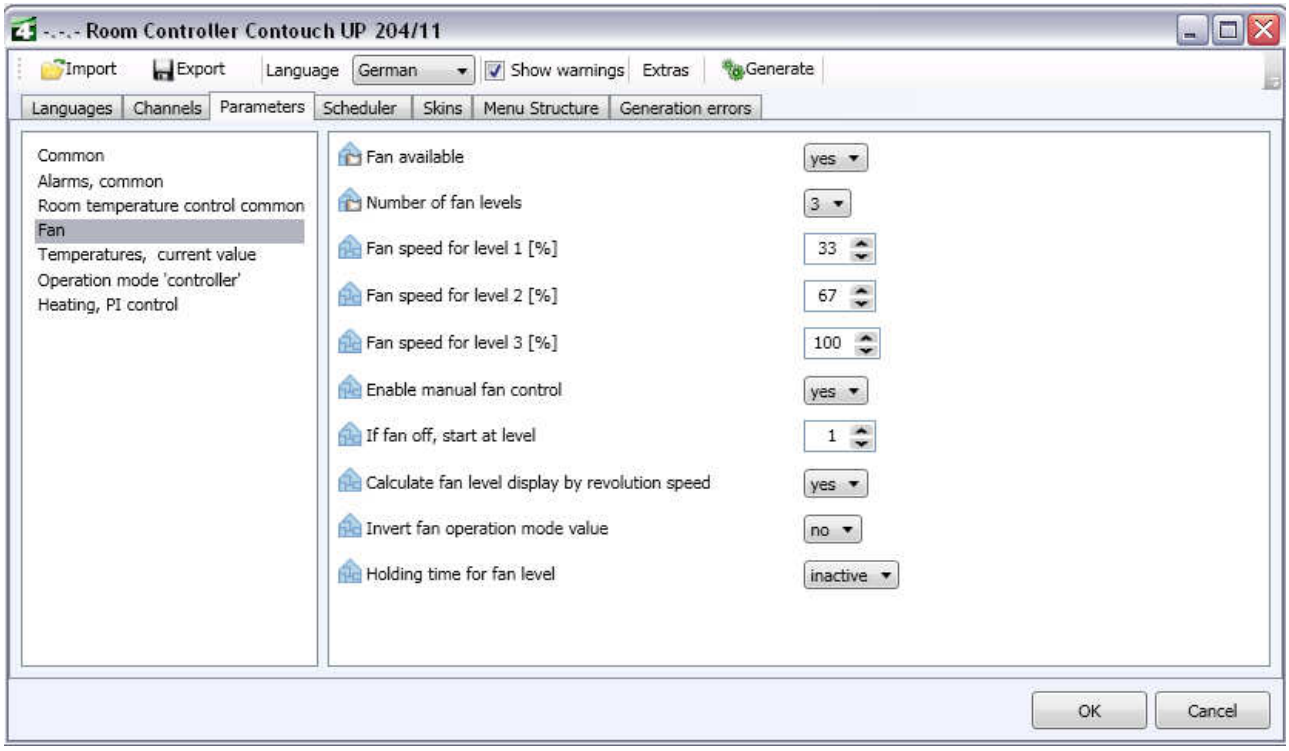

Figure. 57. Parameter view: Ventilation

Parameter	Settings
Fan available	No **Yes**
Specifies whether a fan is connected.	
Transmission: ETS and sdCard	
Parameter page: Fan	

Parameter	Settings
Number of fan levels	1 2 **3**
Sets the number of adjustable fan speeds. The **fan speed in levels** parameter window is displayed in accordance with the number defined here.	
Transmission: ETS and sdCard	
Parameter page: Fan The parameter is only visible when: **Fan available** = **Yes**	

Parameter	Settings
Fan speed for level 1 [%]	1...100 % **Default value: 33**
Fan speed setting (relative to the maximum speed) At a setting of 100%, the value 255 is sent via the bus.	
Transmission: ETS	
Parameter page: Fan The parameter is only visible when: **Fan available** = **Yes**	

Parameter	Settings
Fan speed for level 2 [%]	1...100 % **Default value: 67**
Fan speed setting (relative to the maximum speed) At a setting of 100%, the value 255 is sent via the bus.	
Transmission: ETS	
Parameter page: Fan The parameter is only visible when: **Fan available** = **Yes** and **Number of fan speeds** ≥ 2	

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Parameter	Settings
Fan speed for level 3 [%]	1...100 % **Default value: 100**
Fan speed setting (relative to the maximum speed) At a setting of 100%, the value 255 is sent via the bus.	
Transmission: ETS	
Parameter page: Fan The parameter is only visible when: **Fan available = Yes** and **Number of fan speeds** = **3**	

Parameter	Settings
Enable manual fan control	No **Yes**
Release of the manual adjustment of the fan speed on the device. If released, the fan speed can be switched manually to **automatic**, **OFF**, **1**, **2** or **3** on the operating and display system.	
Transmission: ETS	
Parameter page: Fan The parameter is only visible when: **Fan available = Yes**	

Parameter	Settings
If fan off, start at level	**1** 2 3
Setting the fan speed at which a previously deactivated fan should briefly (for 2 s) start up so than it starts up securely when switched on at level 1. A delay of 0.5 s is always maintained when switching from one fan speed to another.	
Transmission: ETS	
Parameter page: Fan The parameter is only visible when: **Fan available = Yes**	

Parameter	Settings
Calculate fan level display by revolution speed	**No** Yes
Specification of how the values for displaying the current fan level should be determined. – **Yes**: Computation of the current fan level from the values received via the **fan speed status** object. – **No**: Direct display of the fan level status objects 1 [2, 3].	
Transmission: ETS	
Parameter page: Fan The parameter is only visible when: **Fan available** = **Yes**	

Parameter	Settings
Invert fan operation mode value	**No** Yes
Specifies whether the **fan mode** value is to be inverted when sent or received. – **No**: **1** = automatic mode, **0** = manual mode – **Yes**: **1** = manual mode, **0** = automatic mode	
Transmission: ETS	
Parameter page: Fan The parameter is only visible when: **Fan available = Yes**	

Parameter	Settings
Holding time for fan level	**Inactive** 1 min 2 min 5 min
Setting the minimum residence time at the set fan level in the case of automatic switching by the controller by means of the valve setting. The holding time prevents valve setting changes within the areas around the fan level switching thresholds from constantly changing the fan speed.	
Transmission: ETS	
Parameter page: Fan The parameter is only visible when: **Fan available = Yes**	

5.1.6 Parameter: Temperatures, actual value

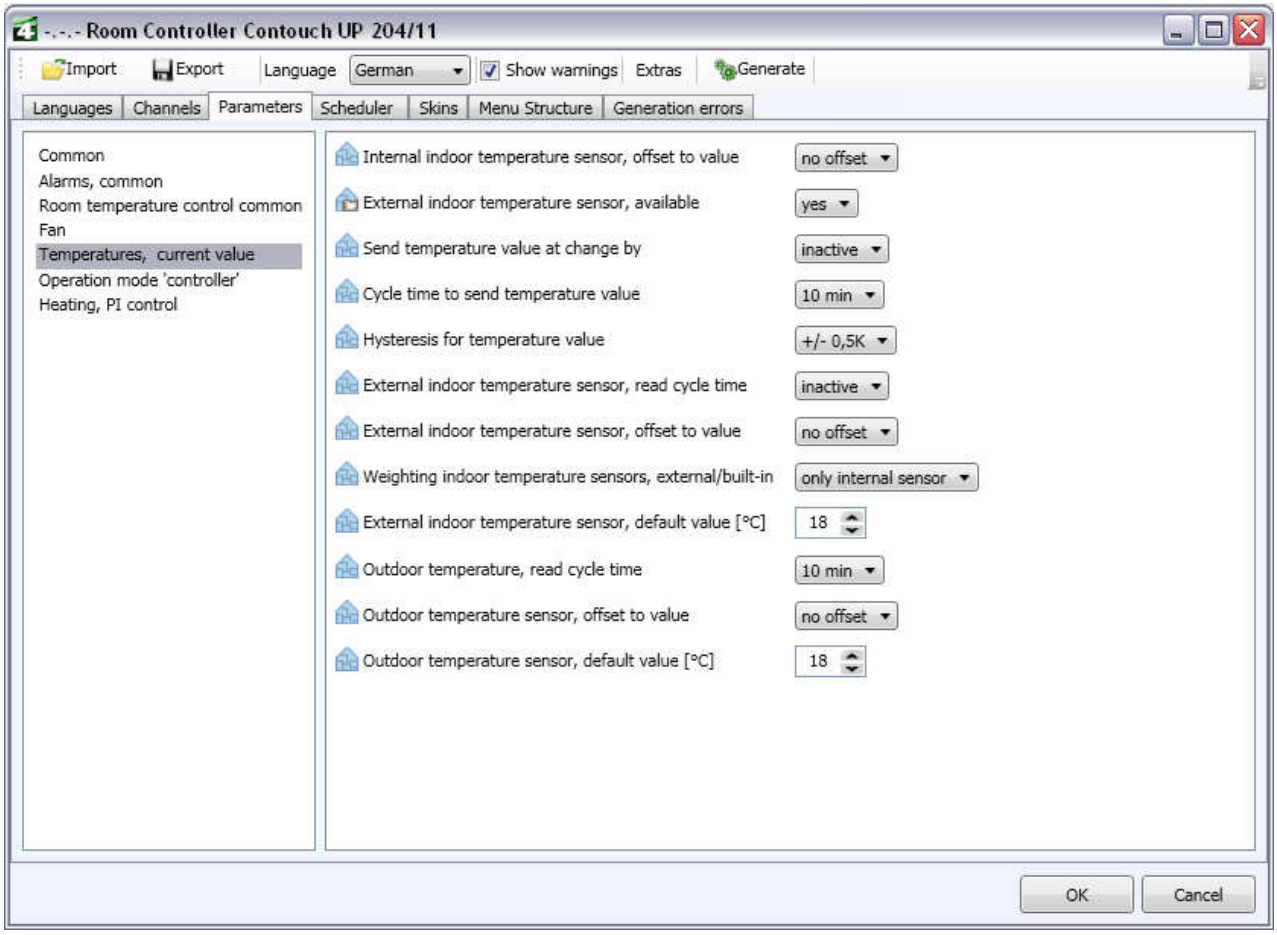

Figure. 58. Parameter view: Temperatures, actual value

Parameter	Settings
Internal indoor temperature sensor, offset to value	+ 10 K...+0.1 K **no offset** –0.1 K...–10 K
Specification of the correction value for the temperature value measured by the internal sensor.	
Transmission: ETS	
Parameter page: Temperatures, current value	

Parameter	Settings
External indoor temperature sensor, available	**No** Yes
Setting to define whether the room temperature should be additionally measured at another location in the room. – **No**: No additional indoor temperature sensors connected. – **Yes**: The communication objects **Temperature, actual value of indoor external sensor** and **Temperature, actual indoor value, weighted** are modified.	
Transmission: ETS and sdCard	
Parameter page: Temperatures, current value	

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Parameter	Settings
Send temperature value at change by	0.1 K...5.0 K **inactive**
Defines the value by which the actual value must have changed to be resent automatically. The object is internally updated every 10 s	
Transmission: ETS	
Parameter page: Temperatures, current value	

Parameter	Settings
Cycle time to send temperature value	5 min...10 min...120 min inactive
Sets the time interval for resending of the actual temperature value (in addition to automatic sending when changes occur).	
Transmission: ETS	
Parameter page: Temperatures, current value	

Parameter	Settings
Hysteresis for temperature value	± 0.1 K ± 0.3 K **± 0.5 K** ± 0.7 K
Determination of the value range of the hysteresis for the actual temperature value. Hysteresis prevents minor temperature fluctuations from constantly sending new actual values.	
Transmission: ETS	
Parameter page: Temperatures, current value	

Parameter	Settings
External indoor temperature sensor, read cycle time	5 min...120 min **inactive**
Sets the time interval for a new query of the additional indoor temperature measurement.	
Transmission: ETS	
Parameter page: Temperatures, current value The parameter is only visible when: **External indoor temperature sensor = Yes**	

Parameter	Settings
External indoor temperature sensor, offset to value	+ 10 K...+0.1 K **no offset** –0.1 K...–10 K
Specification of the correction value for the temperature value measured by the external sensor.	
Transmission: ETS	
Parameter page: Temperatures, current value The parameter is only visible when: **External indoor temperature sensor = Yes**	

Parameter	Settings
Weighting indoor temperature sensors, external / built-in	external sensor only 90 % / 10 % 80 % / 20 % 70 % / 30 % 60 % / 40 % 50 % / 50 % 40 % / 60 % 30 % / 70 % 20 % / 80 % 10 % / 90 % **internal sensor only**
Defines at which ratio (weighting) the measured values of the external and internal sensors should be used to compute the current actual value. – Value 1: external sensor, – Value 2: internal sensor.	
Transmission: ETS	
Parameter page: Temperatures, current value The parameter is only visible when: **External indoor temperature sensor = Yes**	

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Parameter	Settings
External indoor temperature sensor, default value [°C]	0...40 **Default value: 18**
Specification of the default value of the externally measured indoor temperature to be used if no value is received by the corresponding communication object.	
Transmission: ETS	
Parameter page: Temperatures, current value The parameter is only visible when: **External indoor temperature sensor = Yes**	

Parameter	Settings
Outdoor temperature, read cycle time	5 min...10 min...120 min inactive
Setting of the time interval for querying the outside temperature sensor.	
Transmission: ETS	
Parameter page: Temperatures, current value	

Parameter	Settings
Outdoor temperature sensor, offset to value	+ 10 K...+0.1 K **no offset** –0.1 K...–10 K
Specification of the correction value for the temperature value measured by the outside temperature sensor.	
Transmission: ETS	
Parameter page: Temperatures, current value	

Parameter	Settings
Outside temperature sensor, default value [°C]	0...40 **Default value: 18**
Specification of the default value of the outside temperature to be used if no value is received by the corresponding communication object.	
Transmission: ETS	
Parameter page: Temperatures, current value	

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5.1.7 Parameter Controller/Control Panel mode

Note:
The prerequisite for this parameter page to be visible is:
- **Device function** parameter = **Controller + Control panel** (see Section 5.1.4, on page 50).

