SIEMENS

5WG1204-2SB12, 5WG1204-2SB22

KNX Touch control TC4

Application program description

A6V15589537_en--_b

2025-07-07

Smart Infrastructure

Table of Contents

1 Functions

The KNX touch control TC4 is a KNX S-Mode multi-functional touch panel for display, operation and control. The device has a 4-inch color capacitive touch screen at a resolution of 480 × 480 pixels.

The device is powered over KNX and DC 21...30 V auxiliary supply voltage.

It is operated via touch screen and provides 12 function pages, and 5 homepages configured via ETS (from ETS5.7).

The device uses KNX Data Secure to protect building automation and control systems against manipulation and is configured in the ETS project. For secure commissioning, a device certificate (attached to the device) is required and must be removed and stored in a safe place as part of installation.

The device KNX firmware can be updated easily using the Siemens firmware download tool.

Functions:

- Homepage (navigation)
  TC4 allows for multiple function pages for control and operation. Max. 5 homepages with max. 6 icons each simplify navigation to the desired function page. Navigation can be enabled/disabled. When disabled, the device goes to the first configured function page.
- Multi-function page for lighting, solar protection, scene control, send values and display values or text
  - Lighting control includes switching and dimming.
  - Brightness plus color temperature: Reduce brightness and set up color temperature
  - Solar protection includes opening/closing curtains, move up/down roller shutter and Venetian blinds and adjust slat with slat angle.
  - Scene control by short pressing the scene icon to recall or long pressing to save.
  - Send value: Tap defined button to send the telegram to the bus.
  - Display values including freely configurable unit text.
- HVAC control covers several applications:
  - General temperature control for multiple room heating/cooling applications such as FCU, chilled ceiling with 2-point or PI control. Room temperature control via absolute setpoint or relative setpoint shift, heating/cooling selection, 2 options for fan operation with 5 types of fan speeds, 4 different operating modes selectable.
  - VRF (variable refrigerant flow) interface allowing the TC4 to act as a user interface to operate VRF or VRV-based (variable refrigerant volume) air conditioning devices with a KNX to VRF gateway.
  - Enhanced floor heating control and scene functions as well as on-screen indication of heating valve on/off and timer operation.
  - Ventilation control with manual 3-speed fan changeover as well as automatic control based on PM2.5 or CO_2 values. Support of heat recovery, filter life count, filter exchange alarm and filter life reset.

  Max. 7 pages to be configured as HVAC control.
- Display air quality value from bus
  Page displaying various sensor readings such as temperature, relative humidity, PM2.5, PM10, CO_2, VOC, AQI, brightness, wind speed and rain. Max. 4 parameters can be displayed per page and max. 7 pages can be configured as a display page.
- Display energy metering values from bus
  Max. 8 meters can be displayed on one page and max. 7 pages can be configured.
- Timer (scheduler) function
  Max. 8 schedules can be set: Daily or weekly configured via ETS and HMI.
- Scene control
  Max. 8 scene groups can be set. Max. 8 output telegrams can be triggered via the scene number and each output has 5 different data types.
- Logic functions
  Max. 8 inputs can be configured with different logic operations: AND, OR, XOR, gate forwarding, threshold comparator, format convert and max. value.
- RGB, RGBW, and RGBW+color temperature adjustment
  TC4 can set up a dimming control page for 3 types of colored lights: 3-color RGB, 4-color RGBW, 4-color RGBW with optional color temperature adjustment.
- Display of time, date, temperature, humidity/CO_2 on homepage.

- Proximity sensor, adjust screen brightness, touch volume and vibration
- Password function
  Configurable. Max. 3 passwords
- Lock function page via bus
  The device or selected function pages can be locked to disable user actions.
- Display alarm
  Visual and acoustic indication of max. 5 alarms. Alarm indication and repeat times can be configured.
- Programming LED
  The programming LED is designed for multiple types of indications, such as KNX programming mode.
- Service pin for factory reset and enter/exit programming mode.
- Local customization of wallpaper, screensaver, and configurable icons.

2 UI description

Two themes are available: Dark and light. The theme is set via parameter "Screen style" or via ⚙ on the HMI.

Dark

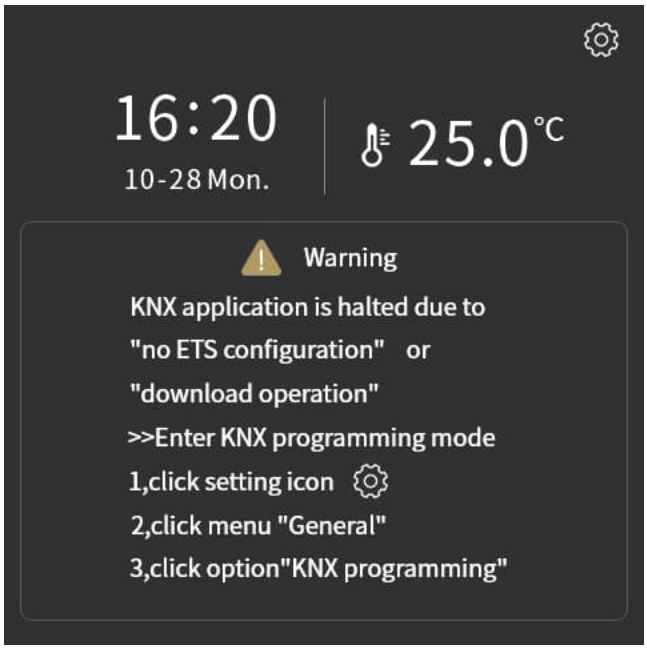
Light

2.1 Homepage (Navigation function)

Homepages are configured via ETS: Max. five pages, with max. six icons per page.

The icons are associated with either pages or individual functions.

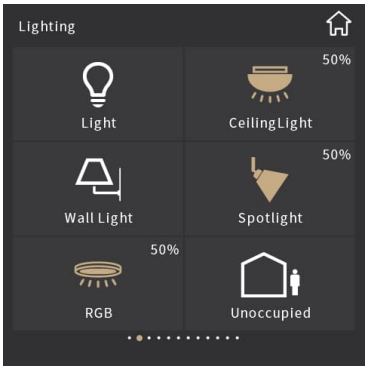
- Homepage without ETS configuration



- Icons associated with pages direct the end users to the desired pages. The associated pages can be multi-function pages for lighting, solar protection, scenes, value send or single function pages such as Air conditioner pages.

Homepage

Lighting page



Ceiling lights

Function page, e.g., air conditioner

Air conditioner fan speed

- Icons associated with individual functions provide easy access to common functions, such as Occupied/Unoccupied.

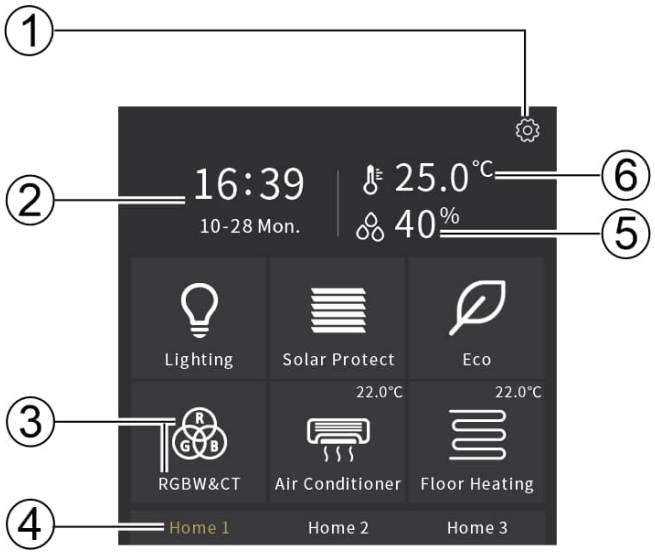
Disable homepage

Homepage navigation is configured via ETS.

The first configured function page is displayed when the homepages are disabled.

Examples:

- Picture on the left: Max. five homepages configured in ETS.
- Picture on the right: Homepage disabled, the first configured function page is displayed.



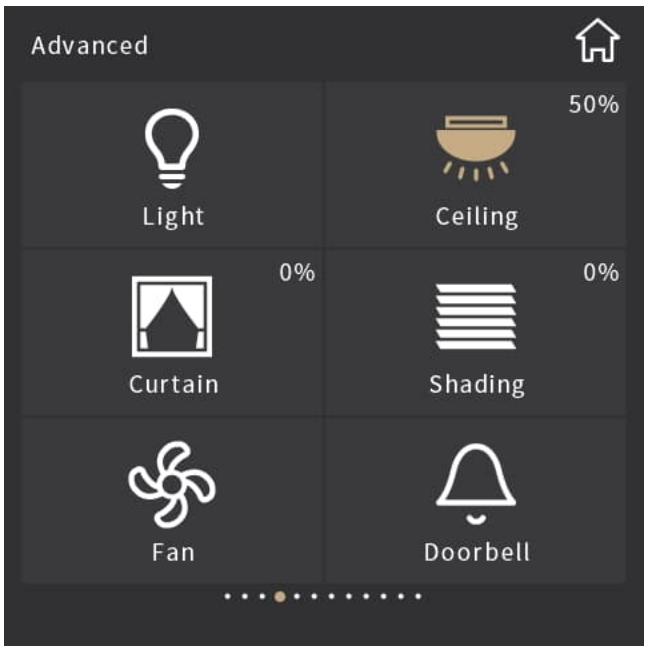
Number	Description
①	Page setting icon. See Settings [→ 28], for more information.
②	Date (mm-dd) and time; changed on the Settings page, or via object.
③	• Icon can be configured using a Micro SD card. See Homepage icons [→ 143] for more details. • The icon name is defined via ETS (free text input). Max. 12 Latin characters are displayed, but only 5 characters for Chinese or 7 characters for Russian/Greek.
④	Name of the homepage defined via ETS.
⑤	External temperature, humidity or CO_2 value, selectable via ETS
⑥	Internal or external temperature value (defined via ETS): Temperature unit (Celsius (℃) or Fahrenheit (℉)) can be configured.

2.2 Multifunction page

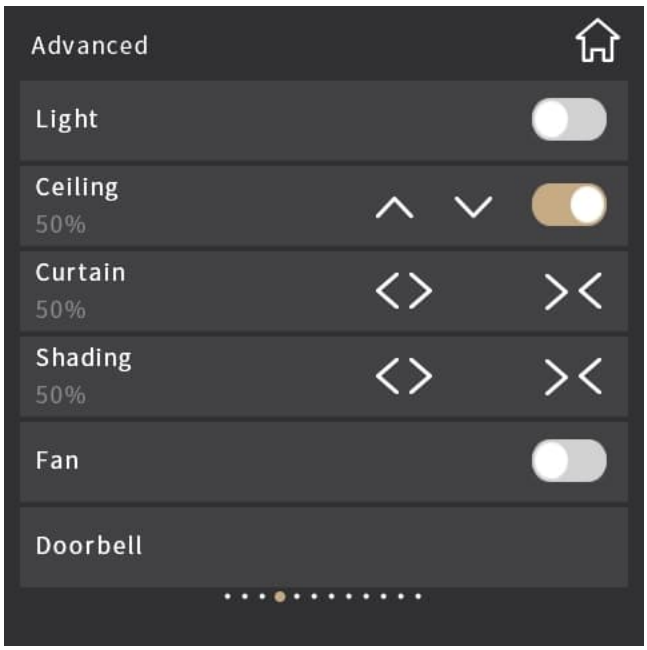
Multifunction page includes lighting, blinds, scene control, sending value and display.
Multifunction page view is configurable via ETS.

Options

Big icons

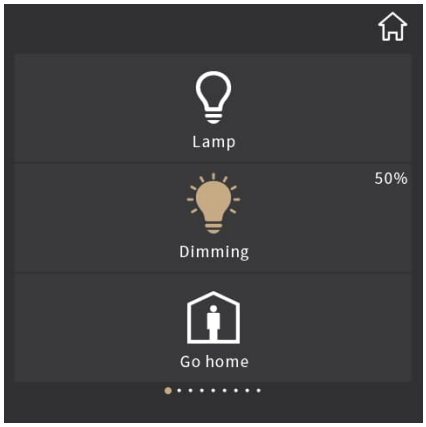


List view



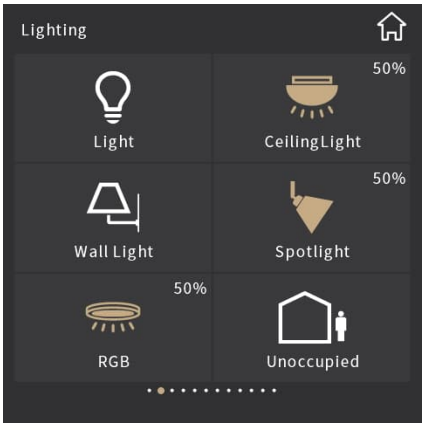
Page layout: The number of icons per page can be configured via ETS.

3 icons per page



4 icons per page

6 icons per page



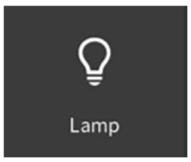
2.2.1 Switch function

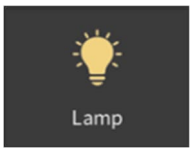
The status of the switch function

- Big Icons View:

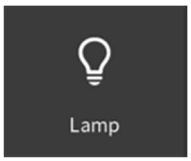
There are 2 ways to indicate the light on status (configurable via ETS).

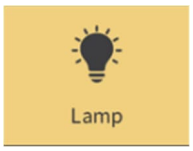
1. Only icon on (right picture) indicates the lamp is on and the icon off (left picture) means the lamp is off.





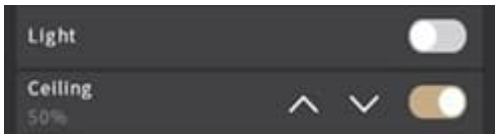
2. The block and icon both on (right figure) indicates the lamp is on, and the block and icon both off (left figure) means the lamp is off.





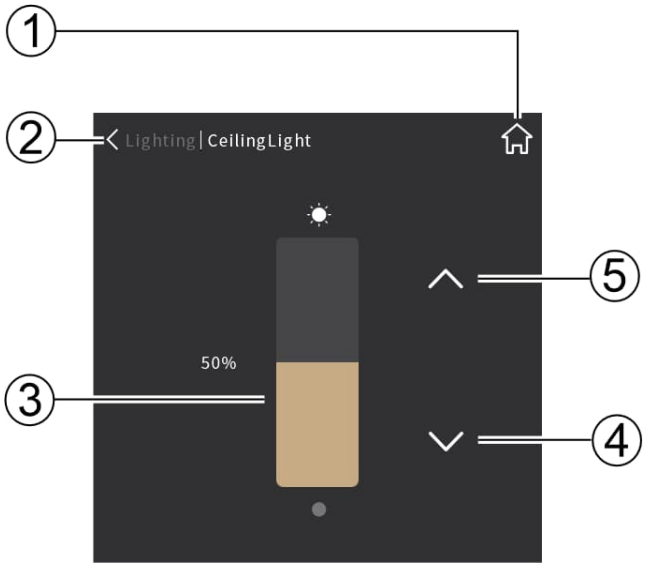
- List View

Swiping the slider to the right indicates the function is on and to the left (shown in below figure) the function is off. It can be also updated and displayed according to the switch status.