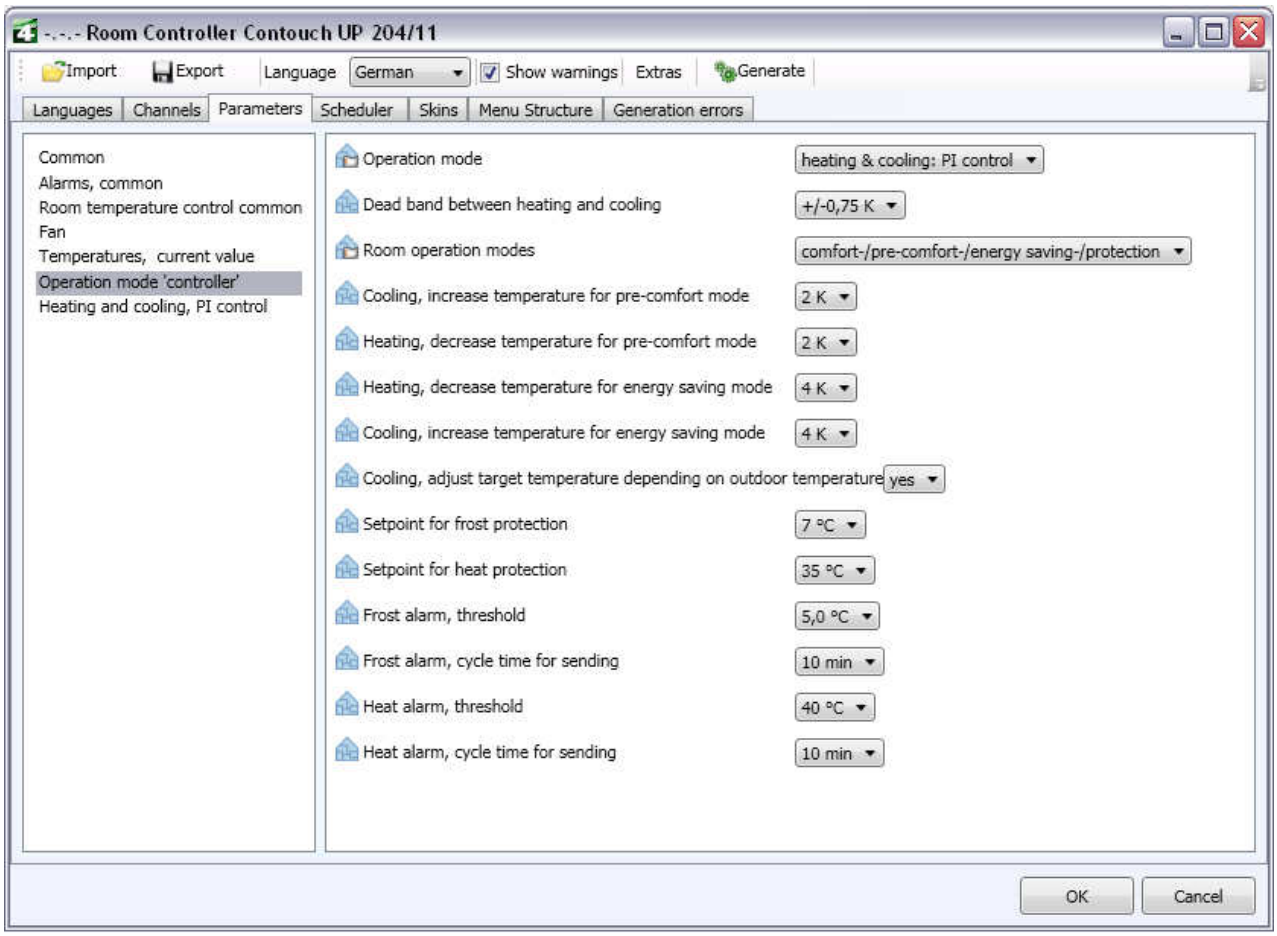

Figure. 59. Parameter view: Controller operating mode

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Parameter	Settings
Operation Mode	Heating: two-point control **Heating & cooling: PI-Control** Heating, sequence control Cooling: two-point control Cooling: PI control Cooling: sequence control Heating & cooling: two-point control Heating & cooling: PI control Heating & cooling: sequence control Heating: Two-point control, Cooling: PI control Heating: PI-control Cooling: Two-point control Heating: PI-control Cooling: Sequence control Heating: Sequence control Cooling: PI-Control Heating: Two-point control Cooling: Sequence control Heating: Sequence control Cooling: Two-point control
Determining the modes	
Transmission: ETS and sdCard	
Parameter page: Operation mode “controller” The parameter is only visible when: **Device function** = **Controller + Control panel**	

Parameter	Settings
Dead band between heating and cooling	± 0.25 K ± 0.5 K **± 0.75 K** ± 1.0 K ± 1.5 K ± 2.0 K ± 2.5 K ± 3.0 K
Sets the dead zone between heating and cooling The dead zone is only effective in comfort mode.	
Transmission: ETS	
Parameter page: Operation mode “controller” The parameter is only visible when: – **Mode** = **heating and cooling** Parameter page: Operating mode of control panel The parameter is only visible when: **- Execute setpoint value computation = Yes**	

Parameter	Settings
Room operation modes	Comfort/protection mode Comfort/energy-saving/ protection mode **Comfort/pre-comfort /energy-saving/ protection mode**
Setting the room operating modes for room temperature control	
Transmission: ETS and sdCard	
Parameter page: Operation mode “controller” Parameter page: Operation mode “panel”	

Parameter	Settings
Cooling, increase temperature for pre-comfort mode	1 K **2 K** 3 K 4 K 5 K
Setting the temperature value by which the setpoint value of the room temperature should be raised when comfort mode is switched to pre-comfort mode in cooling mode.	
Transmission: ETS	
Parameter page: Operation mode “controller” The parameter is only visible when: – **Mode** = **cooling** or **mode = heating and cooling** and – **Room operating modes** = **comfort/pre-comfort /energy-saving/ protection mode** Parameter page: Operation mode “panel” The parameter is only visible when: **- Execute setpoint value computation = Yes**	

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Parameter	Settings
Heating, decrease temperature for pre-comfort mode	1 K **2 K** 3 K 4 K 5 K 6 K
Setting the temperature value by which the setpoint value of the room temperature should be lowered when comfort mode is switched to pre-comfort mode in heating mode.	
Transmission: ETS	
Parameter page: Operation mode "controller" The parameter is only visible when: – **Mode** = **heating** or **mode = heating and cooling** and – **Room operating modes** = **Comfort-/Pre-Comfort-/Energy-saving-/Protection mode** or **Room operating modes = Comfort-/Energy-saving-/Protection mode** Parameter page: Operation mode "panel" The parameter is only visible when: **- Execute setpoint value computation = Yes**	

Parameter	Settings
Heating, decrease temperature for energy saving mode	1 K 2 K 3 K **4 K** 5 K
Setting the temperature value by which the setpoint value of the room temperature should be lowered when comfort mode is switched to energy saving mode in heating mode.	
Transmission: ETS	
Parameter page: Operation mode "controller" The parameter is only visible when: – **Mode** = **heating** or **mode = heating and cooling** and – **Room operating modes** = **comfort/pre-comfort /energy-saving/ protection mode** Parameter page: Operation mode "panel" The parameter is only visible when: **- Execute setpoint value computation = Yes**	

Parameter	Settings
Cooling, increase temperature for energy saving mode	1 K 2 K 3 K **4 K** 5 K 6 K
Setting of the temperature value by which the setpoint value of the room temperature should be raised as opposed to comfort mode when the mode is switched to energy-saving mode.	
Transmission: ETS	
Parameter page: Operation mode "controller" The parameter is only visible when: – **Mode** = **cooling** or **mode = heating and cooling** and – **Room operating modes** = **Comfort/Pre-comfort/Energy-saving/Protection mode** or **Room operating modes = Comfort/Energy-saving/Protection mode** Parameter page: Operation mode "panel" The parameter is only visible when: **- Execute setpoint value computation = Yes**	

Parameter	Settings
Cooling, adjust target temperature depending on outdoor temperature	No **Yes**
Setting to define whether the setpoint temperature should track the outside temperature in cooling mode. If **Yes** is selected: The setpoint temperature value updated in accordance with the outside temperature if the outside temperature is above 26 °C and 6 K above the currently set target temperature. The setpoint temperature in this case is 6 K below the outside temperature. – The setpoint temperature for cooling is set to the value of the **heat protection cooling setpoint** parameter if the updated setpoint temperature > the value of the **heat protection cooling setpoint** parameter. – The cooling valve closes completely when the **dew point alarm** parameter = **active.**	
Transmission: ETS	
Parameter page: Operation mode "controller" The parameter is only visible when: – **Mode** = **cooling** or **mode = heating and cooling**	

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Parameter	Settings
Setpoint for frost protection	5 °C...10 °C **Default value: 7 °C**
Specification of the setpoint value for the **frost protection** mode. The frost protection mode (internal only) is activated, for example, if the **window open** status is received and the controller is in heating mode.	
Transmission: ETS	
Parameter page: Operation mode “controller” The parameter is only visible when: – **Mode** = **heating** or **mode = heating and cooling** Parameter page: Operation mode “panel” The parameter is only visible when: **- Execute setpoint value computation = Yes**	

Parameter	Settings
Setpoint for heat protection	30 °C...40 °C **Default value: 35 °C**
Specification of the setpoint value for the **Heat protection** mode**.** The frost protection mode (internal only) is activated, for example, if the **window open** status is received and the controller is in cooling mode.	
Transmission: ETS	
Parameter page: Operation mode “controller” The parameter is only visible when: – **Mode** = **cooling** or **mode = heating and cooling** Parameter page: Operation mode “panel” The parameter is only visible when: **- Execute setpoint value computation = Yes**	

Parameter	Settings
Frost alarm, threshold	non 0 °C...5,0 °C **Default value: 5,0 °C**
Specification of the temperature value limit, after which the controller reports a frost alarm.	
Transmission: ETS	
Parameter page: Operation mode “controller” Parameter page: Operation mode “panel”	

Parameter	Settings
Frost alarm, cycle time for sending	5 min...120 min Inactive **Default value: 10 min**
Setting the time interval for resending of the frost alarm (in addition to automatic sending when changes occur). Cyclical sending only occurs when an alarm condition is present.	
Transmission: ETS	
Parameter page: Operation mode “controller” Parameter page: Operation mode “panel”	

Parameter	Settings
Heat alarm threshold	non 30 °C...45 °C **Default value: 40 °C**
Specification of the temperature value limit, after which the controller reports a heat alarm.	
Transmission: ETS	
Parameter page: Operation mode “controller” Parameter page: Operation mode “panel”	

Parameter	Settings
Heat alarm, cycle time for sending	5 min...120 min Inactive **Default value: 10 min**
Setting the time interval for resending of the heat alarm (in addition to automatic sending when changes occur). Cyclical sending only occurs when an alarm condition is present.	
Transmission: ETS	
Parameter page: Operation mode “controller” Parameter page: Operation mode “panel”	

Parameter	Settings
Calculate setpoint	**No** Yes
Specification as to whether the room temperature controller should execute its own setpoint value computation. – **No**: The room temperature controller is operated as a pure operating station. – **Yes**: The room temperature controller is operated as a control panel, but executes its own setpoint value computation. Corresponding objects and parameters are blended in.	
Transmission: ETS and sdCard	
Parameter page: Operation mode “panel” The parameter is only visible when: **Device function** = **control panel**	

5.1.8 Heating parameter, two-point control

Note:
The prerequisites for this parameter page to be visible are:
- **Device function** parameter **= controller** + **control panel** (see Section 5.1.4, on page 50).
- Parameter **Mode** = **Heating: Two-point control** (see Section 5.1.7, on page 59).

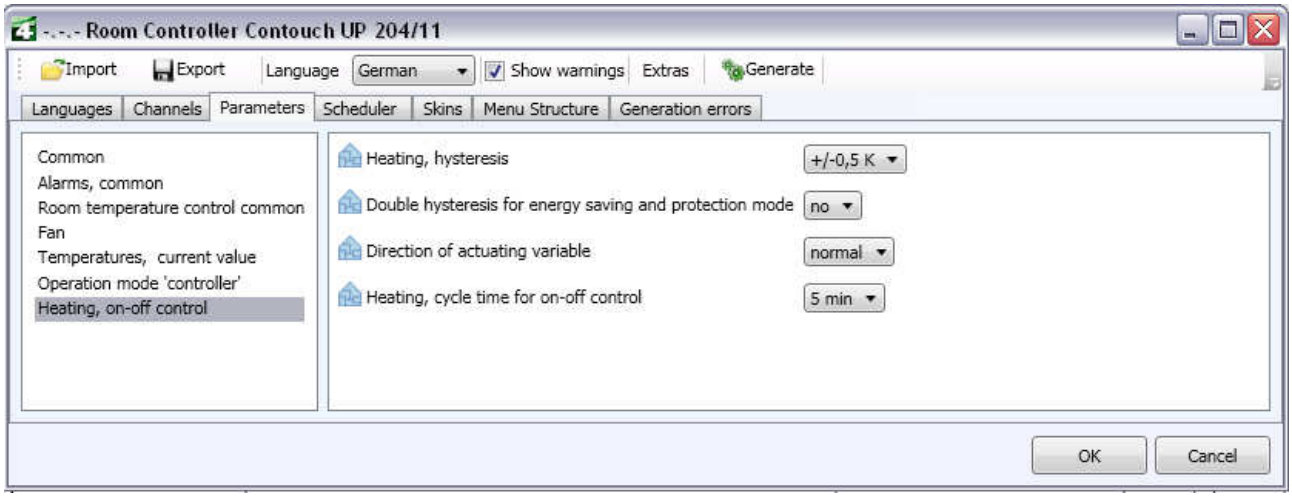

Figure. 60. Parameter view: Heating, two-point control

Parameter	Settings
Heating hysteresis	± 0.1 K...± 2.5 K **Default value: ± 0.5 K**
Setting the switching hysteresis of the two-point controller for heating mode. Although the precision of the room temperature setpoint value increases as the hysteresis becomes smaller, the switching frequency of the controller increases.	
Transmission: ETS	
Parameter page: Heating, two-point control	

Parameter	Settings
Double hysteresis for energy saving and protection mode	**No** Yes
Setting the double switching hysteresis in energy-saving or frost protection mode. This allows room temperature fluctuations in energy-saving or frost-protection mode to be twice as large, thus reducing the switching frequency of the valves and preserving them.	
Transmission: ETS	
Parameter page: Heating, two-point control	

Parameter	Settings
Direction of actuating variable	**normal** inverted
Setting to define the form in which the variable should be output. – **Normal:** Output of the variable in accordance with the computed variable. – **Inverted:** Output of the variable reverses the desired effect of the variable. With this parameter, the setting depends on the type of valve (whether opened or closed when there is no current) or actuator used.	
Transmission: ETS	
Parameter page: Heating, two-point control	

Parameter	Settings
Heating, cycle time for on-off control	0.5 min...15 min **Default value: 5 min**
Setting the time interval for reactivation of the two-point controller. The setting causes the two-point control, for example, to occur only every 5 minutes. Hysteresis and cycle time influence the degree to which the room temperature can deviate from its setpoint value.	
Transmission: ETS	
Parameter page: Heating, two-point control	

5.1.9 Heating parameter, PI control

Note:
The prerequisites for this parameter page to be visible are:
- **Device function** parameter = **controller + control panel** (see Section 5.1.4, on page 50).
- Parameter **Mode** = **Heating: PI-Control** (see Section 5.1.7, on page 59).

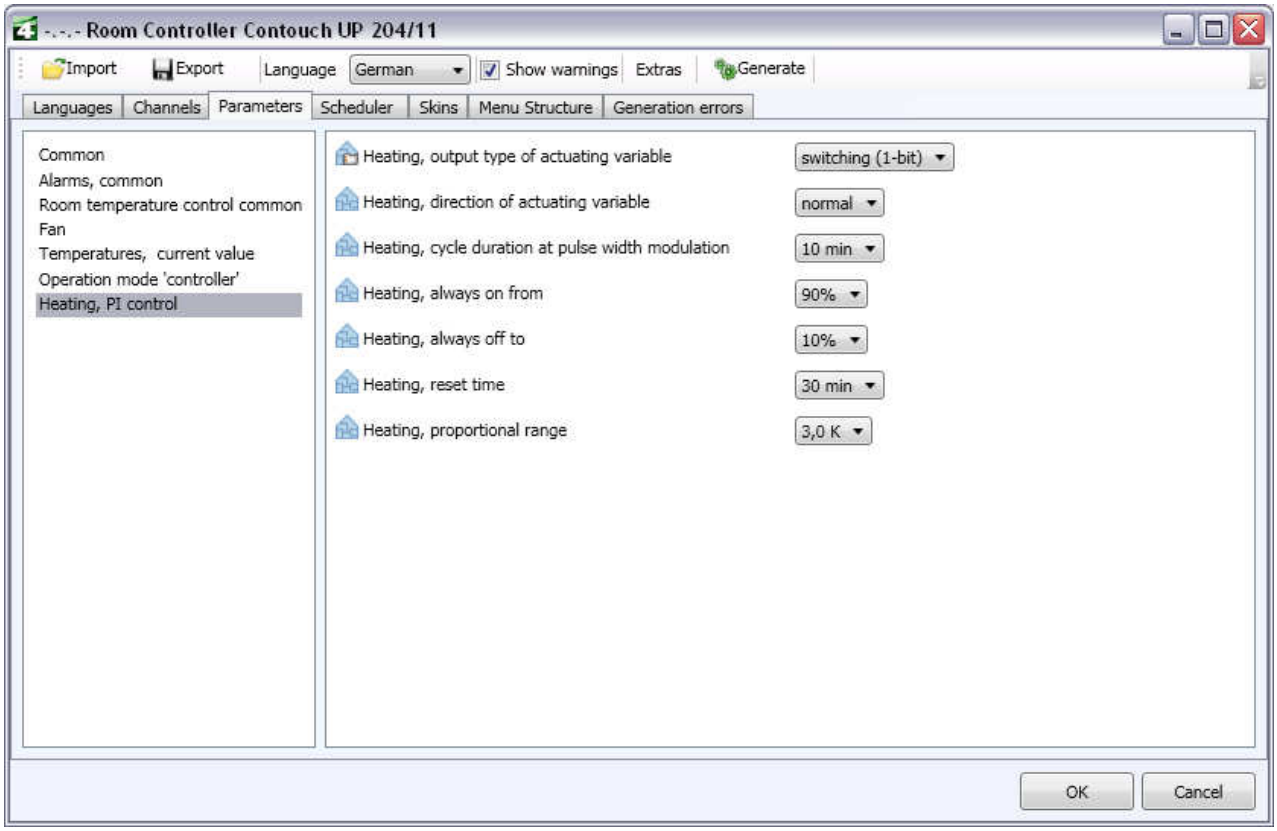

Figure. 61. Parameter view: Heating = PI control

Parameter	Settings
Heating, output type of actuating variable	constant (8 bit) **switching (1 bit)**
Setting of the output type of the variable – **Constant**: the output variable corresponds to the computed variable with a resolution of 8 bits. – **Switching**: The variable is output as a pulse width modulated switching command, whereby the duty factor between ON and OFF corresponds to the computed variable.	
Transmission: ETS and sdCard	
Parameter pages: Heating = PI control Heating and cooling, PI control	

Parameter	Settings
Heating, direction of actuating variable	**normal** **inverted**
Setting to define the form in which the variable should be output. – Normal: Output of the variable in accordance with the computed variable. – Inverted: Output of the variable reverses the desired effect of the variable.	
Transmission: ETS	
Parameter pages: Heating = PI control Heating and cooling, PI control The parameter is only visible when: – **Type of variable output for heating = switching (1 Bit)** – **Type of variable output for heating and cooling = switching (1 Bit) to joint object**	

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Parameter	Settings
Heating, cycle duration at pulse width modulation	1 min...30 min **Default value: 10 min**
Setting the period length for the pulse width modulation of the switching variable output in heating mode. The variable corresponds to the duty factor (time ratio) between "ON (1)" and "OFF (0)" within one period. CAUTION: During thermo-drive, please note that the period length cannot be shorter than the sum of the heating and cooling times of the thermo-drive.	
Transmission: ETS	
Parameter pages: Heating = PI control Heating and cooling, PI control	
The parameter is only visible when: – **Type of variable output for heating** = **switching (1 Bit)** – **Type of variable output for heating and cooling** = **switching (1 Bit) to joint object**	

Parameter	Settings
Heating always on from	40 %...100 % of the variable **Default value: 90 %**
Setting of the minimum percentage value of the variable required for the variable to always be **ON**. The valve characteristics can be adapted through this to reduce the switching frequency.	
Transmission: ETS	
Parameter pages: Heating = PI control Heating and cooling, PI control	
The parameter is only visible when: – **Type of variable output for heating** = **switching (1 Bit)** – **Type of variable output for heating and cooling = switching (1 Bit) to joint object**	

Parameter	Settings
Heating always off to	1 %...50 % of the variable **Default value: 10 %**
Setting of the maximum percentage value of the variable at which the variable is always **OFF.** The valve characteristics can be adapted through this to reduce the switching frequency.	
Transmission: ETS	
Parameter pages: Heating = PI control Heating and cooling, PI control	
The parameter is only visible when: – **Type of variable output for heating** = **switching (1 Bit)**	
– **Type of variable output for heating and cooling** = **switching (1 Bit) to joint object**	

Parameter	Settings
Heating, reset time	5 min...120 min inactive **Default value: 30 min**
Setting the reset time of the PI controller for heating mode. A reset time of 30 min means that within this time the I-portion is equal to the P-portion.	
Transmission: ETS	
Parameter pages: Heating = PI control Heating and cooling, PI control Heating, sequence control	

Parameter	Settings
Heating, proportional range	1.0 K...5.0 K **Default value: 3.0 K**
Setting the proportional range of the PI controller for heating mode. A proportional range of 3.0 K means that a routine deviation of 3 K results in a variable change of 100 %.	
Transmission: ETS	
Parameter pages: Heating = PI control Heating and cooling, PI control Heating, sequence control	
The parameter is only visible when: – **Type of variable output for heating** = **constant (8 bit)** or – **Type of variable output for heating and cooling = constant (8 Bit) to joint object**	

Parameter	Settings
Heating, maximum actuating variable	0 %...100 % **Default value: 100 %**
Setting the upper threshold for the heating variable. If the internal variable is above the value defined here, then the value defined here will always be output.	
Transmission: ETS	
Parameter pages: Heating = PI control Heating and cooling, PI control	
The parameter is only visible when: – **Type of variable output for heating** = **constant (8 bit)** or – **Type of variable output for heating and cooling = constant (8 Bit) to joint object**	

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Parameter	Settings
Heating, minimum actuating variable	0 %...100 % **Default value: 0 %**
Setting the lower threshold for the heating variable. If the internal variable is below the value defined here, then 0 % will always be output.	
Transmission: ETS	
Parameter pages: Heating = PI control Heating and cooling, PI control	
The parameter is only visible when: – **Type of variable output for heating** = **constant (8 bit)** or – **Type of variable output for heating and cooling = constant (8 Bit) to joint object**	

Parameter	Settings
Heating, direction / scaling of actuating variable	+1 %...+100 % (normal) –1 %...–100 % (inverted) **Default value: +100 % (normal)**
Setting to define the form in which the variable should be output. In the 100% (normal) setting, the control assumes that the valve is open when the variable is +100%. If in contrast, the valve, for example, is closed at 100%, then the desired effect of the variable must be inverted. Scaling of the variable is achieved by reducing the percentage value. The setting depends on the type of valve or actuator used.	
Transmission: ETS	
Parameter pages: Heating = PI control Heating and cooling, PI control	
The parameter is only visible when: – **Type of variable output for heating** = **constant (8 bit)** or – **Type of variable output for heating and cooling = constant (8 Bit) to joint object**	

Parameter	Settings
Heating, send actuating variable at change by	1 %...100 % **Default value: 5 %**
Setting to define the minimum change required for the heating variable to be automatically sent.	
Transmission: ETS	
Parameter pages: Heating = PI control Heating and cooling, PI control	
The parameter is only visible when: – **Type of variable output for heating** = **constant (8 bit)** or – **Type of variable output for heating and cooling = constant (8 Bit) to joint object**	

Parameter	Settings
Heating, cycle time to send actuating variable	non 5 min...120 min **Default value: 10 min**
Setting to define the minimum time interval in which the heating variable should be automatically sent.	
Transmission: ETS	
Parameter pages: Heating = PI control Heating and cooling, PI control Heating, sequence control	
The parameter is only visible when: – **Type of variable output for heating** = **constant (8 bit)** or – **Type of variable output for heating and cooling = constant (8 Bit) to joint object**	

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5.1.10 Heating parameter, sequence control

Note:
The prerequisites for this parameter page to be visible are:
- **Device function** parameter **= controller + control panel** (see Section 5.1.4, on page 50).
- Parameter **Mode = Heating: Sequence control** (see Section 5.1.7, on page 59).