2.2.2 Switch/Dim function

Long press the icon 500 ms to enter the dimming control page.



Number	Description	Number	Description
①	Homepage	②	Back
③	Dimming by sliding	④	Relative dimming down to 0 % (off)
⑤	Relative dimming up to 100 %		

2.2.3 Send value function

Tap defined button to send the corresponding telegram to bus.

2.2.4 Blinds function

During adjusting curtain blinds, roller shutter (without slat):

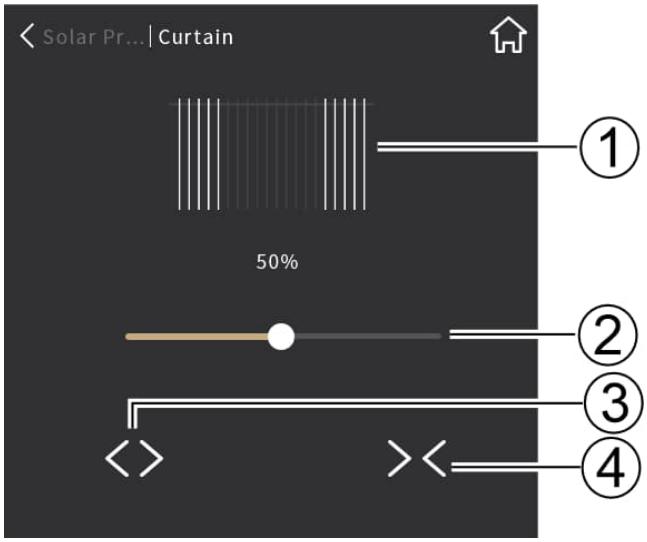
- Short press (<0.5 s) open / close / up / down icon:
  - When moving, it stops after press.
  - When stationary, it moves one step per press.
- Long press (≥0.5 s) open / close / up / down icon means blinds move continuously.

During adjusting venetian blinds (with slat):

- Short press (<0.5 s) up / down icon:
  - When moving, it stops after press.
  - When stationary, it adjusts the relative positioning of slat angle per press.
- Long press (≥0.5 s) up / down icon continuously moves the blinds.

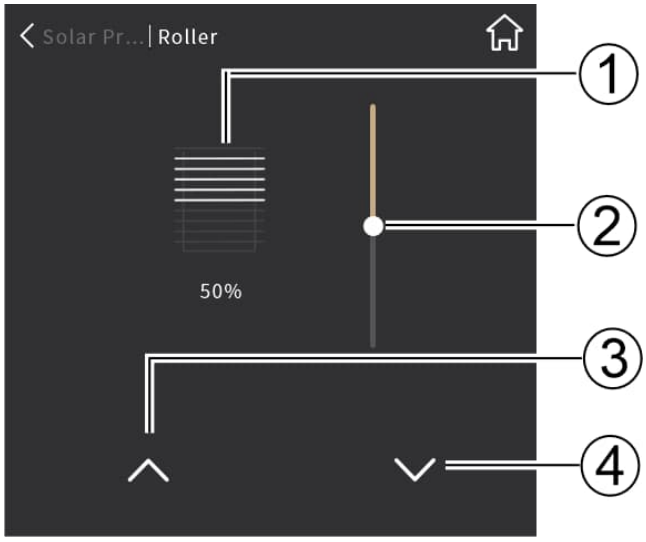
3 kinds of blinds are available: Curtain blinds, Roller shutter (without slat) and Venetian blinds (with slat).

Curtain blinds with Open/Close/Stop or as a percentage



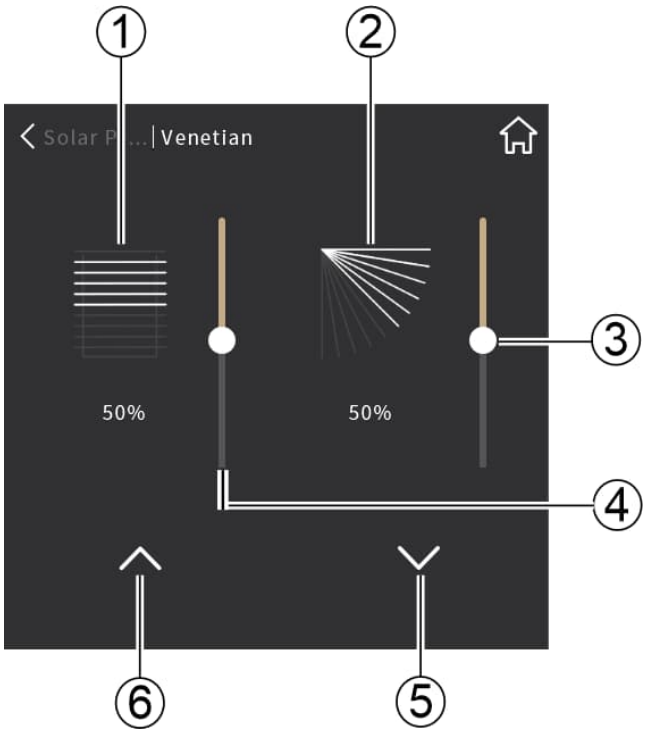
Number	Description	Number	Description
①	Simulation of curtain position	②	Sliding position as a percentage
③	Open	④	Close

Roller shutter (without slat)



Number	Description	Number	Description
①	Simulation of blinds position	②	Sliding position as a percentage
③	Up	④	Down

Venetian blinds (with slat)



Number	Description	Number	Description
①	Simulation of blinds & slat	②	Simulation of slat angle (blinds)

Number	Description	Number	Description
③	Slat angle as a percentage ● 0%: slats in horizontal position and no solar protection ● 100%: slats in vertical position and full solar protection	④	Sliding position as a percentage ● 0%: blinds fully opened ● 100%: blinds fully closed
⑤	Down (Blinds & slat)	⑥	Up (Blinds & slat)

2.2.5 Scene recall and storage

Tap the assigned scene icon (e.g. ) to send corresponding scene telegram to the bus.

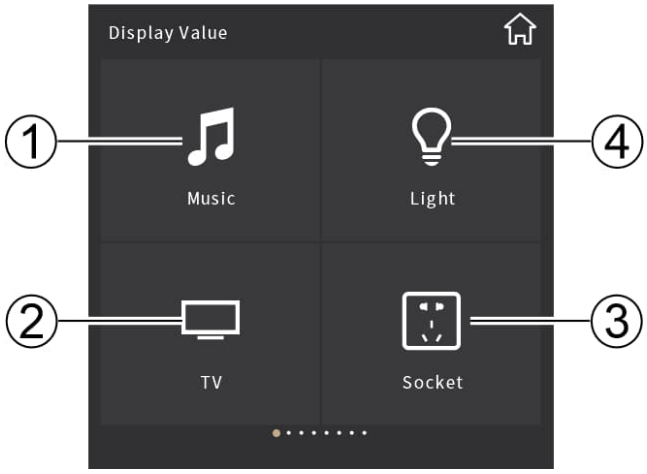
- Short press scene icon to recall the scene.
- To change scene settings and save changes:
  – Change the scene setting as desired.
  – Long press the scene icon until icon shakes (horizontally) and the scene change is stored to bus.
  – Short press the scene icon to recall the saved scene.

2.2.6 Display values and text

3 kinds of display are available: Display 1bit value, Display value and Display text.

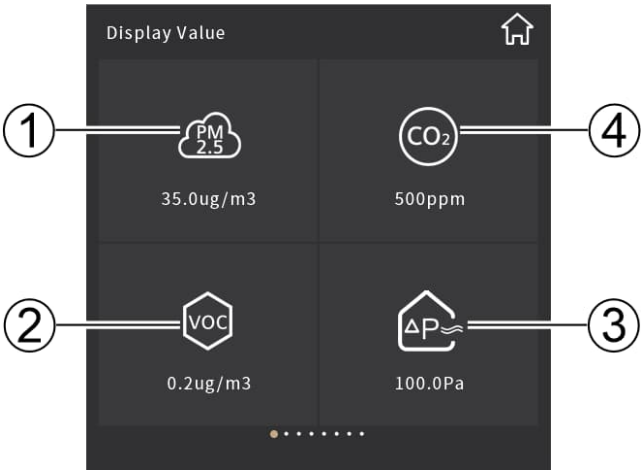
- Display 1bit value: Display on/off status
- Display value: Display multi-type value (optional with unit)
- Display text: Display string

Display 1bit value



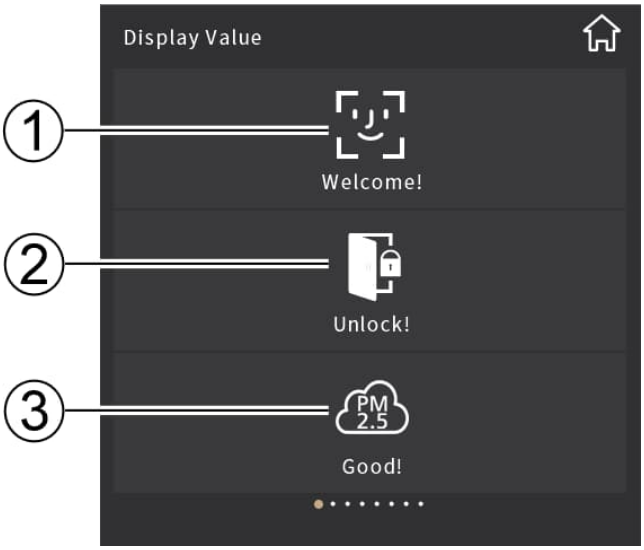
Number	Description	Number	Description
①	Music	②	TV
③	Socket	④	Light

Display value



Number	Description	Number	Description
①	PM2.5 value	②	VOC value
③	Pressure value	④	CO_2 value

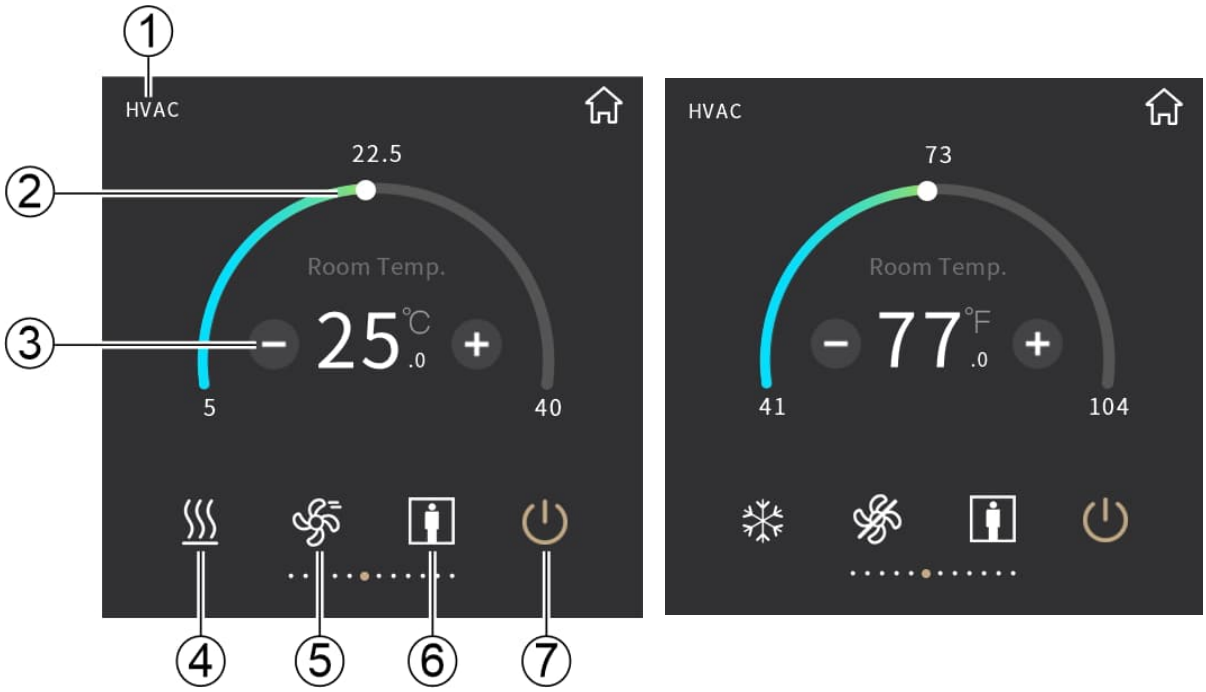
Display text



Number	Description	Number	Description
①	Welcome	②	Door lock status: Unlock
③	PM2.5 value		

2.3 General temperature control page

General Temp. Control function can be configured for multiple heating and/or cooling applications, such as fan coil application, chilled ceiling and electric heating. It can manage the room temperature with setpoints (absolute or relative), heating / cooling selection, fan speed selection (3 speeds, Off and Auto), and operating mode changes (4 modes: Comfort, Standby, Economy and Protection).



Number	Description	Number	Description
①	Description, configured in ETS	②	Sliding setpoint
③	-, +: Setpoint change	④	Heating/cooling status
⑤	Fan speed change	⑥	Operating mode change
⑦	Power On/Off		

Fan speed change

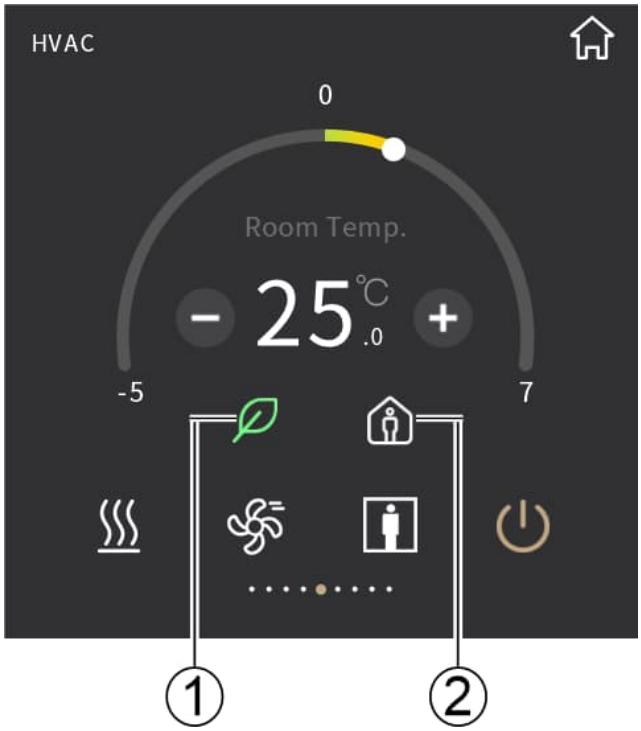
Operating mode change

2.3.1 Green leaf and presence button

Green leaf indication (green or red leaf) informs users if equipment operates within the energy-efficient setting range (leaf is green).