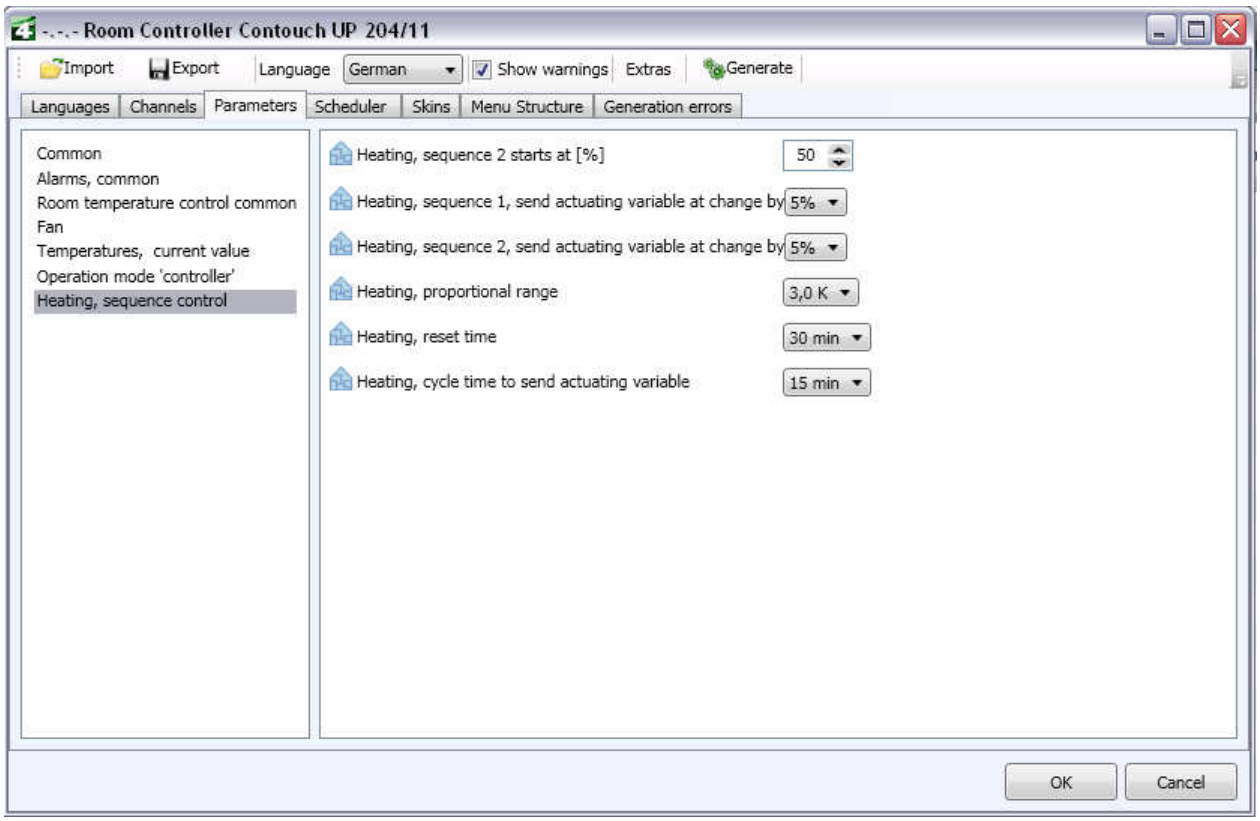

Figure. 62. Parameter view: Heating, sequence control

Parameter	Settings
Heating, sequence 2 starts at [%]	5...95 **Pre-set value: 50**
Specification of the minimum variable of the controller output for heating at which sequence 2 should begin.	
Transmission: ETS	
Parameter page: Heating, sequence control	

Parameter	Settings
Heating, sequence 1, send actuating variable at change by	1 %...25 % **Pre-set value: 5 %**
Setting to define the minimum change required for the **heating sequence 1** variable to be automatically sent.	
Transmission: ETS	
Parameter pages: Heating, sequence control	

Parameter	Settings
Heating, sequence 2, send actuating variable at change by	1 %...25 % **Pre-set value: 5 %**
Specification to define the minimum change for which the variable of **Heating, Sequence 2** should be automatically sent	
Transmission: ETS	
Parameter pages: Heating, sequence control	

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Parameter	Settings
Heating, proportional range	1.0 K...5.0 K **Default value: 3.0 K**
Setting the proportional range of the PI controller for heating mode. A proportional range of 3.0 K means that a routine deviation of 3 K results in a variable change of 100 %.	
Transmission: ETS	
Parameter pages:	Heating = PI control Heating and cooling, PI control Heating, sequence control

Parameter	Settings
Heating, reset time	5 min...240 min inactive **Default value: 30 min**
Setting the reset time of the PI controller for heating mode. A reset time of 30 min means that within this time the I-portion is equal to the P-portion.	
Transmission: ETS	
Parameter pages:	Heating = PI control Heating and cooling, PI control Heating, sequence control

Parameter	Settings
Heating, cycle time to send actuating variable	omitted 5 min...120 min **Default value: 15 min**
Setting to define the minimum time interval in which the heating variable should be automatically sent.	
Transmission: ETS	
Parameter pages:	Heating = PI control Heating and cooling, PI control Heating, sequence control

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5.1.11 Cooling parameter, two-point control

Note:
The prerequisites for this parameter page to be visible are:
- **Device function parameter = controller + control panel** (see Section 5.1.4, on page 50).
- Parameter **Mode** = **Cooling: Two-point control** (see Section 5.1.7, on page 59).

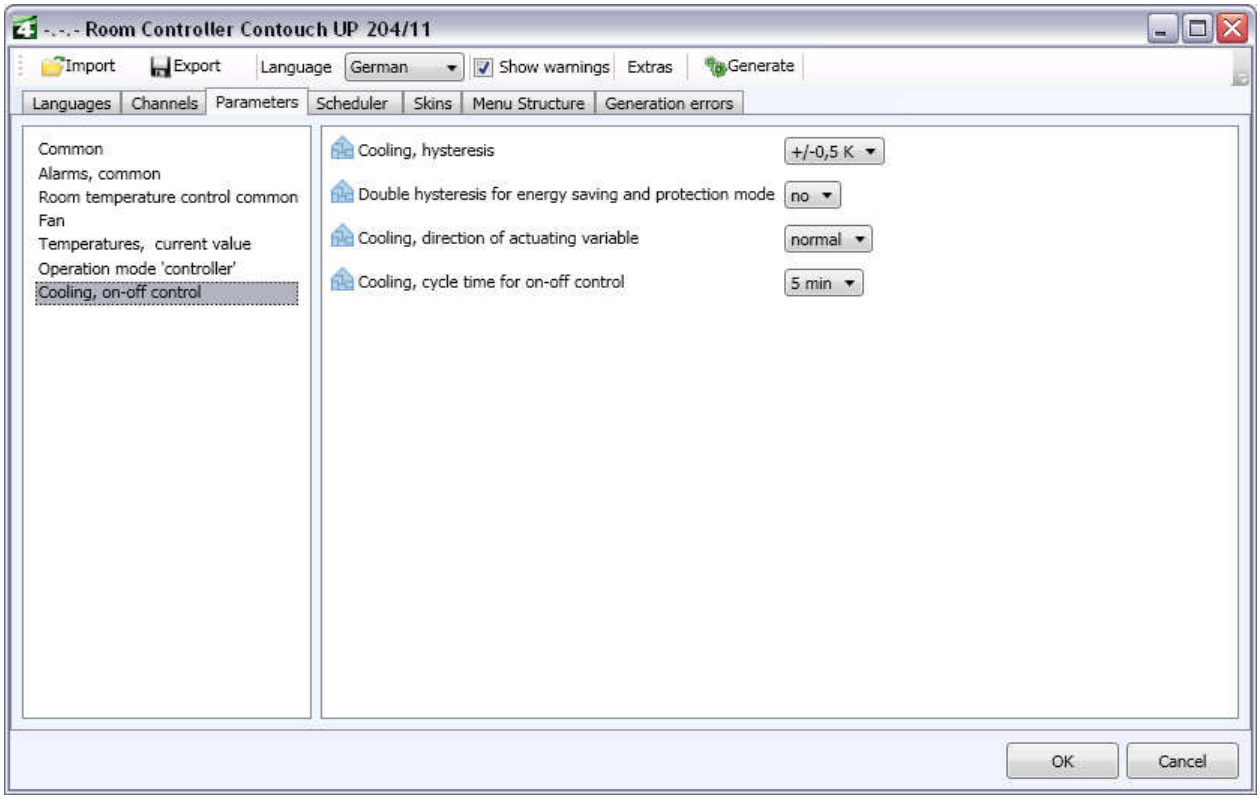

Figure. 63. Parameter view: Cooling, two-point control

Parameter	Settings
Cooling, hysteresis	± 0.1 K...± 2.5 K **Default value: ± 0.5 K**
Setting the switching hysteresis of the two-point controller for cooling mode. Although the precision of the room temperature setpoint value increases as the hysteresis becomes smaller, the switching frequency of the controller increases.	
Transmission: ETS	
Parameter page: Cooling, two-point control	

Parameter	Settings
Double hysteresis for energy saving and protection mode	**No** Yes
Setting the double switching hysteresis in energy-saving or heat protection mode. This allows room temperature fluctuations in energy-saving or heat protection mode to be twice as large in order to save energy.	
Transmission: ETS	
Parameter page: Cooling, two-point control	

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Parameter	Settings
Cooling, direction of actuating variable	**normal** inverted
Defines the form in which the variable should be output. – **Normal**: Output of the variable in accordance with the computed variable. – **Inverted**: Output of the variable reverses the desired effect of the variable. With this parameter, the setting depends on the type of valve (whether opened or closed when there is no current) or actuator used.	
Transmission: ETS	
Parameter page: Cooling, two-point control	

Parameter	Settings
Cooling, cycle time for on-off control	0.5 min...15 min **Default value: 5 min**
Setting the time interval for reactivation of the two-point controller. The setting causes the two-point control, for example, to occur only every 5 minutes. Hysteresis and cycle time influence the degree to which the room temperature can deviate from its setpoint value.	
Transmission: ETS	
Parameter page: Cooling, two-point control	

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5.1.12 Cooling parameter, PI control

Note:
The prerequisites for this parameter page to be visible are:
- **Device function** parameter = **controller + control panel** (see Section 5.1.4, on page 50).
- Parameter **Mode** = **Cooling: PI-Control** (see Section 5.1.7, on page 59).

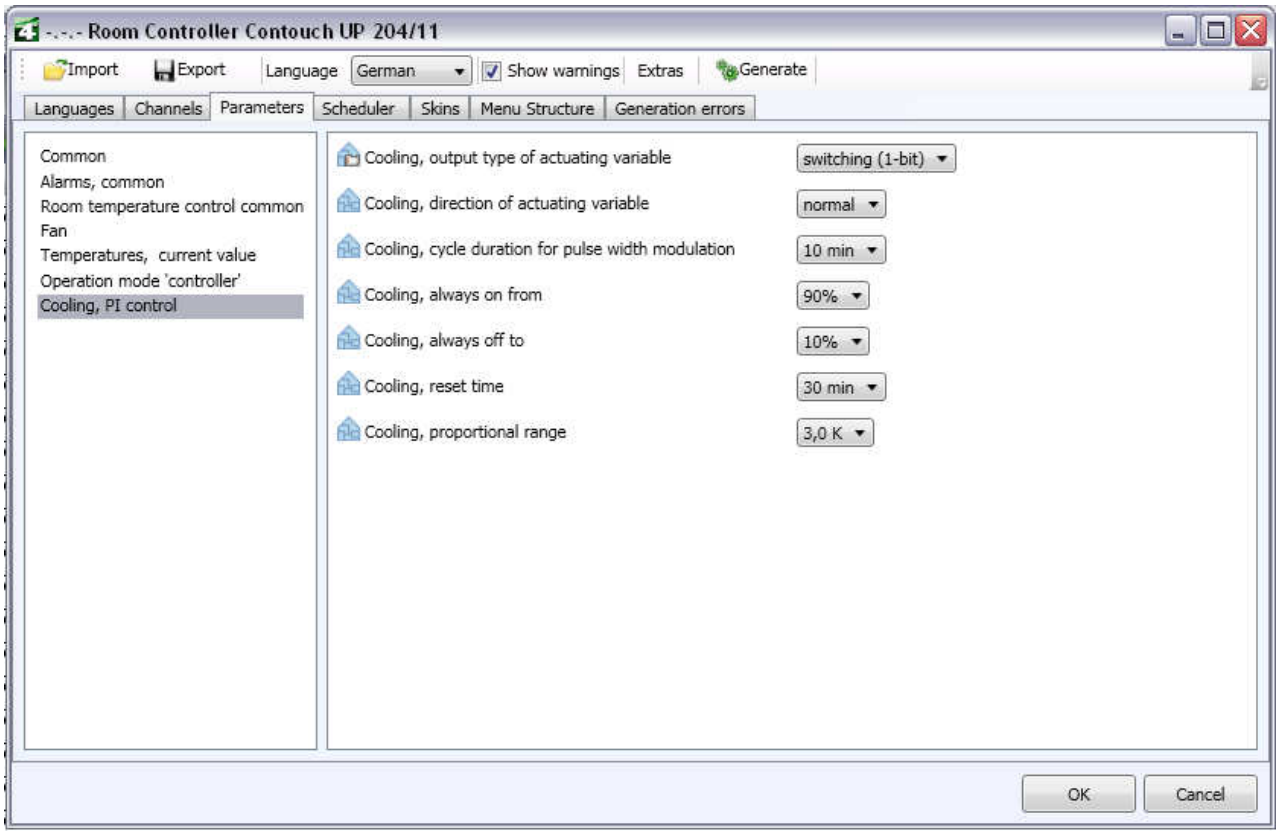

Figure. 64. Parameter view: Cooling, PI control

Parameter	Settings
Cooling, output type of actuating variable	constant (8 bit) **switching (1 bit)**
Setting of the output type of the variable – **Constant**: the output variable corresponds to the computed variable with a resolution of 8 bit. – **Switching:** The variable is output as a pulse width modulated switching command, whereby the duty factor between ON and OFF corresponds to the computed variable.	
Transmission: ETS and sdCard	
Parameter pages: Cooling, PI control Heating and cooling, PI control	

Parameter	Settings
Cooling, proportional range	1.0 K...5.0 K **Default value: 3.0 K**
Setting the proportional range of the PI controller for cooling mode. A proportional range of 3.0 K means that a routine deviation of 3 K results in a variable change of 100 %.	
Transmission: ETS	
Parameter pages: Cooling, PI control Heating and cooling, PI control Cooling, sequence control	

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Parameter	Settings
Cooling, cycle duration for pulse width modulation	non 5 min...120 min **Default value: 10 min**
Setting to define the minimum time interval in which the cooling variable should be automatically sent.	
Transmission: ETS	
Parameter pages:	Cooling, PI control Heating and cooling, PI control Cooling, sequence control
The parameter is only visible when: – **Type of variable output for cooling** = **constant (8 Bit)** or – **Type of variable output for heating & cooling = constant (8 Bit) to joint object**	

Parameter	Settings
Cooling, reset time	5 min...240 min inactive **Default value: 30 min**
Setting the reset time of the PI controller for cooling mode. A reset time of 30 min means that within this time the I-portion is equal to the P-portion.	
Transmission: ETS	
Parameter pages:	Cooling, PI control Heating and cooling, PI control Cooling, sequence control

Parameter	Settings
Cooling, maximum actuating variable	0 %...100 % **Default value: 100 %**
Setting the upper threshold for the cooling variable. If the internal variable is above the value defined here, then the value defined here will always be output.	
Transmission: ETS	
Parameter pages:	Cooling, PI control Heating and cooling, PI control
The parameter is only visible when: – **Type of variable output for cooling** = **constant (8 Bit)** or – **Type of variable output for heating & cooling = constant (8 Bit) to joint object**	

Parameter	Settings
Cooling, minimum actuating variable	0 %...100 % **Default value: 0 %**
Setting the lower threshold for the cooling variable. If the internal variable is below the value defined here, then **0 %** will always be output.	
Transmission: ETS	
Parameter pages:	Cooling, PI control Heating and cooling, PI control
The parameter is only visible when: – **Type of variable output for cooling** = **constant (8 Bit)** or – **Type of variable output for heating & cooling = constant (8 Bit) to joint object**	

Parameter	Settings
Cooling, direction / scaling of actuating variable	+1 %...+100 % (normal) –1 %...–100 % (inverted) **Default value: +100 % (normal)**
Setting to define the form in which the variable should be output. In the **100% (normal)** setting, the control assumes that the valve is open when the variable is +100%. If in contrast, the valve, for example, is closed at 100%, then the desired effect of the variable must be inverted. Scaling of the variable is achieved by reducing the percentage value. The setting depends on the type of valve or actuator used.	
Transmission: ETS	
Parameter pages:	Cooling, PI control Heating and cooling, PI control
The parameter is only visible when: – **Type of variable for cooling** = **constant (8 Bit)** or – **Type of variable for heating & cooling = constant (8 Bit) to joint object**	

Parameter	Settings
Cooling, send actuating variable at change by	1 %...100 % **Default value: 5 %**
Setting to define the minimum change required for the cooling variable to be automatically sent.	
Transmission: ETS	
Parameter pages:	Cooling, PI control Heating and cooling, PI control
The parameter is only visible when: – **Type of variable output for cooling** = **constant (8 Bit)** or – **Type of variable output for heating & cooling = constant (8 Bit) to joint object**	

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Parameter	Settings
Cooling, direction of actuating variable	**normal** inverted
Setting to define the form in which the variable should be output. – Normal: Output of the variable in accordance with the computed variable. – Inverted: Output of the variable reverses the desired effect of the variable.	
Transmission: ETS	
Parameter pages: Cooling, PI control Heating and cooling, PI control The parameter is only visible when: – **Type of variable for cooling** = **switching (1 Bit)** – Type of variable output for heating and cooling = **switching (1 Bit) to joint object**	

Parameter	Settings
Period length of pulse wide modulated cooling	1 min...30 min **Default value: 10 min**
Setting the period length for the pulse width modulation of the switching variable output in cooling mode. The variable corresponds to the duty factor (time ratio) between "ON (1)" and "OFF (0)" within one period. CAUTION: During thermo-drive, please note that the period length cannot be shorter than the sum of the re-cooling and cooling times of the thermo-drive.	
Transmission: ETS	
Parameter pages: Cooling, PI control Heating and cooling, PI control The parameter is only visible when: – **Type of variable output for cooling** = **switching (1 Bit)** or – **Type of variable output for heating and cooling** = **switching (1 Bit) to joint object**	

Parameter	Settings
Cooling always on from	40 %...100 % of the variable **Default value: 90 %**
Setting of the minimum percentage value of the variable required for the variable to always be **ON**. The valve characteristics can be adapted through this to reduce the switching frequency.	
Transmission: ETS	
Parameter pages: Cooling, PI control Heating and cooling, PI control The parameter is only visible when: – **Type of variable output for cooling** = **switching (1 Bit)** or – **Type of variable output for heating and cooling** = **switching (1 Bit) to joint object**	

Parameter	Settings
Cooling always off to	1 %...50 % of the variable **Default value: 10 %**
Setting of the maximum percentage value of the variable at which the variable is always **OFF.** The valve characteristics can be adapted through this to reduce the switching frequency.	
Transmission: ETS	
Parameter pages: Cooling, PI control Heating and cooling, PI control The parameter is only visible when: – **Type of variable output for cooling** = **switching (1 Bit)** or – **Type of variable output for heating and cooling** = **switching (1 Bit) to joint object**	

5.1.13 Cooling parameter, sequence control

Note:
The prerequisites for this parameter page to be visible are:
- **Device function** parameter = **controller + control panel** (see Section 5.1.4, on page 50).
- Parameter **Mode = Cooling: Sequence control** (see Section 5.1.7, on page 59).

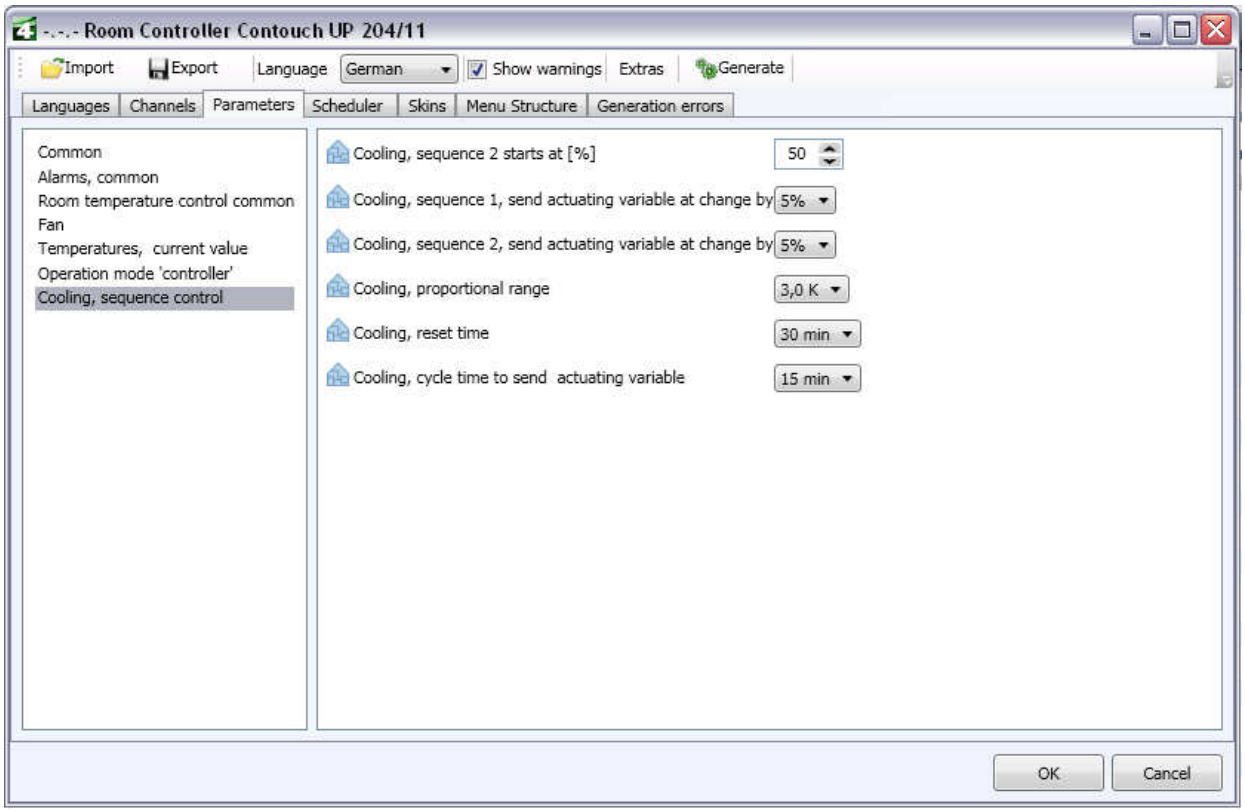

Figure. 65. Parameter view: Cooling, sequence control

Parameter	Settings
Cooling, sequence 2 starts at [%]	5...95 **Pre-set value: 50**
Specification of the minimum variable of the controller output for cooling at which sequence 2 should begin.	
Transmission: ETS	
Parameter page: Cooling, sequence control	

Parameter	Settings
Cooling, sequence 1, send actuating variable at change by	1 %...25 % **Pre-set value: 5 %**
Specification to define the minimal change of the **cooling** variable for which **Sequence 1** should be automatically sent	
Transmission: ETS	
Parameter pages: Cooling, sequence control	

Parameter	Settings
Cooling, sequence 2, send actuating variable at change by	1 %...25 % **Pre-set value: 5 %**
Specification to define the minimal change of the **cooling** variable for which **Sequence 2** should be automatically sent	
Transmission: ETS	
Parameter pages: Cooling, sequence control	

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Parameter	Settings
Cooling, proportional range	1.0 K...5.0 K **Default value: 3.0 K**
Setting the proportional range of the PI controller for heating mode. A proportional range of 3.0 K means that a routine deviation of 3 K results in a variable change of 100 %.	
Transmission: ETS	
Parameter pages:	Cooling, PI control Heating and cooling, PI control Cooling, sequence control

Parameter	Settings
Cooling, reset time	5 min...240 min inactive **Default value: 30 min**
Setting the reset time of the PI controller for heating mode. A reset time of 30 min means that within this time the I-portion is equal to the P-portion.	
Transmission: ETS	
Parameter pages:	Cooling, PI control Heating and cooling, PI control Cooling, sequence control

Parameter	Settings
Cooling, cycle time to send actuating variable	Omitted 5 min...120 min **Default value: 15 min**
Setting to define the minimum time interval in which the cooling variable should be automatically sent.	
Transmission: ETS	
Parameter pages:	Cooling, PI control Heating and cooling, PI control Cooling, sequence control

5.1.14 Heating and cooling parameter, PI control

Note:
The prerequisites for this parameter page to be visible are:
- **Device function** parameter **= controller + control panel** (see Section 5.1.4, on page 50).
- Parameter **Mode** = **Heating & Cooling: PI-control** (see Section 5.1.7, on page 59).