When the setting exceeds the preset energy efficiency range, the leaf color changes to red. End users can press the red leaf to return to energy efficiency.

The presence button is used for manual presence indication, especially to set up without presence detector.



Number	Description	Number	Description
①	Green leaf button (green or red leaf)	②	Presence button

2.4 VRF air conditioner

The device acts as the interface and operator unit for VRF air conditioners via a KNX to VRF gateway.

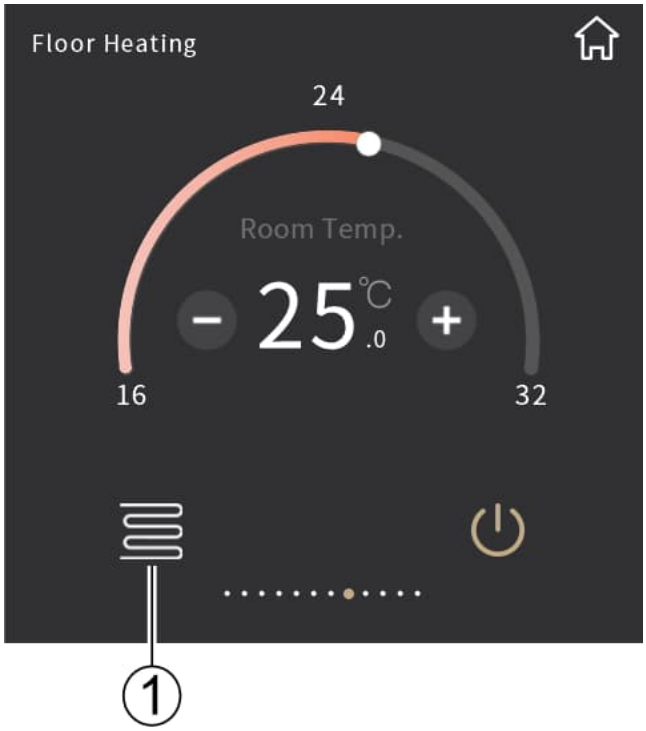
VRF page in °C

VRF page in °F

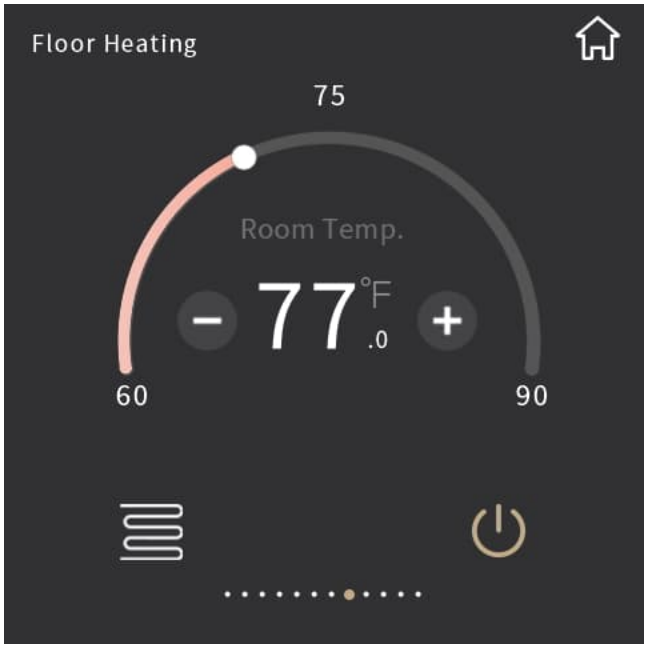
Number	Description	Number	Description
①	Fan direction adjustment	②	VRF Mode change
③	Fan speed adjustment		

2.5 Floor heating

- Floor heating control function with 2-point or PI control as per temperature setpoint
- Scene function



Floor heating in °C



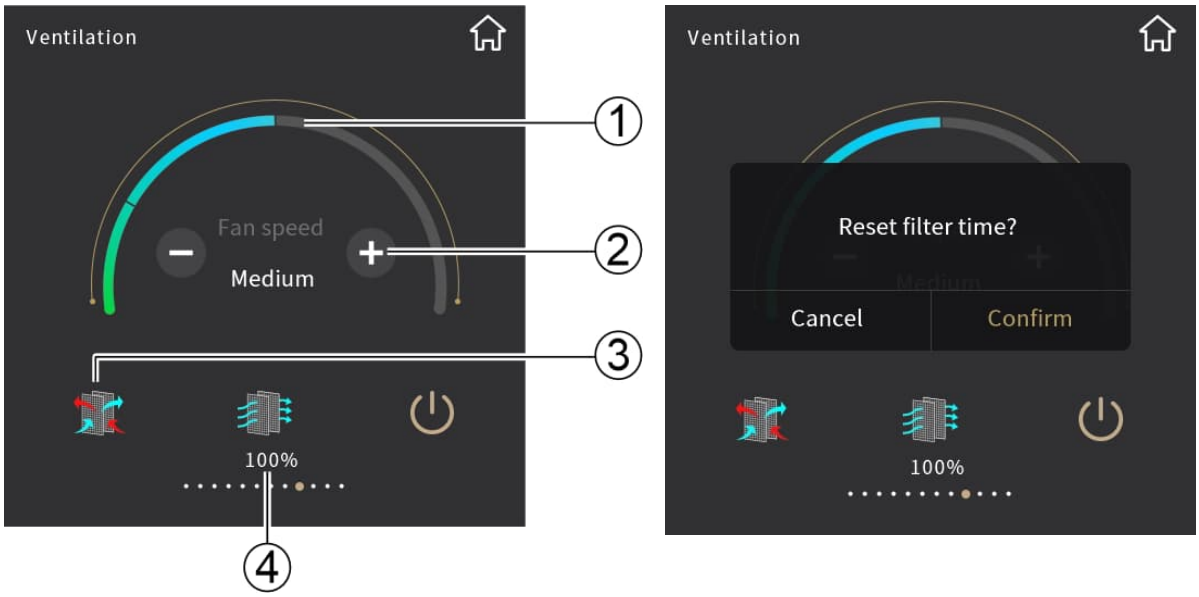
Floor heating in °F

Number	Description
①	Heating valve Open/Close indication **Note:** When setpoint is higher than room temperature, the valve opens to increase room temperature and vice versa.

2.6 Ventilation system

Ventilation system controls:

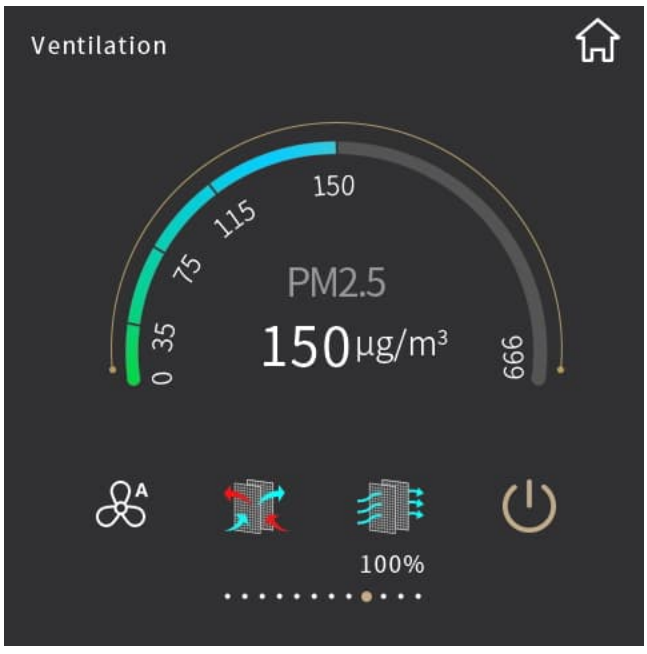
- 3-speed fan setting, heat recovery open/close, filter life counting, alarm for filter change and filter life reset.
- Auto control (demand-based ventilation control) via PM2.5 or CO_2 value
- Scene setting function.



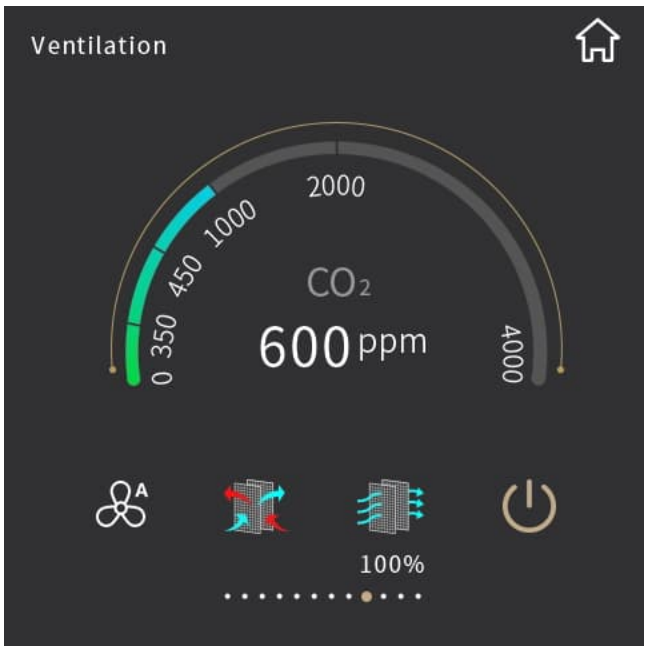
Number	Description	Number	Description
①	Current fan speed	②	+/-: Fan speed change
③	Heat recovery On/Off	④	Filter lifetime status

The service life of the filter is set via ETS and switches to 0% once the filter usage reaches the set time.
Touch the filter lifetime status icon to reset. Tap "Confirm" to reset the filter timer.

Demand-based ventilation



Auto control (Demand-based PM2.5)



Auto control (Demand-based CO_2)

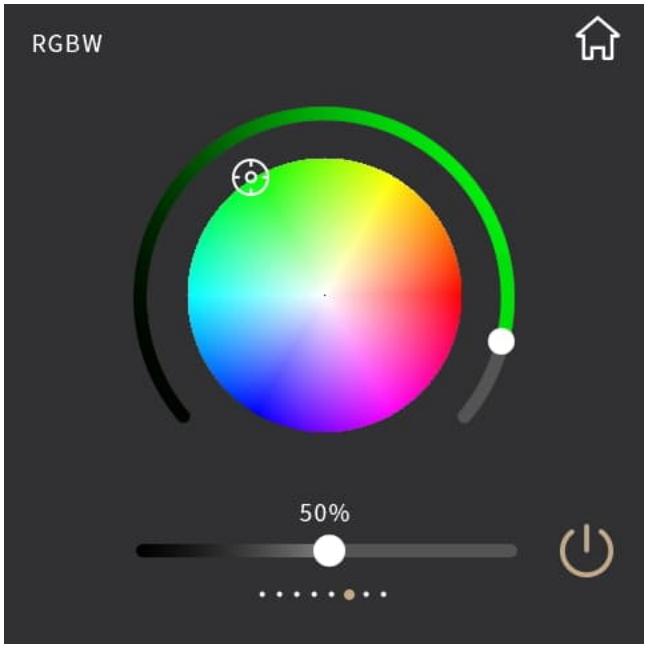
2.7 RGB dimming

For RGB or RGBW LED dimming (absolute dimming): RGBW supports individual color, color temperature and brightness adjustment.

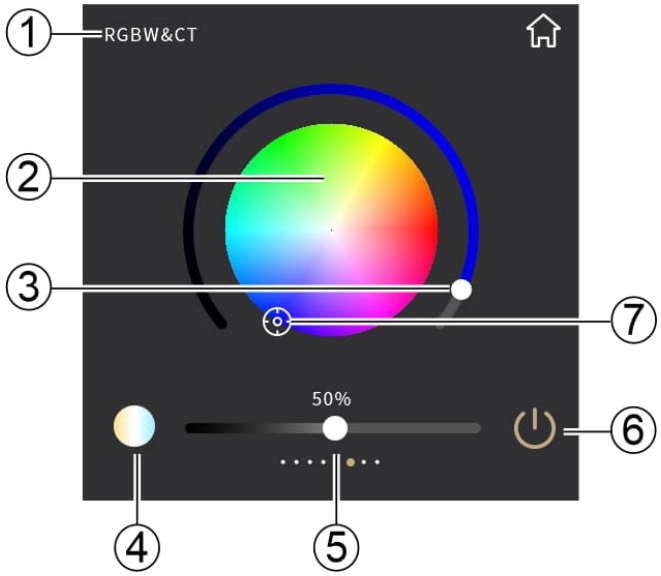
3 types of RGB dimming are available and configurable via ETS:

1. RGB: RGB light control
2. RGBW: RGBW light control
3. RGBW + Color Temperature: for RGBW light, or RGB light and color temperature control

RGB



RGBW



RGBW+Color temperature

Number	Description	Number	Description
①	Description	②	Color palette
③	Color temp. slider	④	Enter Color temp. control
⑤	Brightness (white light)	⑥	On/Off button and status
⑦	Color selection		

The following page is displayed for "Enter Color temp. control" ④.

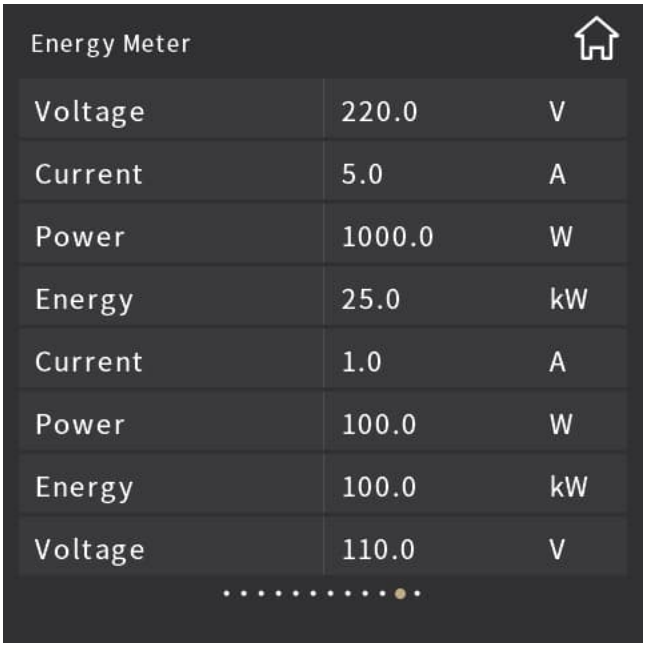
Color temperature control

Number	Description	Number	Description
①	Color temp. slider, 100K / step	②	Color Temp. up/down
③	Brightness (white light)	④	Color temp. control triggers the page shows ① & ② It is same as ④ in **RGBW+Color temperature** page above.