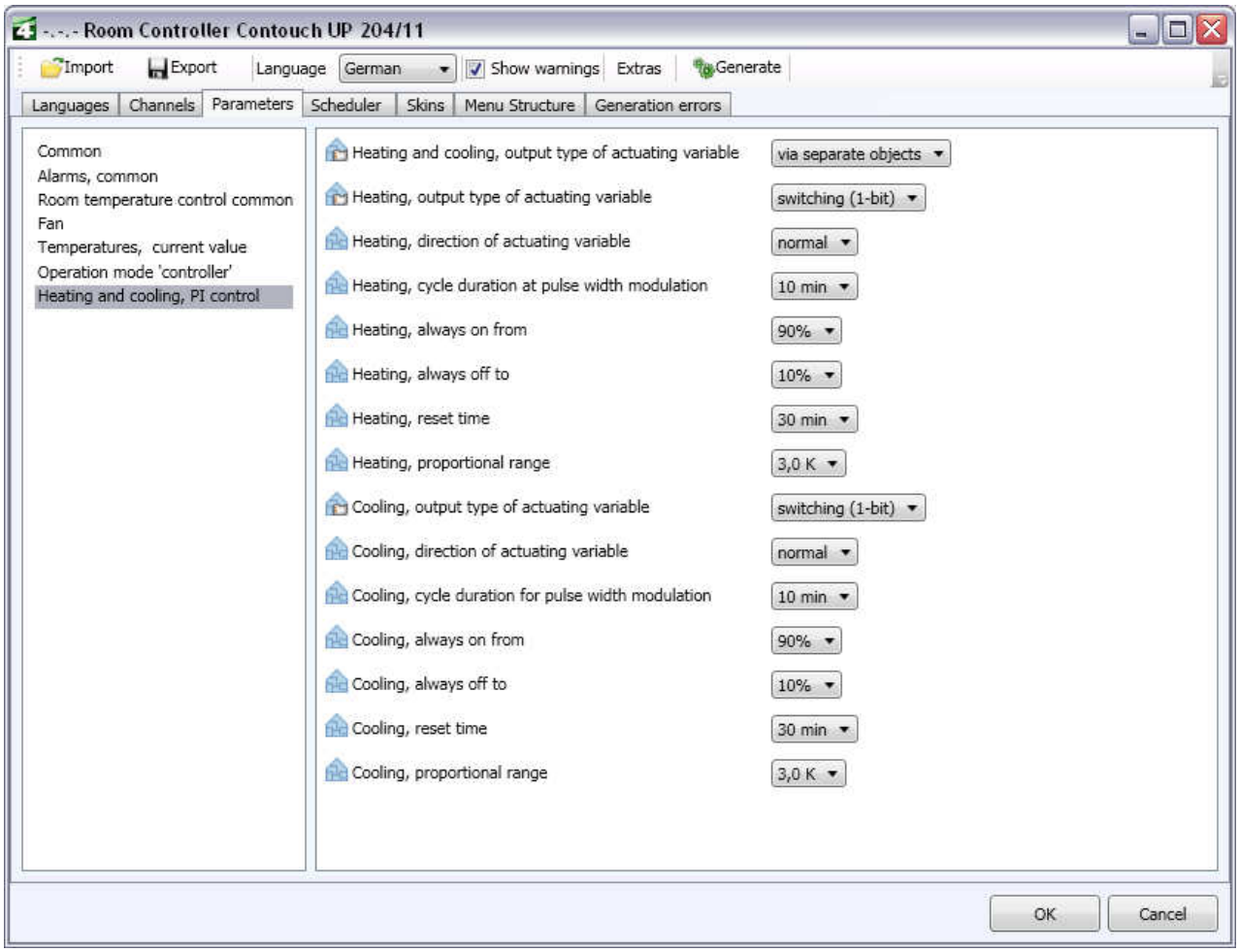

Figure. 66. Parameter view: Heating and cooling, PI control

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Parameter	Settings
Heating and cooling, output type of actuating variable	**via separate objects** constant (8 bit) to a joint object switching (1 bit) to a joint object
Setting the variable output type for the heating and cooling mode. – **Via separate objects**: the settings for heating and cooling are made separately on the respective parameter pages. – **Constant**: the output variable corresponds to the computed variable with a resolution of 8 bit. – **Switching**: the variable is output as a pulse width modulated switching command, whereby the duty cycle between **On** and **Off** corresponds to the computed variable.	
Transmission: ETS and sdCard	
Parameter pages: Cooling, PI control Heating and cooling, PI control	

Explanation of additional heating parameters: see Chapter 5.1.9, starting on page 64.

Explanation of additional cooling parameters: see Chapter 5.1.12, starting on page 71.

5.1.15 Communication objects for room temperature control

Obj.	Object name	Function	Type	Flags
116	Outdoor temperature - sensor	Receive	2 Byte DPT_ Value_Temp	CWTU
This communication object is used to receive the outside temperature from an external sensor. This communication object sends a read request when power is restored. If there is no answer, then a configurable default value is used.				
Obj.	**Object name**	**Function**	**Type**	**Flags**
117	Temperature, actual value of internal sensor	Send	2 Byte DPT_ Value_Temp	CRT
This object is used to send the value (in °C) measured and corrected by the installed indoor temperature sensor. The value can also be sent automatically if the temperature changes by a configurable value. The temperature can also be queried.				
Obj.	**Object name**	**Function**	**Type**	**Flags**
118	Temperature, Actual indoor value of ext. Sensor	Receive	2 Byte DPT_ Value_Temp	CWTU
This object receives the current actual temperature value of the external indoor temperature sensor (in °C). This object can be used to cyclically send read telegrams to the external temperature sensor so that this sends its current value back. This communication object sends a read request when power is restored. If there is no answer, then a configurable default value is used.				
This object is only available if: External indoor temperature sensor = Yes				
Obj.	**Object name**	**Function**	**Type**	**Flags**
119	Temperature, actual indoor value, weighted	Send	2 Byte DPT_ Value_Temp	CRT
This object contains the current actual temperature value for the controller.				

This value is computed taking the configured weighting into account, which is determined from the values measured by the corrected internal and the corrected external indoor temperature sensors. The value is send automatically when a configurable change occurs.

This object is only available if:
External indoor temperature sensor = Yes

Obj.	Object name	Function	Type	Flags
120	Basic set point value	Receive	2 Byte DPT_ Value_Temp	CRWT U

This object can be used to read the basic setpoint value (in °C) and to change it via the bus by telegram.
This value corresponds to the setpoint value in comfort mode with a setpoint offset = 0. If values outside of the 16..26 °C range are received, the value is set to the corresponding minimum or maximum value.
This communication object sends a read request when power is restored. If there is no answer, then a configurable default value is used.

This object is only available if:
Basic setpoint value visible object = Yes

Obj.	Object name	Function	Type	Flags
121	setpoint value offset	Send	2 Byte DPT_ Value_Temp	CRT

This object can be used to send every change in the setpoint value offset (in Kelvin).

Obj.	Object name	Function	Type	Flags
122	Temperature, setpoint value	Send	2 Byte DPT_ Value_Temp	CRT

This object contains the current setpoint value of the room temperature (In °C), which is computed under consideration of the basic setpoint value, mode and offset.

Obj.	Object name	Function	Type	Flags
123	Automatic mode	Receive/send: On/Off	1 bit	CRWT U

This object can be used to switch to automatic mode via the bus. Upon receipt, only "1" telegrams are evaluated; "0" telegrams are rejected.

This object is additionally used to send the status (0: manual mode, 1: automatic mode).

Obj.	Object name	Function	Type	Flags
124	Comfort mode	Receive/Send: On/Off	1 bit	CRWT U

When the **Automatic mode via** parameter is set to **Bus telegrams**, then **comfort mode** can be switched on via the bus. Upon receipt, both "1" and "0" telegrams are evaluated. Upon receipt of an "0", if no corresponding command arrives within 3 seconds, the mode is switched to energy-saving mode or to protection mode, if energy-saving mode is not available.
Moreover this object is used to report changes occurring in the comfort mode status (such as those caused manually or by an internal time program).

Obj.	Object name	Function	Type	Flags
125	Pre-comfort mode	Receive/send: On/Off	1 bit	CRWT U

If the parameter **Automatic mode via** is set to **Bus-Telegrams**, then the operating mode "pre-comfort mode" (standby operation) can be switch via this object by the bus. Upon receipt of an "0", if no corresponding command arrives within 3 seconds, the mode is switched to energy-saving mode or to protection mode, if energy-saving mode is not available. Moreover this object is used to report changes occurring in the comfort mode status (such as those caused manually or by an internal time program).

This object is only available if:
Controller 4 of the room operating modes can be activated

Obj.	Object name	Function	Type	Flags
126	Energy-saving - mode	Receive/Send: On/Off	1 bit	CRWT U

When the **Automatic mode via** parameter is set to **Bus telegrams**, then this object can be used to switch the mode to energy-saving mode (nighttime operation) via the bus.
Upon receipt of an "0", if no corresponding command arrives within 3 seconds, the energy-saving mode remains active.

Moreover this object is used to report changes occurring in the energy-saving mode status (such as those caused manually or by an internal time program).

This object is only available if:
Controller 3 or 4 of the room operating modes can be activated

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Obj.	Object name	Function	Type	Flags
127	Protection mode	receive/send: On/Off	1 bit	CRWTU

When the **Automatic mode via** parameter is set to **Bus telegrams**, then this object can be used to switch the mode to "protection mode" (frost/heat protection) via the bus. Upon receipt of an "0", if no corresponding command arrives within 3 seconds, the mode is switched to energy-saving mode (if available, otherwise protection mode is maintained).

Moreover this object is used to report changes occurring in the protection mode status (such as those caused manually or by an internal time program).

Obj.	Object name	Function	Type	Flags
128	Permanent Protection mode	Receive: On/Off	1 bit	CRWTU

The controller can use this object to switch permanently to "protection mode" (frost/heat protection) (e.g. during prolonged absence or holidays). In this case, no other mode objects can be used by a time program, timer, presence detector or manually to switch to a different mode.

If "permanent protection mode" is switched off, then the controller automatically switches to:

– "energy-saving mode" in manual mode if available, otherwise to protection mode
– the currently active mode in automatic mode (from bus telegram or internal time program)

This object is only available if:
Object for permanent protection mode visible = Yes

Obj.	Object name	Function	Type	Flags
129	controller	Receive: On/Off	1 bit	CRWU

This object can be used to switch the control on or off. If the control is set to "heating and cooling", then both controls are switched on and off jointly.

If the controller is switched to **OFF**, then the variables for heating and cooling are set to "0". The value "0" is sent once after the controller is switched off.

This object is only available if:
Device function = controller + control panel

Obj.	Object name	Function	Type	Flags
130	Heating/ cooling.	1=Heating/ 0=Cooling	1 bit	CRWTU

This object displays whether the controller is in heating mode
or in cooling mode. It is sent automatically when the status changes.

With 2-line systems, this object can be used to switch the control between heating and cooling mode.

Obj.	Object name	Function	Type	Flags
131	Frost alarm	Send: On/Off	1 bit	CRT

This object can be used to query the "frost alarm" status ("1" = alarm active, "0" = alarm inactive). When the object value changes, it is sent automatically.

Obj.	Object name	Function	Type	Flags
132	Heat alarm	Send: On/Off	1 bit	CRT

This object can be used to query the "heat alarm" status ("1" = alarm active, "0" = alarm inactive). When the object value changes, it is sent automatically.

Obj.	Object name	Function	Type	Flags
133	Dew point alarm	Receive: On/Off	1 bit	CWU

This object can be used in cooling mode to receive a dew point alarm sent by a dew point monitor and to show it on the display. A received dew point alarm causes the controller to switch to "dew point mode" and the cooling valve to close until the dew point alarm is no longer pending.

This object is not evaluated unless the controller is in cooling mode.

Obj.	Object name	Function	Type	Flags
134	Window 1	Receive	1 bit	CWTU

This object is used to receive the status of window 1. If the object value = "1" (window open), the room temperature controller switches internally to "protection mode" and stays in this mode until the object value for one of the window objects = "1".

Parameters can be used to invert the behavior.

This communication object sends a read request when power is restored.

Obj.	Object name	Function	Type	Flags
135	Window 2	Receive	1 bit	CWTU

This object is used to receive the status of window 2. If the object value = "1" (window open), the room temperature controller switches internally to "protection mode" and stays in this mode until the object value for one of the window objects = "1".

Parameters can be used to invert the behavior.

This communication object sends a read request when power is restored.

Obj.	Object name	Function	Type	Flags
136	Window 3	Receive	1 bit	CWTU

This object is used to receive the status of window 3. If the object value = "1" (window open), the room temperature controller switches internally to "protection mode" and stays in this mode until the object value for one of the window objects = "1".

Parameters can be used to invert the behavior.

This communication object sends a read request when power is restored.

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Obj.	Object name	Function	Type	Flags
137	Window 4	Receive	1 bit	CWTU

This object is used to receive the status of window 4. If the object value = "1" (window open), the room temperature controller switches internally to "protection mode" and stays in this mode until the object value for one of the window objects = "1".
Parameters can be used to invert the behavior.
This communication object sends a read request when power is restored.

Obj.	Object name	Function	Type	Flags
138	Presence	Receive: On/Off	1 bit	CWTU

The controller contains an optional object for the "presence" state for usage in rooms with a presence detector. Its telegrams are evaluated for switching the room operating mode.
This communication object sends a read request when power is restored.

This object is only available if:
Object for presence visible = Yes

Obj.	Object name	Function	Type	Flags
139	Comfort extension status	Send: On/Off	1 bit	CRT

The controller uses this object to report that the "comfort extension" mode has been switched on or off.

This object is only available if:
Object for presence visible = No and
Comfort extension status object = Yes

Obj.	Object name	Function	Type	Flags
140	Room operating mode	Received: 0...4	1 Byte	CWTU

This object is used to switch the room operating mode depending on the value received. The following rules allocations apply:
– 0 = Automatic mode
– 1 = Comfort mode
– 2 = Pre-comfort mode
– 3 = Energy-saving mode
– 4 = Protection mode.
If a value other than 0...4 is received or a value of a mode not available to the controller, then the telegram is rejected as erroneous.
If the **Automatic mode via** parameter is set to **internal time program** then only the value "0" is evaluated. Other values are rejected. If a 0 is received when the **Automatic mode via** parameter is set to **Bus telegrams**, the room operating mode will be set to the mode most recently received via the 1-byte or 1-bit objects.
This communication object sends a read request when power is restored.

This object is only available if:
8-bit objects for room operating mode / room operating mode status = Yes

Obj.	Object name	Function	Type	Flags
141	Room operating mode status	Send: 0...4	1 Byte	CRT

This object is used to report the current mode after the room operating mode is switched.

For the case "controller + control panel" the following allocations apply for the transmitted values:
– 1 = Comfort mode
– 2 = Pre-comfort mode
– 3 = Energy-saving mode
– 4 = Protection mode.
0 (= automatic mode) never occurs in this case, since a mode different from "0" always results.