2.8 Energy metering display

Energy metering display supports current, voltage, power and energy (electricity energy) displays. Values are received from actuators or the metering gateway. Up to eight items can be displayed. The data is updated via bus.

Data ➡



2.9 Air quality display

Temperature, humidity, PM2.5, PM10, VOC, CO_2, AQI, brightness, wind speed and rain displays can be set and received from the bus. Up to four items can be configured on one function page.

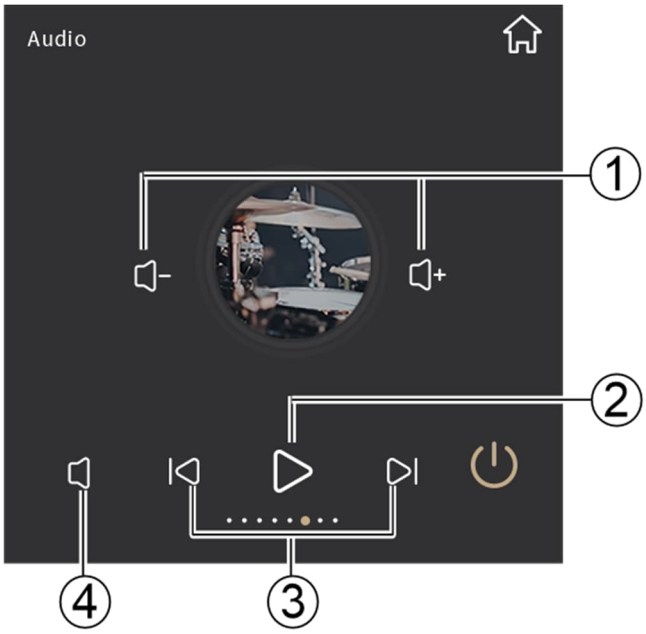
Number	Description	Number	Description
①	Selected range	②	Configured parameters

The values of the configurable parameters are shown below.

Parameter	Description	Parameter	Description
Temperature	-40...90 ℃	Humidity	0...100 %
PM2.5	0...999 µg/m³	PM10	0...999 µg/m³
CO_2	0...4000 ppm	VOC	0...9.99 mg/m³
AQI	0...500	Brightness	0...5000 lux
Wind speed	0...50 m/s	Rain	Rain/No Rain

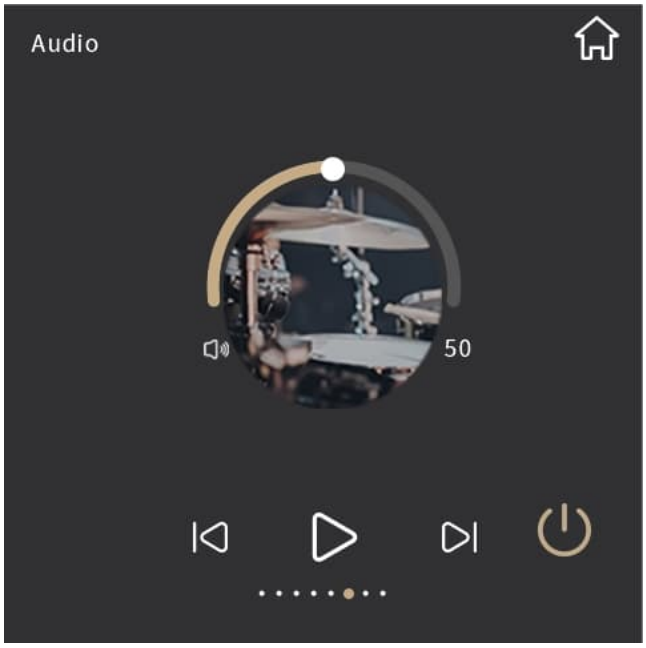
2.10 Audio

Only works via the gateway which the converts audio control signal to KNX.



Number	Description	Number	Description
①	Volume + / -	②	Play / Pause
③	Previous / Next	④	Mute / Unmute

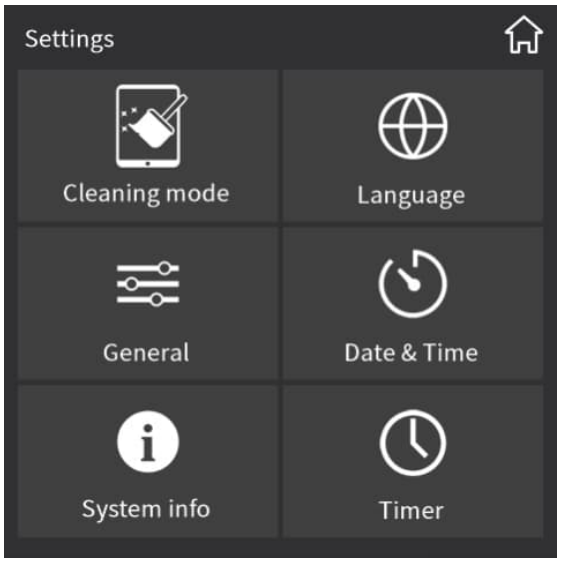
Volume control



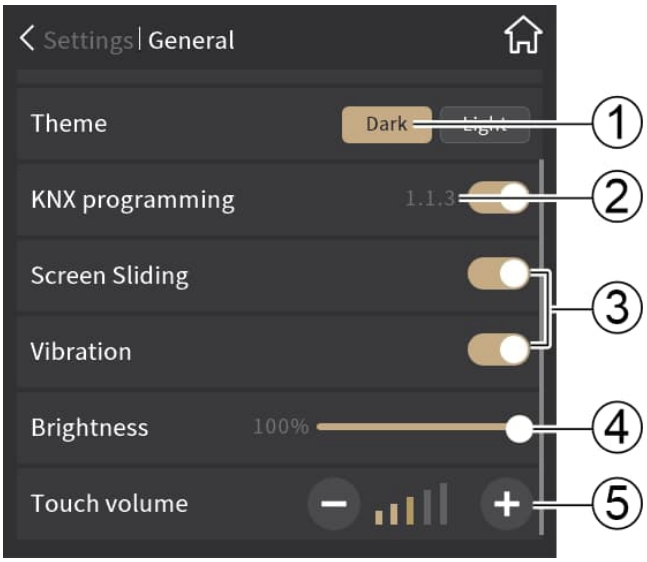
2.11 Settings

Tap ⚙ on homepage to go to the Settings page.

Settings

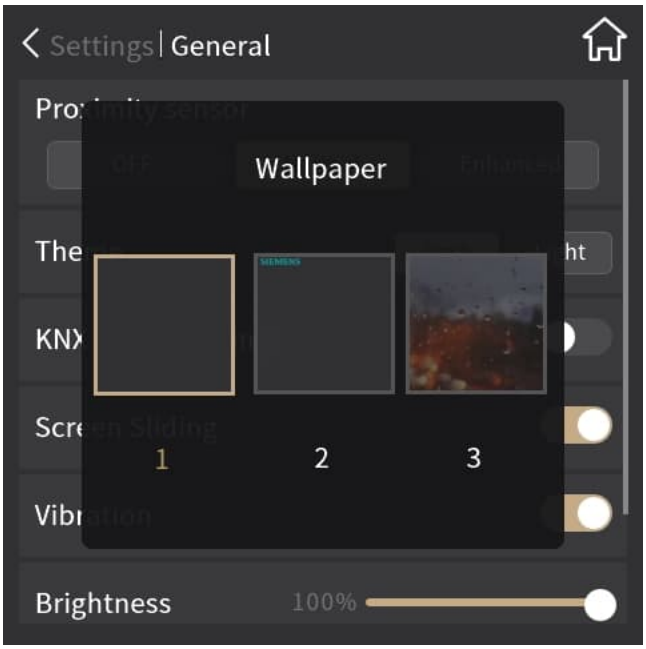


General homepage



Language (default: English)

Wallpaper (default: 1)



Number	Description	Number	Description
①	Theme (Wallpaper) color	②	Physical address
③	Enable/disable button	④	Screen brightness
⑤	Keystroke volume		

Note

- Disable KNX programming unless configured via ETS by a qualified engineer.
- The settings on the "General" page are the default values.

Proximity sensor: The screen is activated when the sensor detects that someone is approaching.

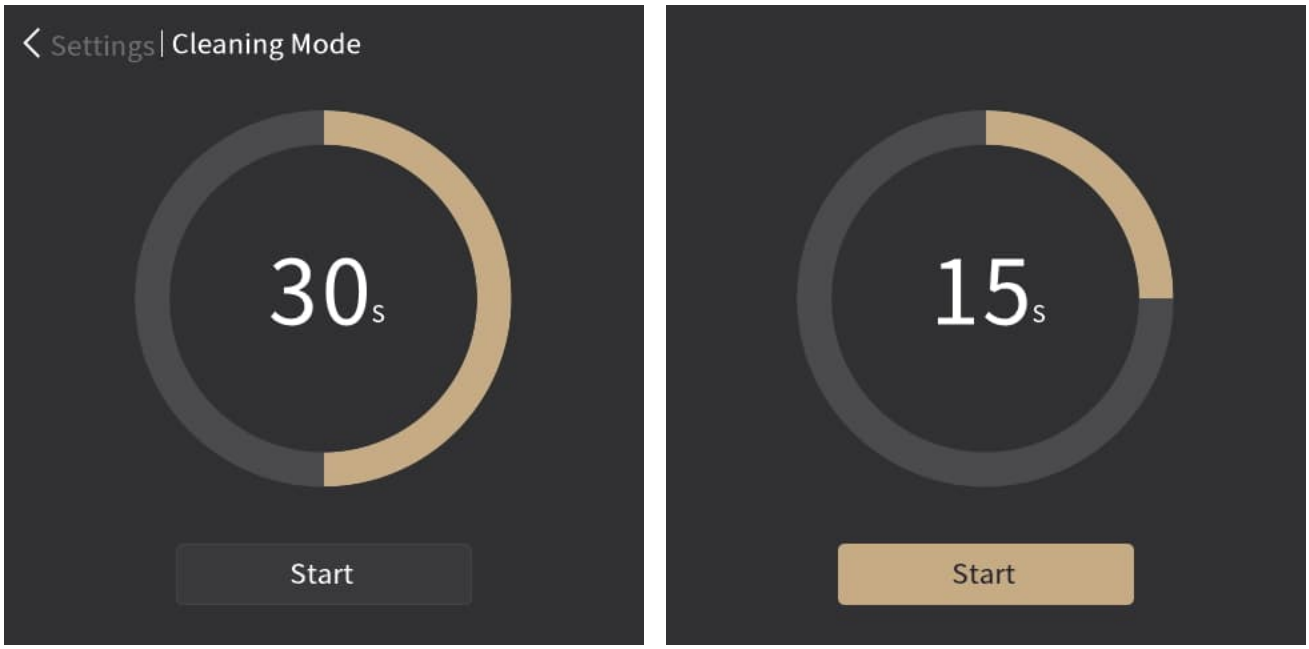
1. Off
2. Normal: within 15 cm
3. Enhanced: within 30 cm

Enable screen-sliding:

1. Enabled: Swipe the screen or tap the icon to go to the appropriate page.
2. Disabled: Tap the icon.

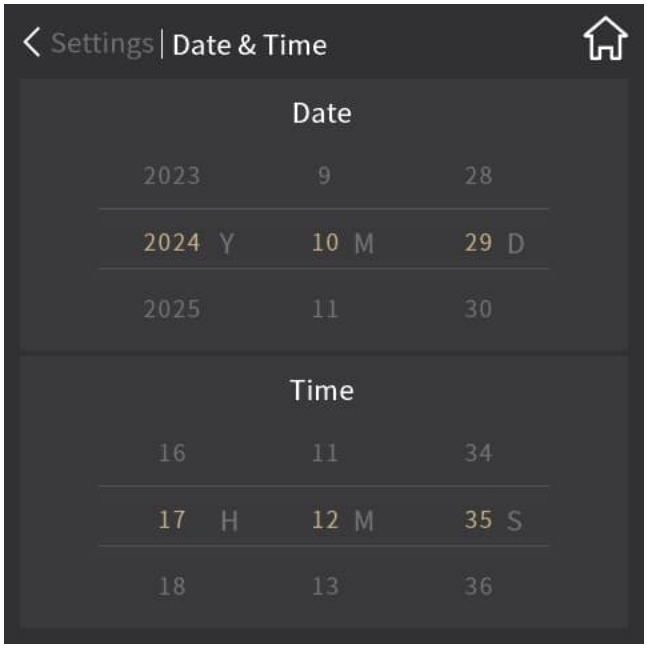
Cleaning mode: The screen freezes for a set period.

Cleaning mode



Date & time and system info

Date & time setting: Scroll date (Y, M or D) or time (H, M or S) to set



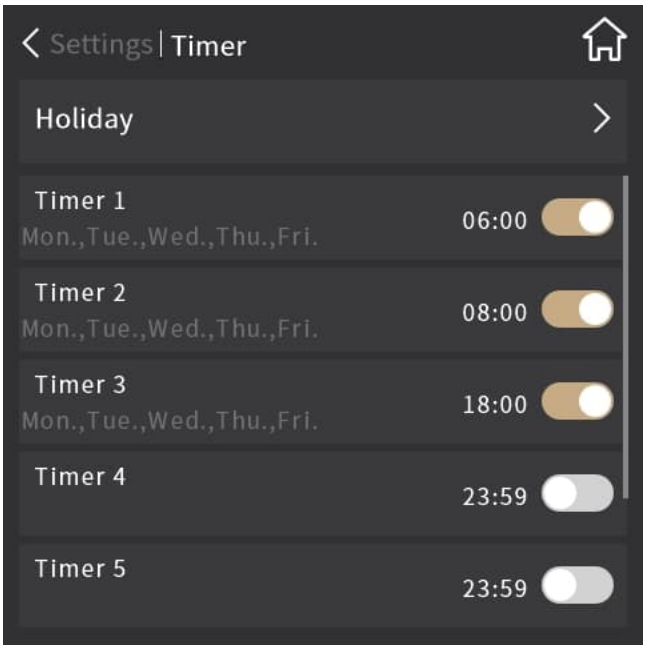
Date & time settings

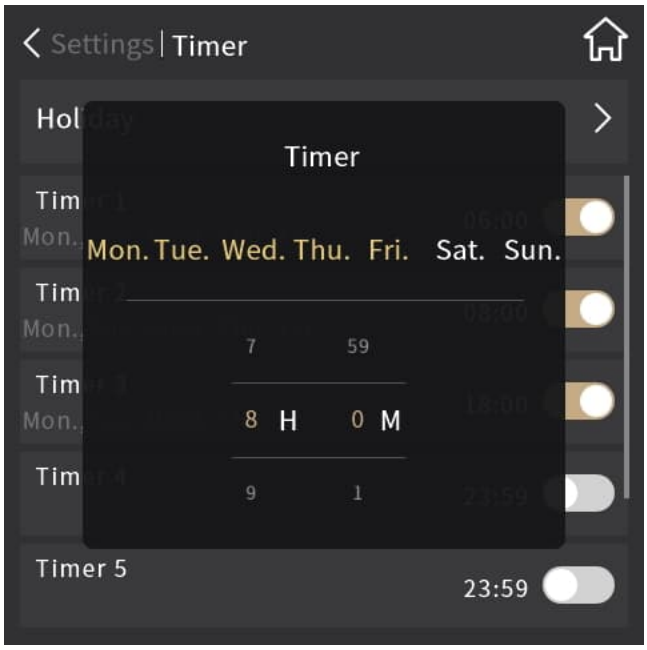
System info

Timer function

Weekly timer

Daily and weekly timers can be configured via ETS.
Weekly timers can be changed via touch screen or bus if enabled in ETS.
The weekly timer is off during holidays.

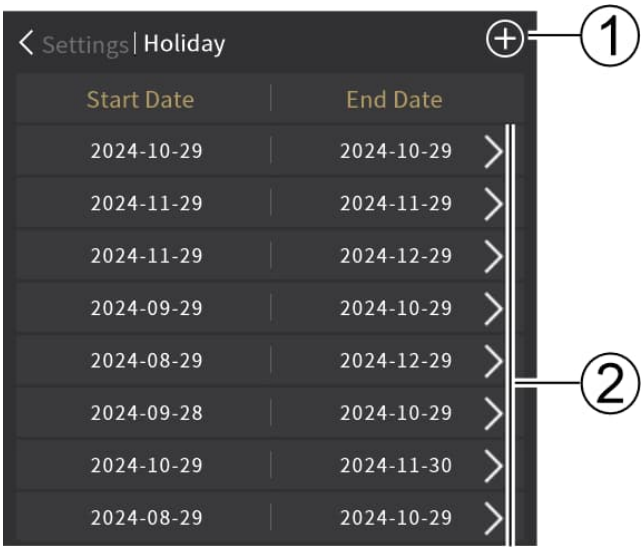




Timer settings:

- Tap icon or to enable or disable weekday
- Tap icon > to check holiday

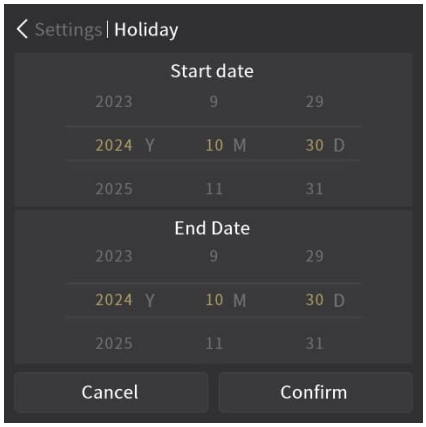
No holiday set



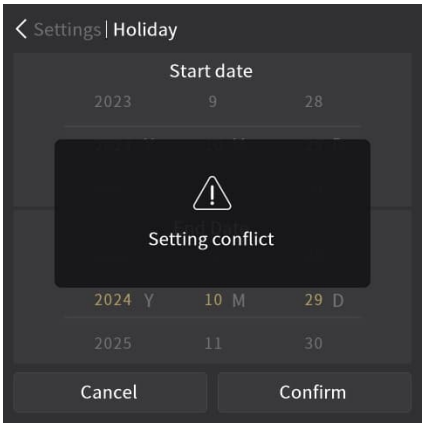
Holiday list:

- Timer is off during holidays.

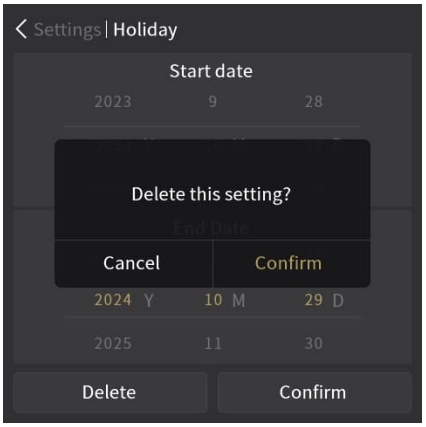
Number	Description	Number	Description
①	Add new holiday	②	Enter holiday details



Confirm new holiday



Conflict setting



Delete holidays

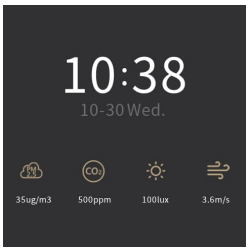
2.12 Screen

2.12.1 Screen saver

Screen savers are available via ETS:

- **Factory preloaded:** a) Disable; b) Clock (default); c) Digital clock plus additional information; d) Album - 3 pictures (They are auto switched per 20 s when activated.); e) Album - 1 picture
  The default screen saver enable time is 10 s and the default backlight off time is 30 s.

Clock



Digital clock

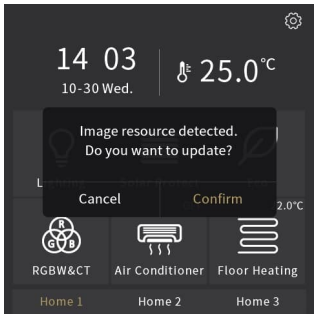
Album 1

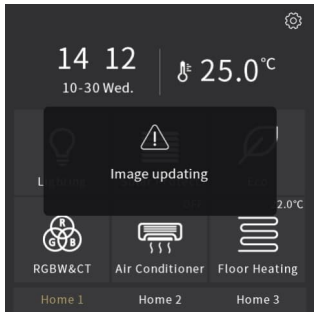
Album 2

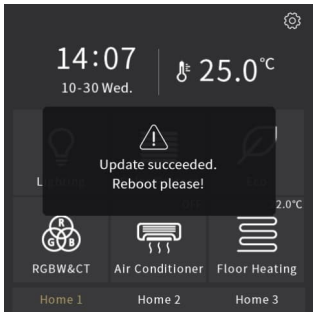
Album 3

- **Customized pictures from Micro SD card.**
  Insert Micro SD card with the following content:

1. Create folder "picture" under the root directory of Micro SD card
2. Name the pictures in the folder as follows: "Album1", "Album2", "Album3"
3. Picture resolution must be 480 * 480 and of the following file type: jpg, png ("png" pictures must have an opaque background).

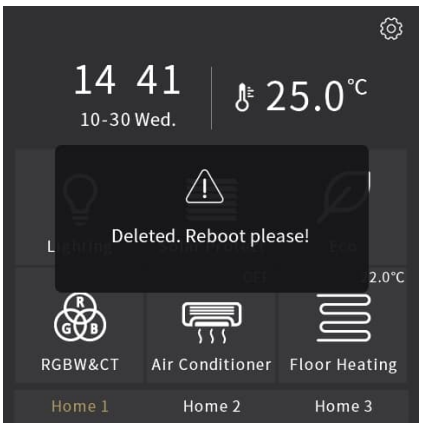






Delete the customized pictures:

1. Create an empty folder "picture" on the Micro SD card.
2. When inserting the SD card, a pop-up window asks "Recover to initial status?", tap "Confirm" to delete the customized pictures
3. Reboot the device to recover the original album.



Note

- Supports only SDHC cards and FAT32 format.
- Supports Micro SD cards up to a max. capacity of 16 GB.
- When reading data from the root directory in Micro SD card, the device recognizes file/folder names in the following order (high to low):
  *.fwp (file name) > Functionicon (folder name) > Pageicon (folder name) > picture (folder name) > background (folder name)
  For example, if the root directory contains a file named "*.fwp" and a folder named "Functionicon", the device only performs the firmware upgrade. It does not replace the function icons with the new ones stored in the folder "Functionicon". If users want to perform the latter operation, delete the "*.fwp" file first.
- The device picture storage size is approximate 4 MB. The message "Invalid image, please check!" is displayed once the total size of the valid pictures on the Micro SD card is greater than 3.8 MB.

- The recommended SD cards are listed in the following table:

Brand	Model	Capacity, rate *
SanDisk	Ultra	16 GB A1 C10 HC
KIOXIA	EXCERIA	16 GB U1 HC
SanDisk	-	8 GB C4 HC
Netac	Pro	16 GB A1 V10 HC U1

* When using an SD card, and in the event of issues, we recommend using a card with lower capacity to repeat related actions.

2.12.2 Wallpaper

For homepage

Three wallpapers are available for homepage:

- Dark screen style: 1) Dark screen (default); 2) With Siemens logo; 3) Water droplets
- Light screen style: 1) Gray screen (default); 2) With Siemens logo; 3) Desert

The screen style can be selected in ETS or by the user on the screen setting page.

Wallpapers can also be customized via Micro SD card.

Dark screen style

Default

With Siemens logo

Water droplets

Light screen style

Default

With Siemens logo

Desert

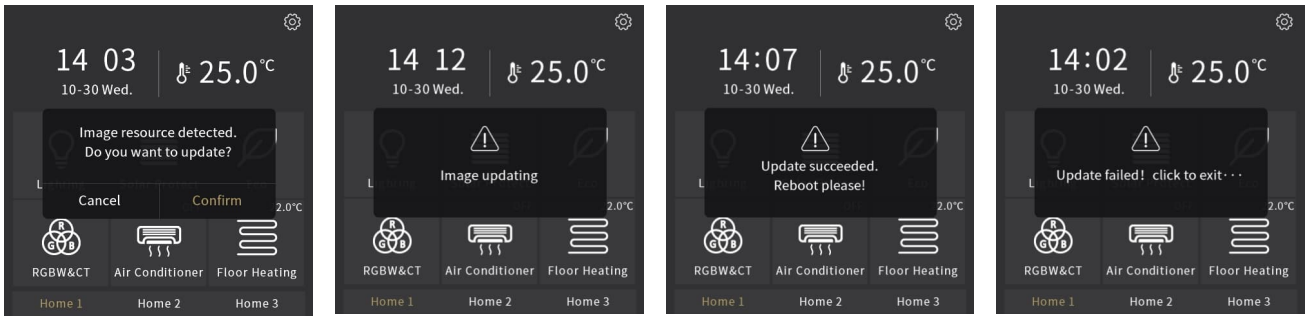
Using SD card for customized wallpapers

Insert Micro SD card with the following content:

1. Create folder "background" under the root directory of Micro SD card.
2. Name the pictures in the folder as follows:
   – Dark screen style: "main_bg1_D", "main_bg2_D", "main_bg3_D"
   – Light screen style: "main_bg1_L", "main_bg2_L", "main_bg3_L"
3. Picture resolution must be 480 * 480 and of the following file type: jpg, png ("png" pictures must have an opaque background).

When inserting Micro SD card into the device, the following pop-up window is displayed if valid pictures are detected.

If update fails, tap any area outside the pop-up window to exit.

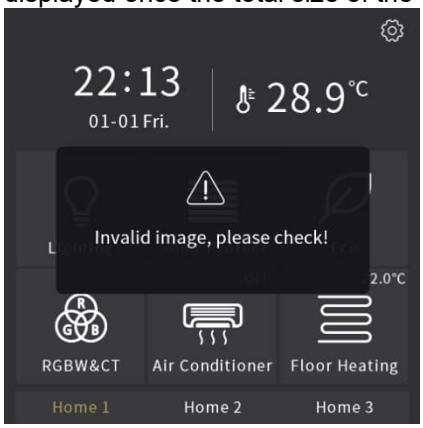


Delete the customized pictures:

1. Create an empty folder "background" on the Micro SD card.
2. When inserting the SD card, a pop-up window asks "Recover to initial status?", tap "Confirm" to delete the customized pictures
3. Reboot the device to recover the original album.

Note

- Supports only SDHC cards and FAT32 format.
- Supports Micro SD cards up to a max. capacity of 16 GB.
- When reading data from the root directory in Micro SD card, the device recognizes file/folder names in the following order (high to low):
  *.fwp (file name) > Functionicon (folder name) > Pageicon (folder name) > picture (folder name) > background (folder name)
  For example, if the root directory contains a file named "*.fwp" and a folder named "Functionicon", the device only performs the firmware upgrade. It does not replace the function icons with the new ones stored in the folder "Functionicon". If users want to perform the latter operation, delete the "*.fwp" file first.
- The device picture storage size is approximate 4 MB. The message "Invalid image, please check!" is displayed once the total size of the valid pictures on the Micro SD card is greater than 3.8 MB.



- The recommended SD cards are listed in the following table:

Brand	Model	Capacity, rate *
SanDisk	Ultra	16 GB A1 C10 HC
KIOXIA	EXCERIA	16 GB U1 HC
SanDisk	-	8 GB C4 HC
Netac	Pro	16 GB A1 V10 HC U1

* When using an SD card, and in the event of issues, we recommend using a card with lower capacity to repeat related actions.

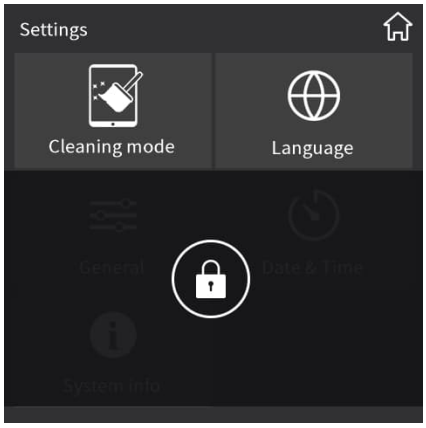
2.13 Password

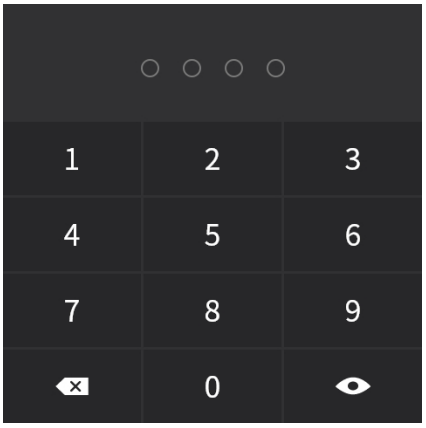
The password is disabled by default. A password function can be configured in ETS via parameter "Password function". For parameter details, see "Password" parameters [→ 54].

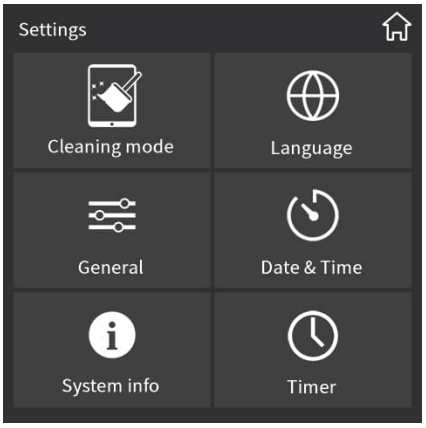
Password for Settings

When enabled, a 4-digit number password is required to check or edit information in the Settings page (no password required for cleaning mode). The password can be set via parameter "Set password 1 (4 digits)". For parameter details, see "Password" parameters [→ 54].