For the case "control panel" with internal time program, the following allocations apply for the transmitted values:
– 1 = Comfort mode
– 2 = Pre-comfort mode
– 3 = Energy-saving mode
– 4 = Protection mode.

For the case "control panel" with external time program, the following allocations apply for the transmitted values:
– 0 = Automatic mode (ext. time switch program)
– 1 = Comfort mode
– 2 = Pre-comfort mode
– 3 = Energy-saving mode
– 4 = Protection mode.
Value ≠ 0 here means: Manual mode

This object is only available if:
8-bit objects for room operating mode / room operating mode status = Yes

Obj.	Object name	Function	Type	Flags
142	Controller status (Eberle)	Send	1 Byte	CRT

This object contains the current controller status, which is automatically sent when the status changes.

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The individual bits have the following meaning:
- Bit 0: 1 = comfort mode On
- Bit 1: 1 = pre-comfort mode On
- Bit 2: 1 = energy-saving mode On
- Bit 3: 1 = protection mode On
- Bit 4: 1 = dew point alarm
- Bit 5: 1 = heating mode, 0 = cooling mode
- Bit 6: 1 = controller Off, 0 = controller On
- Bit 7: 1 = Frost/heat alarm (depending on the value of bit 5)

This object is only available if:
8-Bit object controller status (Eberle) = Yes

Obj.	Object name	Function	Type	Flags
143	Controller status (RHCC)	Send: 16-Bit Status	2 Byte	CRT

This object contains the current controller status, which is automatically sent when the status changes.
The following bits are supported:
Fault (Bit 0), HeatCoolMode (Bit 8), DewPointStatus (Bit 12), FrostAlarm (Bit 13) und OverheatAlarm (Bit 14).
The other bits (1..7, 9..11 and 15) are set to 0.

This object is only available if:
16-Bit object controller status (RHCC) = Yes

Obj.	Object name	Function	Type	Flags
144	Heating/ cooling, variable switching	Send: On/Off	1 bit	CRT

This object is used to send the variable as an On/Off switching command in both heating and cooling mode.

This object is only available if:
- Device function = controller + control panel and
- Heating = with two-point control and cooling) with two-point control

or
- Device function = controller + control panel and
- Heating = with PI control and cooling = with PI control and
- Type of variable output for heating and cooling = switching (1 bit) to a joint object

Obj.	Object name	Function	Type	Flags
145	Heating/ cooling, variable constant	Send: 0...100%	1 Byte DPT_Scaling	CRT

This object is used to send the variable as a percentile in both heating and cooling mode.

This object is only available if:
- Device function = controller + control panel

and
- Heating = PI control

and
- Cooling = with PI control

and
- Type of variable output for heating and cooling = constant (8 bit) to a joint object

Obj.	Object name	Function	Type	Flags
146	Heating, variable switching	Send: On/Off	1 bit	CRT

This object is used to send the variable as an On/Off switching command in heating mode.

This object is only available if:
- Device function = controller + control panel and
- Heating with two-point control

or
- Device function = controller + control panel and
- Heating = with PI control and
- Variable output type for heating and cooling = via separated objects and
- type of variable output for heating = switching (1 Bit)

Obj.	Object name	Function	Type	Flags
147	Heating, variable constant	Send: 0...100%	1 Byte DPT_Scaling	CRT

This object is used to send the variable as a percentile in heating mode with PI control and the "internal" variable of the control with sequence control in PI control.

This object is only available if:
- Device function = controller + control panel and
- Heating = with PI-control or
- Heating = with PI control and sequence control and
- Variable output type for heating and cooling = via separated objects and
- type of variable output for heating = constant (8 Bit)

Obj.	Object name	Function	Type	Flags
148	Heating, variable sequence 1	Send: 0...100%	1 Byte DPT_Scaling	CRT

This object is used in heating mode with sequence control to send the variable of the first sequence as a percentile.

This object is only available if:
- Device function = controller + control panel and
- Heating = with PI control and sequence control

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Obj.	Object name	Function	Type	Flags
149	Heating, variable sequence 2	Send: 0...100%	1 Byte DPT_Scaling	CRT

This object is used in heating mode with sequence control to send the variable of the second sequence as a percentile.

This object is only available if:
– Device function = controller + control panel and
– Heating = with PI control and sequence control

Obj.	Object name	Function	Type	Flags
150	Cooling, variable switching	Send: On/Off	1 bit	CRT

This object is then used to send the variable as an On/Off switching command in cooling mode.

This object is only available if:
– Device function = controller + control panel and
– Cooling = two-point control
or
– Device function = controller + control panel and
– Cooling = with PI control and
– Variable output type for heating and cooling = via separated objects and
– type of variable output for cooling = switching (1 Bit)

Obj.	Object name	Function	Type	Flags
151	Cooling, variable constant	Send: 0...100%	1 Byte DPT_Scaling	CRT

This object is used to send the variable as a percentile in cooling mode with PI control and the "internal" variable of the control with sequence control in PI control.

This object is only available if:
– Device function = controller + control panel and
– Cooling = with PI control or
Cooling = with PI control and sequence control and
– Variable output type for heating and cooling = via separated objects and
– type of variable output for cooling = constant (8 Bit)

Obj.	Object name	Function	Type	Flags
152	Cooling, variable sequence 1	Send: 0...100%	1 Byte DPT_Scaling	CRT

This object is used in cooling mode with sequence control to send the variable of the first sequence as a percentile.

This object is only available if:
– Device function = controller + control panel and
– Cooling = with PI control and sequence control

Obj.	Object name	Function	Type	Flags
153	Cooling, variable sequence 2	Send: 0...100%	1 Byte DPT_Scaling	CRT

This object is used in cooling mode with sequence control to send the variable of the second sequence as a percentile.

This object is only available if:
– Device function = controller + control panel and
– Cooling = with PI control and sequence control

Obj.	Object name	Function	Type	Flags
154	Fan mode	Send:	1 bit	CRT

This object sends the set fan mode. Depending on the setting of the "invert value of fan mode" parameter, the following applies:
– No: Value “0” = Fan-manual mode,
Value “1” = Fan automatic mode
– Yes: Value “1” = Fan-manual mode,
Value “0” = Fan automatic mode

This object is only available if:
– Fan available = Yes

Obj.	Object name	Function	Type	Flags
155	Fan mode status	Receive	1 bit	CWU

This object is used to receive and display the status of the fan mode.

Depending on the setting of the "invert value of fan mode" parameter, the following applies:
– No: Value “0” = Fan-manual mode,
Value “1” = Fan automatic mode
– Yes: Value “1” = Fan-manual mode,
Value “0” = Fan automatic mode

This object is only available if:
– Fan available = Yes

Obj.	Object name	Function	Type	Flags
156	Fan speed	Send: 0...100%	1 Byte DPT_Scaling	CRT

After a change in the fan level, this object is used in both automatic and manual mode to send the current fan speed. This object can therefore be used to start up a fan with an adjustable speed in the range of 0...100%.
The allocation of a speed value to a fan level in the "fan" parameter window is used to determine which fan level symbol is to be shown on the display.

This object is only available if:
– Fan available = Yes

Obj.	Object name	Function	Type	Flags
157	Fan speed status	Receive: 0...100%	1 Byte DPT_Scaling	CWU

This object is used to receive the current fan speed.

This object is only available if:
– Fan available = Yes

Obj.	Object name	Function	Type	Flags
158	Fan level 1	Send: On/Off	1 bit	CRT
This object is used to send the command for switching fan level 1 on and off.				
This object is only available if: – Fan available = Yes				
Obj.	**Object name**	**Function**	**Type**	**Flags**
159	Fan level 2	Send: On/Off	1 bit	CRT
This object is used to send the command for switching fan level 2 on and off.				
This object is only available if: – Fan available = Yes and – Number of fan speeds = 2 or number of fan speeds = 3				
Obj.	**Object name**	**Function**	**Type**	**Flags**
160	Fan level 3	Send: On/Off	1 bit	CRT
This object is used to send the command for switching fan level 3 on and off.				
This object is only available if: – Fan available = Yes and – Number of fan levels = 3				
Obj.	**Object name**	**Function**	**Type**	**Flags**
161	Fan level 1 status	Receive: On/Off	1 bit	CWU
This object is used to receive and display the status of fan level 1. If the status is set to more than one of objects 161...163, then the highest fan level is displayed in each case.				
This object is only available if: – Fan available = Yes				
Obj.	**Object name**	**Function**	**Type**	**Flags**
162	Fan level 2 status	Receive: On/Off	1 bit	CWU
This object is used to receive and display the status of fan level 2. If the status is set to more than one of objects 161...163, then the highest fan level is displayed in each case.				
This object is only available if: – Fan available = Yes and – Number off an speeds = 2 or number off an speeds = 3				

Obj.	Object name	Function	Type	Flags
163	Fan level 3 status	Receive: On/Off	1 bit	CWU
This object is used to receive and display the status of fan level 3. If the status is set to more than one of objects 161...163, then the highest fan level is displayed in each case.				
This object is only available if: – Fan available = Yes and – Number of fan levels = 3				

5.2 Channels

5.2.1 Parameter for channel type

Parameter	Settings
Channel type	**unused** Switch Dimmer Shutter Roller blinds, Send values Forced control Alarm / Message Scene control
Specification of the channel type and activation of the channel.	
Transmission: ETS/sdCard	
Parameter page: Channels	

5.2.2 Switch parameter

Parameter	Settings
Switch type	off on **toggle** bell: On at push, Off at release bell: Off at push, On at release
Setting the switch types.	
Transmission: sdCard	
Parameter page: Channel	

Parameter	Settings
Status display visible	**Yes** No
Specification as to whether the status display of the switching state should be visible on the display.	
Transmission: sdCard	
Parameter page: Channel	

5.2.3 Switch communication objects

The following communication objects refer to channels 1 – 18.

Obj.	Object name	Function	Type	Flags
0, 6, 12, 18, 24, 30, 36, 42, 48 54, 60, 66, 72, 78, 84 90, 96, 102	<Channel no.> - Switch	Send: On/Off	1 bit	CWT
This object sends a switching command when a key is pressed.				
1, 7, 13, 19, 25, 31, 37, 43, 49 55, 61, 67, 73, 79, 85 91, 97, 103	< Channel no.> - Switch status	Receive: On/Off	1 bit	CWTU
This object is used to receive the status. The status can be shown on the display. The switch over function uses the status to synchronize the internal status. This communication object sends a read request when power is restored.				

5.2.4 Communication objects for dimming

The following communication objects refer to channels 1 – 18.

Obj.	Object name	Function	Type	Flags
0, 6, 12, 18, 24, 30, 36, 42, 48 54, 60, 66, 72, 78, 84 90, 96, 102	< Channel no.> - Switch	Send: On/Off	1 bit	CT
This object sends a switching command when a key is pressed.				
1, 7, 13, 19, 25, 31, 37, 43, 49 55, 61, 67, 73, 79, 85 91, 97, 103	< Channel no.> - Switch status	Receive: On/Off	1 bit	CWTU
This object is used to receive the status. The status is shown on the display. This communication object sends a read request when power is restored.				
2, 8, 14, 20, 26, 32, 38, 44, 50 56, 62, 68, 74, 80, 86 92, 98, 104	< Channel no.> - Dimming value	Send: Value	1 Byte DPT_ Scaling	CT
This object is used to send the dimming value in steps as an 8-bit data telegram.				
3, 9, 15, 21, 27, 33, 39, 45, 51 57, 63, 69, 75, 81, 87 93, 99, 105	< Channel no.> - Status of dimming value	Received: Value	1 Byte DPT_ Scaling	CWTU
This object is used to display received values by the length of the bar. This communication object sends a read request when power is restored.				

5.2.5 Shutters parameter

Parameter	Settings
Reverse of rotation of slat setting	**No** Yes
Setting to define whether the rotational direction of the slat setting should be reversed. – No: Turning clockwise sends **Slats closed (1)** – Yes: Turning clockwise sends **Slats open (0)**	
Transmission: sdCard	
Parameter page: Channel	

Parameter	Settings
Actuator status object provided	**Yes** No
Setting to define whether the actuator used provides an 8-bit status object (shutter position). The actuator status object must be connected to the channel status object.	
Transmission: ETS/sdCard	
Parameter page: Channel	

5.2.6 Communication object for shutters

The following communication objects refer to channels 1 – 18.

Obj.	Object name	Function	Type	Flags
0, 6, 12, 18, 24, 30, 36, 42, 48 54, 60, 66, 72, 78, 84 90, 96, 102	<Channel no.> Sun protection	Send: Up/down	1 bit	CT
This object sends a switching command when a key is pressed.				
Obj.	**Object name**	**Function**	**Type**	**Flags**
1, 7, 13, 19, 25, 31, 37, 43, 49 55, 61, 67, 73, 79, 85 91, 97, 103	<Channel no.> Stop/ slats	Send: Stop, Open/ Closed	1 bit	CT
This object sends a switching command when a key is pressed. The sun protection receives the stop command or open or closed.				
Obj.	**Object name**	**Function**	**Type**	**Flags**
2, 8, 14, 20, 26, 32, 38, 44, 50 56, 62, 68, 74, 80, 86 92, 98, 104	<Channel no.> Sun protection	Send: Value	1 Byte	CT
This object is used to directly set the position of the sun protection. The value 0 is sent to completely open the shutter. This object is used by the internal scene controller to start up the sun protection setting.				