Settings are enabled as soon as setting icon is unlocked. It automatically locks again when you leave Settings by tapping the home icon ⌂.



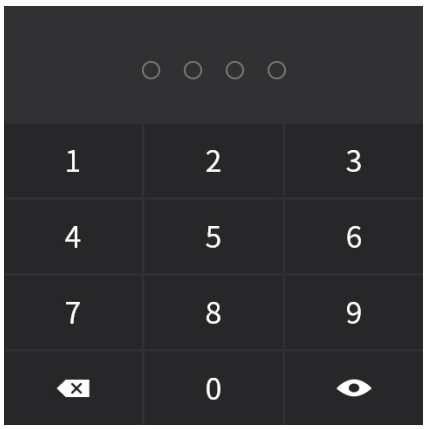




Password for screen saver

The password is disabled by default. If enabled, screen operation requires the password after the screen saver is on or the screen is off. The password is a 4-digit number.

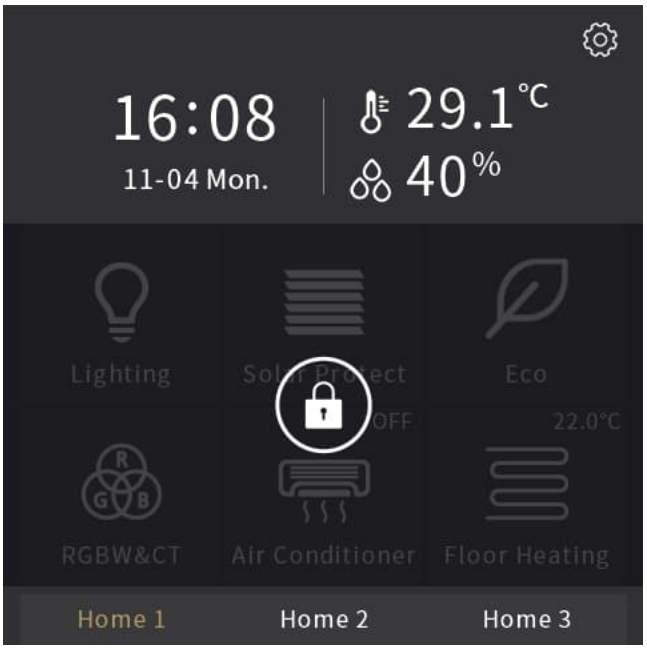
Three passwords are available and can be set via parameters "Set password 1 (4 digits)", "Set password 2 (4 digits)" and "Set password 3 (4 digits)". For parameter details, see "Password" parameters [→ 54].



2.14 Lock function via bus

This command is sent from the bus. It can lock the entire panel (left picture) or just individual function pages (right picture).

- Lock entire panel: Once the panel is locked, a user cannot perform any operation on device while still receiving telegrams from bus. Object "Dis./En. screen operation, - All pages" locks screen operation. For object details, see "General" communication objects [→ 48].
- Lock individual function pages: The locked page is not operational, while still receiving telegrams from bus. Object "Lock" locks all functions on the page. For object details, see "Function page" [→ 59].



Entire device

Individual function page

2.15 Alarm

All active alarms are displayed on the screen during defined duration. A maximum of 5 alarms can be displayed as well as notified acoustically. The alarm display duration and repeat time are configurable in ETS.

User can press ✓ to confirm the alarm; it is not displayed within 5 minutes (repeat time).

For alarm details, see "Alarm" [→ 119].

2.16 Other pages

KNX Connect Failure: Displayed in red when communication to the bus is interrupted.

ETS configuration loading: After the application downloads or the device power recovers, the device initializes and loads the parameter configuration for ETS.

KNX connect failure

ETS configuration loading

3 Parameter and communication objects

This chapter introduces how ETS configures the device by setting the parameters. It also introduces the associated communication objects.

Communication objects communicate with other devices via bus:

- Max. communication objects: 984
- Max. group addresses: 1500
- Max. associations: 1500

The number and kind of visible objects vary. At no time, all objects are simultaneously available.

Note

In "Flag" column for communication objects:

- "C": Enables communications on the object
- "W": Writes value of object from the bus
- "R": Other devices can read the value of the object
- "T": The object can transmit
- "U": Updates the value of the object

Entering programming mode:

Option 1

- Tap the setting icon in homepage;
- Go to "General";
- Enable "KNX programming". Afterwards the programming LED turns on, and the individual address (physical address) can be downloaded to the device.

Option 2

- Press service pin <2 s to enable "KNX programming". The programming LED turns on and the individual address (physical address) can be downloaded to the device.

Note

Only professional engineers can operate the KNX programming function. Ensure that it is disabled during daily operation and if enabled:

- The device can operate normally.
- The programming LED is constant on, and this impacts the LED life span.

Factory reset

The factory-reset resets the device to the original settings (physical address 15.15.255, firmware remains as is). The device must then be restarted with ETS.

In secure mode: Factory reset deactivates device security. The device can then be commissioned again using the device certificate.

Perform factory reset

1. Press and hold the service pin for > 20 s.
   ⇨ The programming LED is on for 2 s and off, then flashes for 8 s.
2. The device carries out a factory reset, restarts, and the LED turns off.
3. The device is again ready for operation.

Instructions for the secure operation of KNX Touch Control TC4

- Do not use the device to control safety-related applications (e.g. emergency lighting).
- Only operate the device in a protected network environment and do not allow direct access from the Internet.
- Set up a separate IP network with its own hardware for KNX communication.
- Protect the device by assigning a BCU key in the ETS.
- Secure remote access to the device via an additional VPN connection. A virtual private network (VPN) establishes an encrypted and authorized connection (VPN tunnel) from a remote connection to a network via the internet. This VPN connection enables secure communication protected from eavesdropping between a remote device and the KNX installation.
- If WLAN is used, change the preset SSID of the wireless access point. Encrypt the WLAN using a secure procedure (such as WPA2 at present).
- Document network settings and give them to the building owner/operator or LAN administrator.
- Coordinate the administration of access rights to this KNXnet/IP device in an IP network with the respective IP network administrator.

NOTICE	
!	**Measures after replacing a device in the KNX/IP network.** When a KNX device is stolen from a network or replaced due to a defect, the BCU key must be reassigned (changed) for all other devices in the network. This change is necessary because it cannot be ruled out that the BCU key, which is located in a protected area, can be read.

For more information on KNX security, including, for example, a security check, refer to the “KNX Secure” section on the KNX website (http://www.knx.org).

Notes on the FDSK sticker

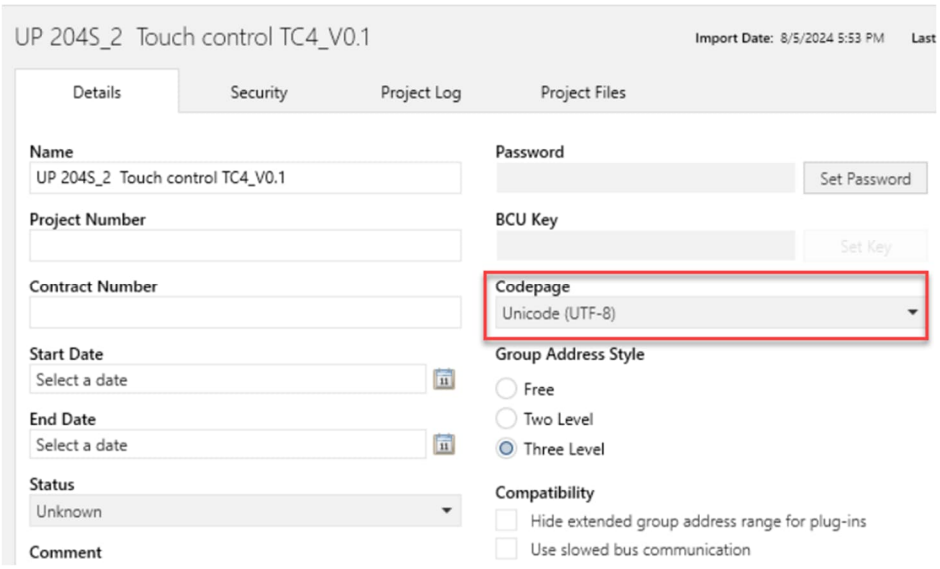
- Remove the device from the sealed packaging, scan the FDSK and store.
- Remove all FDSK stickers from the device and then install the device.

This procedure ensures that the FDSK cannot be read from mounted devices.

NOTICE	
!	If the scanned FDSK is lost, the device can no longer be used (in secure mode) after a factory reset. For devices with secure by default and a lost FDSK, the device can no longer be used after a factory reset.

Display language:

NOTICE	
!	The device supports multiple languages including English, German, Chinese, Spanish, Italian, French, etc. To properly display the desired language, set "Codepage" to "Unicode (UTF-8)".



Convert settings of older application program to new one via the Update-function of ETS:

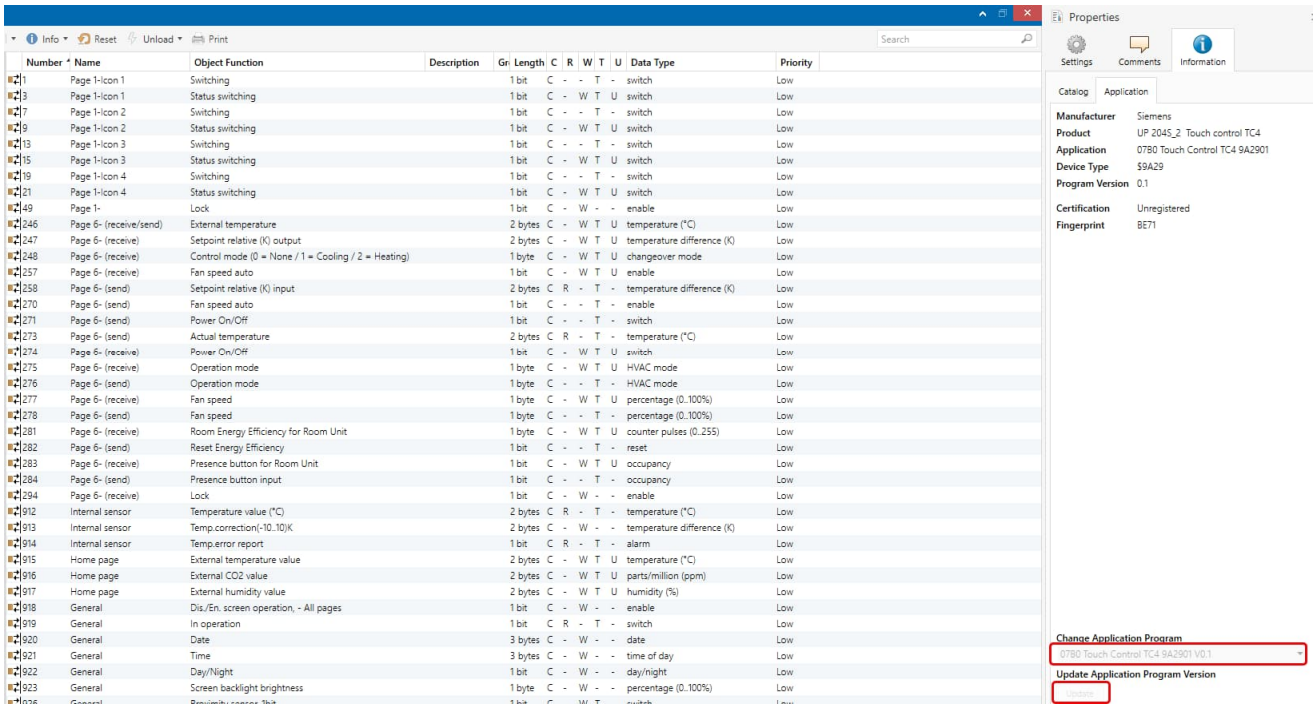
To keep the already performed parameter settings and object configurations, the Update-function of the ETS can be used. For this purpose, the older and new database of TC4 need to be loaded to the ETS.

Go to **Properties** ⇒ **Information** ⇒ **Application** and click the **Update** button (see figure below).

Note

The **Update** button will not be available for initial version.

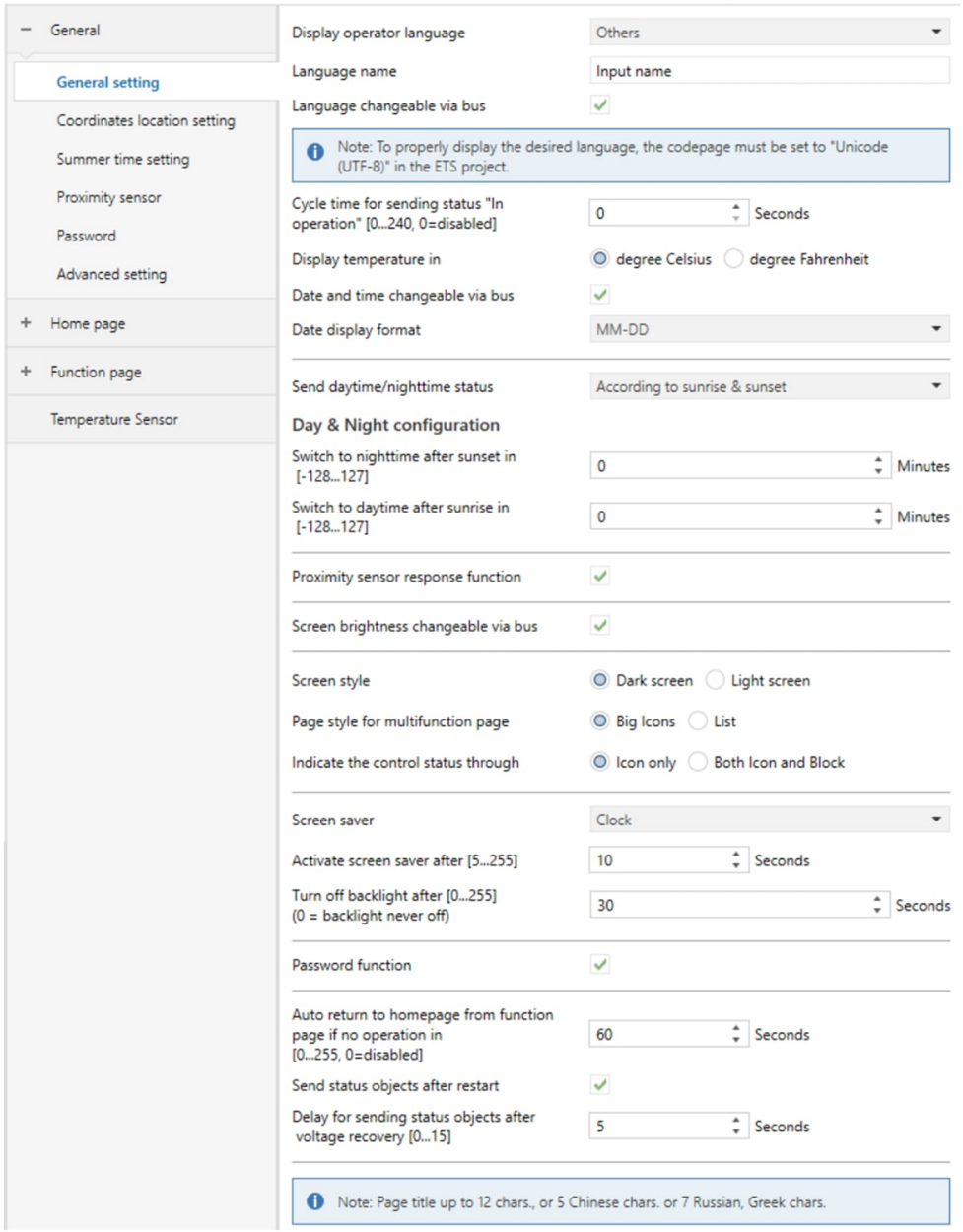
All settings for group addresses and parameters are converted to the new application. To finalize, the converted application program must be downloaded to the device.