Obj.	Object name	Function	Type	Flags
3, 9, 15, 21, 27, 33, 39, 45, 51 57, 63, 69, 75, 81, 87 93, 99, 105	<Channel no.> Status Sun protection setting	Receive: Value	1 Byte	CWTU
Received values are used via this object to display the response symbol. The value 0 indicates undefined position, value 1 means the shutter is completely open. In the case of undefined position, an "?" is displayed.				
Obj.	**Object name**	**Function**	**Type**	**Flags**
4, 10, 16, 22, 28, 34, 40, 46, 52 58, 64, 70, 76, 82, 88 94, 100, 106	<Channel no.> Slat setting	Send: Value	1 Byte	CT
This object is used to directly set the position of the slats. The value 0 is sent to completely open the slats. This object is used by the internal scene controller to set the shutter setting.				
Obj.	**Object name**	**Function**	**Type**	**Flags**
5, 11, 17, 23, 29, 35, 41, 47, 53 59, 65, 71, 77, 83, 89 95, 101, 107	<Channel no.> Status of slat setting	Receive: Value	1 Byte	CWTU
Received values are used via this object to display the response symbol. The value 0 indicates undefined position, value 1 means the slats are completely open. In the case of undefined position, an "?" is displayed.				

5.2.7 Parameter for roller blinds

Parameter	Settings
Actuator status object provided	**Yes** No
Setting to define whether the actuator used provides an 1-byte status object (roller blind position). The actuator status object must be connected to the channel status object.	
Transmission: ETS/sdCard	
Parameter page: Channel	

5.2.8 Communication objects for shutters

The following communication objects refer to channels 1 – 18.

Obj.	Object name	Function	Type	Flags
0, 6, 12, 18, 24, 30, 36, 42, 48 54, 60, 66, 72, 78, 84 90, 96, 102	<Channel no.> Roller blinds,	Send: Up/down	1 bit	CT
This object sends a switching command when a key is pressed.				
Obj.	**Object name**	**Function**	**Type**	**Flags**
1, 7, 13, 19, 25, 31, 37, 43, 49 55, 61, 67, 73, 79, 85 91, 97, 103	<Channel no.> Stop	Send	1 bit	CT
This object sends a switching command when a key is pressed. The roller blinds receive the stop command.				
Obj.	**Object name**	**Function**	**Type**	**Flags**
2, 8, 14, 20, 26, 32, 38, 44, 50 56, 62, 68, 74, 80, 86 92, 98, 104	<Channel no.> Roller blind setting	Send: Value	1 Byte	CT
This object is used to directly set the position of the roller blind. The value 0 is sent to completely open roller blind. This object is used by the internal scene controller to start up the roller blind setting.				
Obj.	**Object name**	**Function**	**Type**	**Flags**
3, 9, 15, 21, 27, 33, 39, 45, 51 57, 63, 69, 75, 81, 87 93, 99, 105	<Channel no.> Status roller blind setting	Receive: Value	1 Byte	CWTU
Received values are used via this object to display the response symbol. The value 0 indicates undefined position, value 1 means the roller blind is completely open. In the case of undefined position, an "?" is displayed.				

5.2.9 Send value parameter

Parameter	Settings
Data type	**1-byte in %** 1-byte unsigned integer 1-byte signed integer 2-byte unsigned integer 2-byte signed integer
Setting of which data type is to be sent	
Transmission: ETS/sdCard	
Parameter page: Channel	

Parameter	Settings
Variable value	**Yes** No
Specification as to whether the value to be sent is a constant value or a variable (can be set on the device).	
Transmission: ETS/sdCard	
Parameter page: Channel	

Parameter	Settings
Value	Value in the value range of the specified data type **Pre-set value: 0**
Setting of the value to be sent when sending constant values.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Variable value = No**	

Parameter	Settings
Maximum	Value in the value range of the specified data type **Pre-set value: largest value in the value range**
Setting of the largest allowed input value for inputting variable values.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Variable value = yes**	

Parameter	Settings
Minimum	Value in the value range of the specified data type **Pre-set value: smallest value in the value range**
Setting of the smallest allowed input value for inputting variable values. This value is displayed the first time the operating page is called up if no value has yet been received via the value object. The last sent/received value is displayed with each additional call-up of the operating page.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Variable value = yes**	

Parameter	Settings
Unit	
Specification of the unit of the displayed numerical value. Maximum length: 14 characters.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Variable value = yes**	

5.2.10 Send value communication object

The following communication objects refer to channels 1 – 18.

Obj.	Object name	Function	Type	Flags
3, 9, 15, 21, 27, 33, 39, 45, 51 57, 63, 69, 75, 81, 87 93, 99, 105	<Channel no.> Value (data type)	Send	1 Byte 2 Byte	CWTU
Received values are used via this object to display the response symbol. The value 0 indicates undefined position, value 1 means the roller blind is completely open. In the case of undefined position, an "?" is displayed.				

5.2.11 Communication object for forced control

The following communication objects refer to channels 1 – 18.

Obj.	Object name	Function	Type	Flags
0, 6, 12, 18, 24, 30, 36, 42, 48 54, 60, 66, 72, 78, 84 90, 96, 102	<Channel no.> - Forced control	Send	2 bit	CTU
This object is used to send the forced-control control telegram for the respective channel.				

5.2.12 Channel-specific parameter for alarms and messages

Parameter	Settings
Function	**Message** Alarm
Specification of whether or not the message should be an alarm message. If a bus telegram is received with a value triggering an alarm, then this message is automatically shown on the display. An additional object is created in the corresponding format to trigger the alarm.	
Transmission: ETS/sdCard	
Parameter page: Channel	

Parameter	Settings
Condition for the alarm activation (1 bit)	0 **1**
Specification define the value of the alarm triggering object for which an alarm should be activated.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Alarm**	

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Parameter	Settings
Triggering only occurs	**for the first alarm** for every alarm
Specification define whether a new alarm should be activated when the alarm triggering object is updated. – only for the first alarm: One-time triggering of the alarm, – for every alarm: the alarm is triggered every time a value identical to the configured threshold value is received by the triggering object.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Alarm**	

Parameter	Settings
Object value for acknowledging the alarm	**1** 0
Specification to define which value in the object can be used to acknowledge the alarm (Alarm acknowledgement input) and which value in the object should be sent after acknowledgement (Alarm-acknowledgement output).	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Alarm**	

Parameter	Settings
Display lighting in case of alarm	No change in status **Switch on**
Specification of the behavior of the display lighting when an alarm is triggered.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Alarm**	

Parameter	Settings
Alarm text	
Specification of the text to be shown on the display when the alarm condition is fulfilled. The maximum text length is 64 characters.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Alarm**	

Parameter	Settings
Alarm symbol	
Specification of the symbol to be shown on the display when the alarm condition is fulfilled.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Alarm**	

Parameter	Settings
LED behavior in case of alarm	off continuous red **red blinking**
Specification of the behavior of the orientation LED when an alarm is triggered.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Alarm**	

Parameter	Settings
Behavior when an alarm occurs	without alarm tone **One-time alarm tone** Alarm tone repeats permanently
Specification to define whether and how the triggering of an alarm should be acoustically clarified. – without alarm tone: The alarm is shown on the display without an acoustic signal. – One-time alarm tone A one-time alarm tone is output for a specified time. – Alarm tone repeats permanently A one-time alarm tone is output for a specified time and at set intervals.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Alarm**	

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Parameter	Settings
Priority	1...18 **Pre-set value: 1**
Specification of the priority of an alarm. The alarms are sorted in an events list according to priority and the time of their occurrence. – highest priority: 1, – lowest priority: 18. – in the case of equal priority: Most recent alarm message first.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Alarm**	

Parameter	Settings
Alarm text to be sent	**Preset value: Caution Alarm**
Specification of the text to be sent through the communication object when an alarm is triggered. The maximum length is 14 characters. Input of an empty character string is not possible.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Alarm**	

Parameter	Settings
Symbol for value = "1"	
Selection of a symbol for the message. This is shown on the display when the value contains "1".	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Message**	

Parameter	Settings
Symbol for value = "0"	
Selection of a symbol for the message. This is shown on the display when the value contains "0".	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Message**	

Parameter	Settings
Text display for value = "1"	
Entry of a message text This is shown on the display when the value contains "1". The maximum text length is 64 characters.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Message**	

Parameter	Settings
Text display for value = "0"	
Entry of a message text This is shown on the display when the value contains "0". The maximum text length is 64 characters.	
Transmission: sdCard	
Parameter page: Channel	
The parameter is only visible when: – **Function = Message**	

5.2.13 Alarm communication objects

The following communication objects refer to channels 1 – 18.

Obj.	Object name	Function	Type	Flags
4, 10, 16, 22, 28, 34, 40, 46, 52 58, 64, 70, 76, 82, 88 94, 100, 106	<Channel no.> - Alarm input	Receive	1 bit	CW
The value content of these objects is compared with a triggering condition (**0** or **1**). An alarm is triggered or deactivated accordingly.				
This object is only available if: – **Function = Alarm**				
Obj.	**Object name**	**Function**	**Type**	**Flags**
2, 8, 14, 20, 26, 32, 38, 44, 50 56, 62, 68, 74, 80, 86 92, 98, 104	<Channel no.> - Alarm output	Send	1 bit	CT
When an alarm is triggered (fulfillment of the alarm condition) the value of this object is set to **1** and sent. A **0** is sent if the alarm is deactivated. No action occurs upon acknowledgement.				

This object is only available if:
– **Function** = **Alarm**

Obj.	Object name	Function	Type	Flags
3, 9, 15, 21, 27, 33, 39, 45, 51 57, 63, 69, 75, 81, 87 93, 99, 105	<Channel no.> - Alarm text	Send	14 Byte DPT_ String_ASCII	CT

If the alarm condition was met and an alarm was triggered, a configured alarm text is sent though the bus by this object.

This object is only available if:
– **Function** = **Alarm**

Obj.	Object name	Function	Type	Flags
0, 6, 12, 18, 24, 30, 36, 42, 48 54, 60, 66, 72, 78, 84 90, 96, 102	<Channel no.> - Alarm acknowledge ment output	Send	1 bit	CT

If, after an alarm was triggered, the alarm was acknowledged on the display, the value of this object is set to 1 or 0 and sent. If the acknowledgement is made by bus telegrams, then no telegram is sent about this.

This object is only available if:
– **Function** = **Alarm**

Obj.	Object name	Function	Type	Flags
1, 7, 13, 19, 25, 31, 37, 43, 49 55, 61, 67, 73, 79, 85 91, 97, 103	<Channel no.> - Alarm acknowledge ment input	Receive	1 bit	CW

This object can be used to receive an alarm acknowledgement through the bus. The alarm is confirmed depending on the configured object value.

This object is only available if:
– **Function** = **Alarm**

Obj.	Object name	Function	Type	Flags
196	Acknowledge all alarms	Receive	1 bit	CW

This object can be used to receive an acknowledgement of all alarms through the bus. The value 1 is always expected for the acknowledgement. The value 0 is ignored.

5.2.14 Message communication object

The following communication object refers to channels 1 – 18.

Obj.	Object name	Function	Type	Flags
4, 10, 16, 22, 28, 34, 40, 46, 52 58, 64, 70, 76, 82, 88 94, 100, 106	<Channel no.> - Message	Receive	1 bit	CWTU

A configured text and a symbol are displayed by this object in accordance with the received value. This communication object sends a read request when power is restored. If the request of the object value fails, then a ? is displayed as the message text (until a corresponding bus telegram arrives).

This object is only available if:
– **Function** = **Message**

5.2.15 Screen control parameter

Parameter	Settings
Scene number	1...64 **Pre-set value: 1**
Specification of the number of scenes to be sent via the 1-byte scene control communication object. The values 0 - 63 are sent via the bus.	
Transmission: sdCard	
Parameter page: Channel	

5.2.16 Communication objects for the retrieval and storage of scenes

Obj.	Object name	Function	Type	Flags
0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96, 102	<Channel no.> - Retrieve scene	Send	1 bit	CT

This object is used to send a 1-bit value for the retrieval of scenes.
The value 1 is always sent.

Obj.	Object name	Function	Type	Flags
1, 7, 13, 19, 25, 31, 37, 43, 49, 55, 61, 67, 73, 79, 85, 91, 97, 103	<Channel no.> - Store scene	Send	1 bit	CT
This object is used to send a 1-bit value for the storage of scenes. The value 1 is always sent.				
Obj.	**Object name**	**Function**	**Type**	**Flags**
2, 8, 14, 20, 26, 32, 38, 44, 50, 56, 62, 68, 74, 80, 86, 92, 98, 104	<Channel no.> - 8-bit scene	Send: Activate / store	1 Byte	CT
A value 0...63 is sent to activate a scene 1...64. A value 128...192 is sent to store a scene 1...64 (scene number + 127).				

This object is used to receive a 1-bit command for the activation **(1)** or deactivation **(0)** of the internal time program for single channels.
All channel switching programs become inactive when this is deactivated.
The received value is persistently stored in memory and is thus available when power is restored.

5.3 Time programs

5.3.1 Communication objects for time programs

Obj.	Object name	Function	Type	Flags
187	Time program, single channels	Receive: Activate	1 bit	CRWU

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