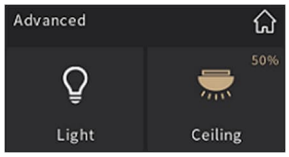
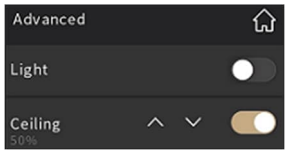
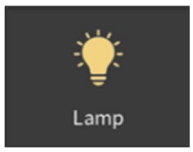
3.1 "General"

3.1.1 "General setting" parameters

"General setting" configures language, temperature unit, screen saver, panel lock, background, etc.



Name	Description	Range
Display operator language	Selects the interface language on function pages, such as the page for HVAC control, system info. etc.	Chinese (Simplified) Chinese (Traditional) Czech Dutch English (default) French German Greek Hungarian Italian Polish Portuguese Russian Spanish Turkish Ukrainian Others
The following parameter is displayed if "Others" is selected.		
Language name	The required language can be typed as "Language name". English is displayed if the language type is unavailable. **Important**: When selecting "Others" language, it is necessary to confirm with the manufacturer whether the language and the corresponding name are supported. The updated database and system firmware must be downloaded to the device before the set "Display operator language" is displayed on TC4.	Input name
Language changeable via bus	Determines whether the language can be changed via bus.	No Yes (default)
Cycle time for sending status "In operation"[0...240, 0=disabled]	Sets the time interval for sending telegrams to bus to indicate the module is operational. If: ● "0" is selected, the object "In operation" does not send telegrams. (0= inactive) ● None-zero (1...240s) is selected, the object "In operation" sends a telegram, according to the set interval and with value "1" to the bus. Increasing the interval reduces bus load.	0...240 s (default: 0)
Display temperature in	Sets temperature unit. Applies to the temperature displayed on homepage, HVAC and Air conditioning function pages.	Degree Celsius (default) Degree Fahrenheit
Date and time changeable via bus	Determines whether the display of "date/time" on home or cover page can be modified from bus. If "Yes" is selected, objects "Date" and "Time" display and both can be modified.	No Yes (default)
Date display format	Determines date display format. If "Disable" is selected, date and time do not display on the homepage and only time is displayed on the screen saver when parameter "Screen saver" is set as "Digital clock plus additional information".	Disable MM-DD (default) DD-MM
Send daytime/nighttime status	Determines how the "day/night" status is defined. A telegram is sent via object "Day/Night" if the status changes. Options: ● **No**: Do not send telegram and objects ● **According to user specified time**: Switch the day/night based on the configured time. For example, switch Night mode @18:30P.M. to Day mode @6:30A.M. ● **According to sunrise & sunset**: Switch the day/night status based on sunrise and sunset for a specific location. The geographical coordinates point of the location must be entered.	No (default) According to user specified time According to sunrise & sunset

Name	Description	Range
The following parameters are displayed when "According to user specified time" is selected.		
Time for switch to night at: Hour [0...23]	Switches day to night at specified hour.	0...23 h (default: 18)
Time for switch to night at: Minute [0...59]	Switches day to night at specified minute.	0...59 min (default: 0)
Time for switch to day at: Hour [0...23]	Switches night to day at specified hour.	0...23 h (default: 6)
Time for switch to day at: Minute [0...59]	Switches night to day at specified minute.	0...59 min (default: 0)
The following parameters are displayed when "According to sunrise & sunset" is selected.		
Day & Night configuration	Sets the time delay of the night/day switching moment of the location configured.	-
Switch to nighttime after sunset in [-128...127]	Sets the time delay of the night switching moment of the location configured.	-128...127 min (default: 0)
Switch to daytime after sunrise in [-128...127]	Sets the time delay of the day switching moment of the location configured.	-128...127 min (default: 0)
Proximity sensor response function	Enables or disables the proximity sensor. When enabled, a separate setting page is displayed under General. Refer to "Proximity sensor" parameters [→ 53].	Disable Enable (default)
Screen brightness changeable via bus	Defines whether the screen brightness can be changed via bus.	No Yes (default)
Screen style	Sets the screen style.	Dark screen (default) Light screen
Page style for multifunction page	Selects the page style for multifunction pages. Big Icons  List 	Big Icons (default) List
The following parameter is displayed when "Big Icons" is selected.		
Indicate the control status through	Indicates the control status via icon only or both icon and block icon. Icon only  Both Icon and block 	Icon only (default) Both icon and block

Name	Description	Range
Screen saver	Selects screen saver. Refer to **Screen saver** in Screen [→ 32]	Disable Clock (default) Digital clock plus additional information Album - 3 pictures Album - 1 picture
Activate screen saver after [5...255]	Time delay set in seconds from the last operation of screen to enter screen saving mode.	5...255 s (default: 10 s)
The following parameter is displayed when "Clock" or "Album - 3 pictures" is selected.		
Turn off backlight after [0...255] (0 = backlight never off)	The time delay in seconds from the start of screen saving mode to turn off the screen backlight. **Note**: "0" means the backlight is never off. It is only recommended for demonstration purpose. It shortens the product lifetime dramatically if the backlight is never off.	0...255 s (default: 30 s)
The following parameter is displayed when "Disable", "Digital clock plus additional information" or "Album – 1 picture" is selected		
Turn off backlight after [5…255]	The time delay in seconds from the start of screen saving mode to turn off the screen backlight.	5...255 s (default: 30 s)
Password function	Enables or disables password. There are two types of passwords: • **Setting page password**: Determines if the password is required to check or edit information on setting page. When enabled, a separate page is displayed under General for password settings. Refer to "Password" parameters [→ 54]. • **Screen saver password**: Determines if the password is required during daily operation after the screen saver is on or the screen is off. When enabled, a separate page is displayed under General for password settings. Refer to "Password" parameters [→ 54].	Disable (default) Enable
Auto return to homepage from function page if no operation in [0...255, 0=disabled]	The time delay in seconds from function page automatically back to homepage.	0...255 s (default: 60 s)
Send status objects after restart	Defines if a status request telegram is sent once the device is restarted.	Disable Enable (default)
The following parameter is displayed when "Send status objects after restart" is enabled.		
Delay for sending status objects after voltage recovery [0...15]	Time delay set in seconds for sending status object after voltage recovery.	0...15 s (default: 5 s)

3.1.2 "General" communication objects

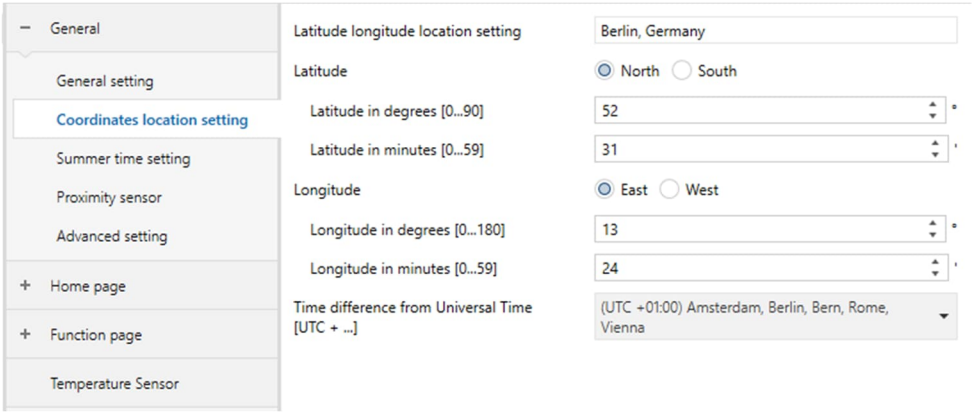
Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
918	General	Dis./En. screen operation, - All pages			1 bit	C	-	W	-	-	enable	Low
919	General	In operation			1 bit	C	R	-	T	-	switch	Low
920	General	Date			3 bytes	C	-	W	-	-	date	Low
921	General	Time			3 bytes	C	-	W	-	-	time of day	Low
922	General	Day/Night			1 bit	C	-	W	-	-	day/night	Low
923	General	Screen backlight brightness			1 byte	C	-	W	-	-	percentage (0..100%)	Low
926	General	Proximity sensor, 1bit			1 bit	C	-	W	T	-	switch	Low
927	General	Password trigger, 1bit			1 bit	C	-	-	T	-	switch	Low
928	General	Summer time, status			1 bit	C	R	-	T	-	enable	Low
949	General	Interface language			14 bytes	C	-	W	-	-	Character String (ISO 8859-1)	Low

No.	Name	Object function	Length	Flag	Data type
918	General	Dis./En. screen operation, - All pages	1 bit	CW	1.003 enable
Locks the panel function via bus. The panel does not respond when locked, still receives the bus telegram. See Lock function via bus [→ 38] for details. Telegram value 0: Unlock 1: Lock					

No.	Name	Object function	Length	Flag	Data type
919	General	In operation	1 bit	CRT	1.001 switch
Periodically sends a telegram "1" to the bus to indicate that the device works properly.					
920	General	Date	3 bytes	CW	11.001 date
Modifies the display date on the screen via bus.					
921	General	Time	3 bytes	CW	10.001 time of day
Modifies the display time on the screen via bus.					
922	General	Day/Night	1 bit	CT CW	1.024 day/night
Sends day/night status to the bus. The day/night state can be switched by time, sunrise and sunset, or the telegram value switched via bus. Telegram value: 0: Day 1: Night **Note**: When parameter " Send daytime/nighttime status" is set as "No", the flag is CW; for "According to sunrise & sunset", the flag is CT.					
923	General	Screen backlight brightness	1 byte	CW	5.001 percentage (0...100 %)
Modifies the backlight brightness of the screen. Brightness output range: 10...100 % For telegram value less than 10 %, device directly outputs 10 % brightness. This object is displayed when the parameter "Screen brightness changeable via bus" is set as "Yes".					
926	General	Proximity sensor,1bit value Proximity sensor,1byte value Proximity sensor, scene NO.	1 bit 1 byte 1 byte	CWT	1.001 switch 17.001 scene number 5.010 counter pulses (0...255) / 5.001 percentage (0...100 %)
Displayed when parameter "Proximity sensor response function" is enabled and readable when value is sent. It sends a telegram value to the bus when a person is detected approaching or leaving sensor detection range. The value range is based on selected data type.					
927	General	Password trigger,1bit value Password trigger, 1byte value Password trigger, scene NO.	1 bit 1 byte 1 byte	CT	1.001 switch 17.001 scene number 5.010 counter pulses (0...255) / 5.001 percentage (0...100 %)
Displayed when parameter "Password function" is enabled and readable when value is sent. It sends the telegram value to the bus. The value range is based on selected data type.					
928	General	Summer time status	1 bit	CRT	1.003 enable
Sends telegram value of summer time status via bus. Telegram value: 0: Not summer time 1: Summer time					
949	General	Interface language	14 bytes	CW	16.001 character string (ISO 8859-1)
Displayed when parameter "Language changeable via bus" is enabled.					

3.1.3 "Coordinates location setting" parameters

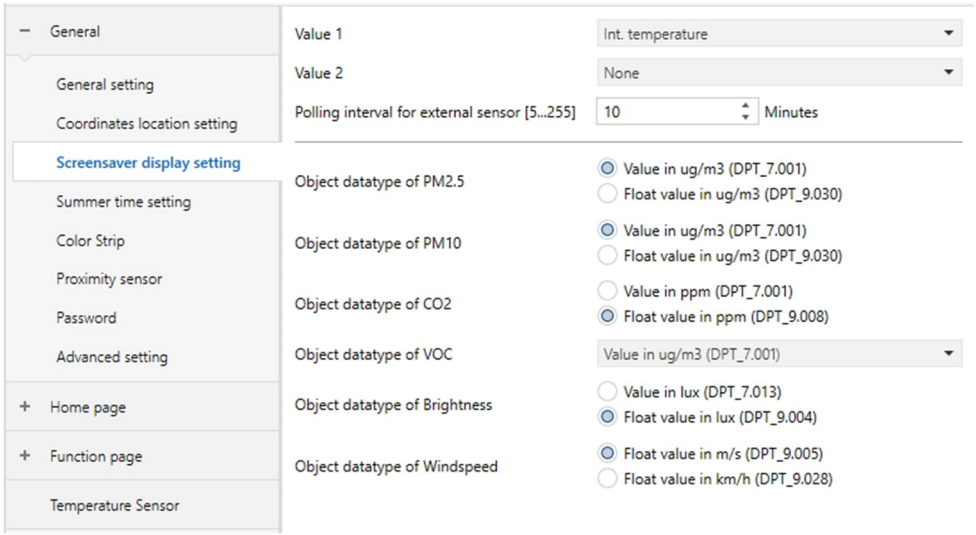
"Coordinates location setting" configures latitude and longitude.



Name	Description	Range
Latitude longitude setting location	Sets the reference point for sunrise and sunset Example: Berlin, Germany	-
Latitude	Sets latitude	North (default) South
{ Latitude in degrees [0°...90°]	Sets latitude in degrees	0...90° (default: 52)
{ Latitude in minutes [0'...59']	Sets latitude in minutes	0...59' (default: 31)
Longitude	Sets longitude	East (default) West
{ Longitude in degrees [0°...180°]	Sets longitude in degrees	0...180° (default: 13)
{ Longitude in minutes [0'...59']	Sets longitude in minutes	0...59' (default: 24)
Time difference from Universal Time [UTC+...]	Sets the time difference from universal time	(UTC -12:00) International Date Line West; (UTC -11:00) Samoa; (UTC -10:00) Hawaii; (UTC -09:00) Alaska; (UTC -08:00) Pacific (USA,Canada); (UTC -07:00) Arizona, Denver, Calgary; (UTC -06:00) Chicago, Dallas, Mexico City; (UTC -05:00) New York, Miami, Atlanta, Detroit; (UTC -04:30) Caracas; (UTC -04:00) Atlantic (Canada), Manaus, Santiago; (UTC -03:30) Newfoundland; (UTC -03:00) Brasilia, Buenos Aires, Greenland; (UTC -02:00) Median Atlantic; (UTC -01:00) Azores, Cape Verde Islands; (UTC) Dublin, Edinburgh, Lisbon, London; (UTC +01:00) Amsterdam, Berlin, Bern, Rome, Vienna; (default) (UTC +02:00) Athens, Istanbul, Kiev, Sofia, Cairo; (UTC +03:00) Baghdad, Moscow, St.Petersburg; (UTC +03:30) Tehran; (UTC +04:00) Abu Dhabi, Port Louis, Tiflis; (UTC +04:30) Kabul; (UTC +05:00) Islamabad, Karachi, Tashkent; (UTC +05:30) Chennai, Kolkata, Mumbai, New Delhi; (UTC +05:45) Kathmandu; (UTC +06:00) Astana, Dakka, Novosibirsk; (UTC +06:30) Yangon (Rangun); (UTC +07:00) Bankok, Hanoi, Jakarta, Kasnoyarsk; (UTC +08:00) Singapore, Beijing, Hong Kong, Taipei; (UTC +09:00) Osaka, Sapporo, Tokyo, Seoul; (UTC +09:30) Adelaide, Darwin; (UTC +10:00) Brisbane, Canberra, Melbourne, Sydney; (UTC +11:00) Magadan,Solomon Islands,New Caledonia; (UTC +12:00) Aukland, Wellington, Fiji

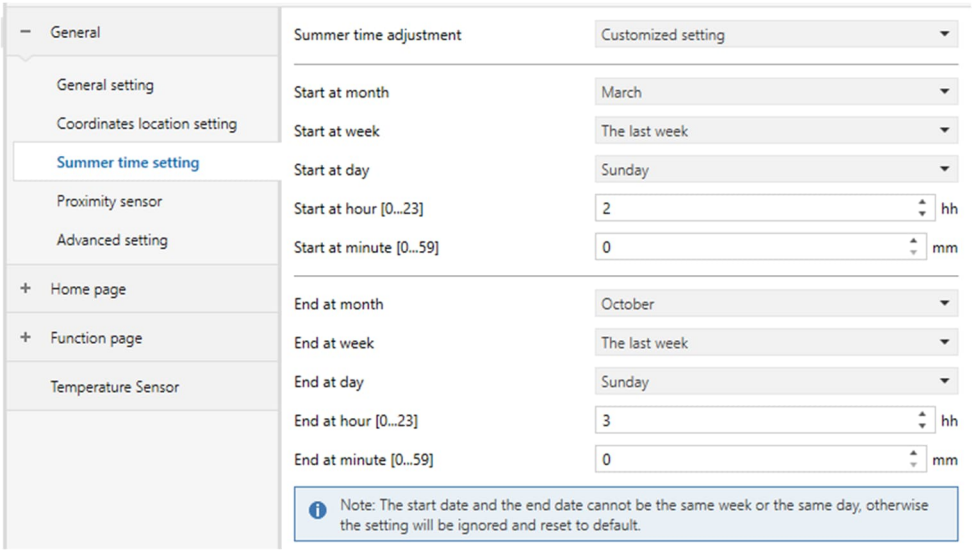
3.1.4 "Screensaver display setting" parameters

"Screensaver display setting" configures screen saver display format. The interface is displayed when parameter "Digital clock plus additional information" is enabled.



Name	Description	Range
Value 1...4	Defines what value is displayed on screen saver. A total of 4 values can be displayed on screen.	None Int. temperature (default) Ext. temperature Humidity PM2.5 PM10 CO_2 VOC Brightness Windspeed
Polling interval for external sensor [5...255]	Defines the period after which a read request is sent to get external value.	5...255 minutes (default: 10 minutes)
Object datatype of PM2.5	Defines PM2.5 object data type displayed on screen saver.	Value in ug/m^3 (DPT_7.001) (default) Float value in ug/m^3 (DPT_9.030)
Object datatype of PM10	Defines PM10 object data type displayed on screen saver.	Value in ug/m^3 (DPT_7.001) (default) Float value in ug/m^3 (DPT_9.030)
Object datatype of CO2	Defines CO_2 object data type displayed on screen saver.	Value in ppm (DPT_7.001) Float value in ppm (DPT_9.008) (default)
Object datatype of VOC	Defines VOC object data type displayed on screen saver.	Value in ug/m^3 (DPT_7.001) (default) Float value in ug/m^3 (DPT_9.030) Float value in ppm (DPT_9.008)
Object datatype of Brightness	Defines screen saver brightness object data type.	Value in lux (DPT_7.013) Float value in lux (DPT_9.004) (default)
Object datatype of Windspeed	Defines windspeed object data type displayed on screen saver.	Float value in m/s (DPT_9.005) (default) Float value in km/h (DPT_9.028)

3.1.5 "Summer time setting" parameters



Name		Description	Range
Summer time adjustment		Sets summer time (Daylight Saving Time), options: • No: Summer time not used • Always: Summer time always used • Customized setting: User customized setting for start and end summer time	No (default) Always Customized setting
The following parameters are displayed when "Customized setting" is selected.			
	Start at month	The month that summer time starts	January...December (default: March)
	Start at week	The week that summer time starts	The first week The second week The third week The fourth week The last week (default)
	Start at day	The day that summer time starts	Monday...Sunday (default: Sunday)
	Start at hour [0...23]	The hour that summer time starts	0...23 h (default: 2 h)
	Start at minute [0...59]	The minute that summer time starts	0...59 min (default: 0 min)
	End at month	The month that summer time ends	January...December (default: October)
	End at week	The week that summer time ends	The first week; The second week; The third week; The fourth week; The last week (default)
	End at day	The day that summer time ends	Monday...Sunday (default: Sunday)
	End at hour [0...23]	The hour that summer time ends	0...23 h (default: 3 h)
	End at minute [0...59]	The minute that summer time ends	0...59 min (default: 0 min)

Note

If the end time is set earlier than start time by mistake, end time applies to next year.

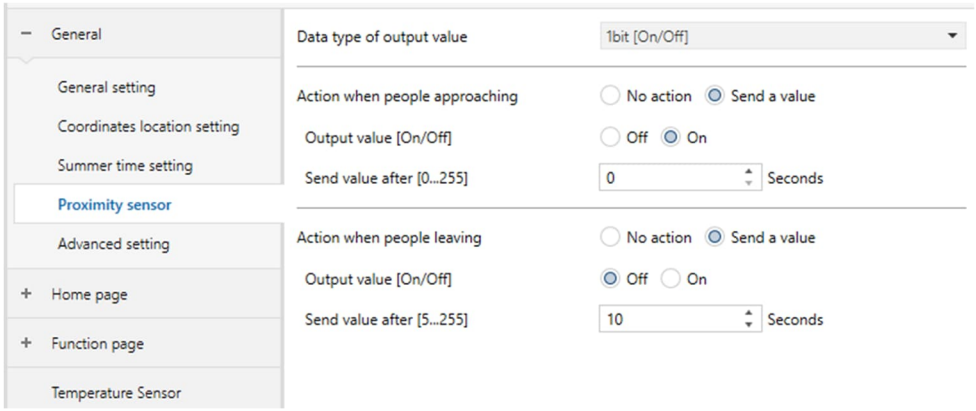
For example:

- "Start at month": May
- "End at month": March

So that summer time starts in May of this year and ends in March of next year.

3.1.6 "Proximity sensor" parameters

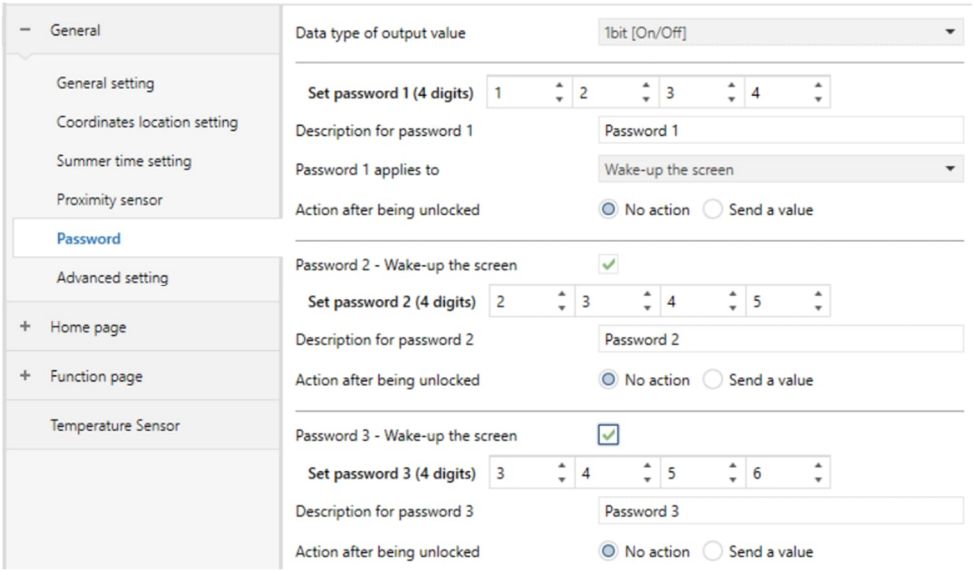
Detects people approaching or moving out of sensor detection range and sends a telegram value to bus.



Name		Description	Range
Data type of output value		The data type of telegram sent to bus	1bit [On/Off] (default) 1byte [scene] 1byte [0...255] 1byte [0...100 %]
Action when people approaching		Defines whether the telegram is sent or not when someone is approaching. **Note**: Touch operation only is recognized as approaching.	No action Send a value (default)
The following parameters are displayed when "Send a value" is selected and is based on the selected "Data type of output value".			
	Output value [On/Off]	The data type and related range value sent to bus	Off On (default)
	Output scene No. [1...64]	The data type and related range value sent to bus	1...64 (default: 1)
	Output value [0...255]	The data type and related range value sent to bus	0...255 (default: 255)
	Output value [0...100]	The data type and related range value sent to bus	0...100 (default: 100)
	Send value after [0...255]	The delay time of sending telegram	0...255 s (default: 0)
Action when people leaving		Defines whether the telegram is sent or not when someone is leaving.	No action (default) Send a value
The following parameters are displayed when "Send value" is selected and is based on the selected "Data type of output value".			
	Output value [On/Off]	The data type and related range value sent to bus	Off (default) On
	Output scene No. [1...64]	The data type and related range value sent to bus	1...64 (default: 2)
	Output value [0...255]	The data type and related range value sent to bus	0...255 (default: 0)
	Output value [0...100]	The data type and related range value sent to bus	0...100 (default: 0)
	Send value after [5...255]	The delay time of sending telegram	5...255 s (default: 10)

3.1.7 "Password" parameters

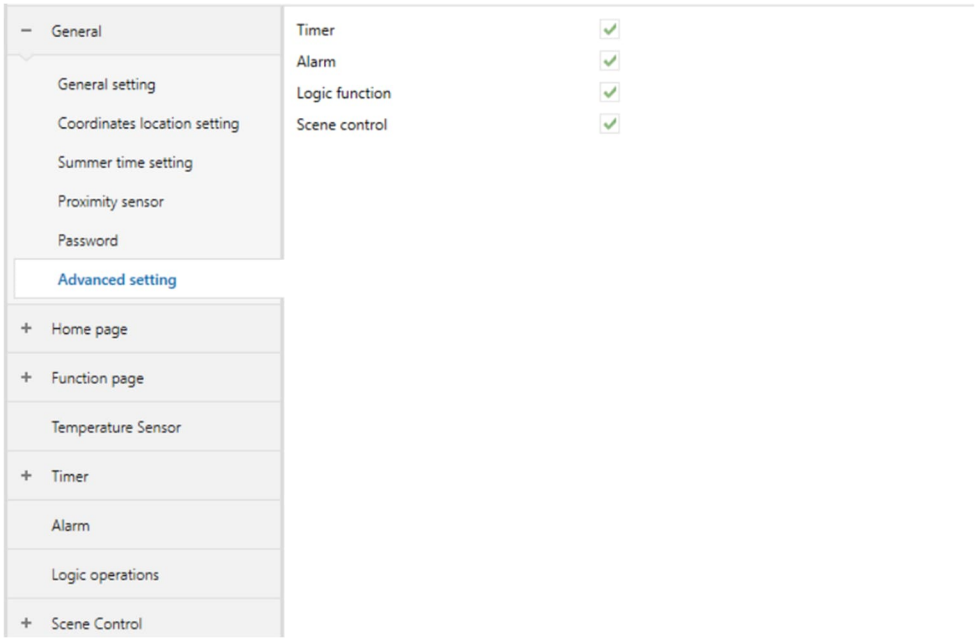
Sets password and data type sent to bus. It is enabled/disabled in General via parameter "Password function". A total of 3 passwords are allowed.



Name	Description	Range
Data type of output value	The data type of telegram sent to bus	1bit [On/Off] (default) 1byte [scene] 1byte [0...255] 1byte [0...100%]
Set password 1 (4 digits)	Sets 4-digit password for entering Setting page or waking up the screen.	4byte text (default: 1234)
Description for password 1	Description of password, max. 40 characters	40 characters (default: Password 1, 2 or 3)
Password 1 applies to	Defines the use of password 1.	Access setting page including language Access setting page Wake-up the screen (default) Both access setting page including language and wake-up the screen Both access setting page and wake-up the screen
Action after being unlocked	Whether telegrams are sent to bus after device is unlocked.	No action (default) Send a value
The following parameters are displayed when "Send a value" is selected.		
Output value [On/Off]	Only one "Output" type is displayed, determined by the selection of parameter "Data type of output value".	Off On (default)
Output scene No. [1...64]	Determines the value sent to bus after the screen is unlocked.	Scene No.1...Scene No.64 (default: 1)
Output value [0...255]		0...255 (default: 255)
Output value [0...100]		0...100 (default: 100)
Send value after [0...255]	The delay time of sending telegram	0...255 s (default: 0 s)
Password 2 - Wake-up the screen	Enables or disables the 2nd password. If enabled: • Set password: 4byte text (default: 2345) • Description: Max. 40 characters • Action after being unlocked: Same options as "Action after being unlocked" of "Set password 1 (4 digits)"	Enable Disable (default)

Name	Description	Range
Password 3 - Wake-up the screen	Enables or disables the 3rd password. If enabled: • Set password: 4byte text (default: 3456) • Description: Max. 40 characters • Action after being unlocked: Same options as "Action after being unlocked" of "Set password 1 (4 digits)"	Enable Disable (default)

3.1.8 Advanced setting



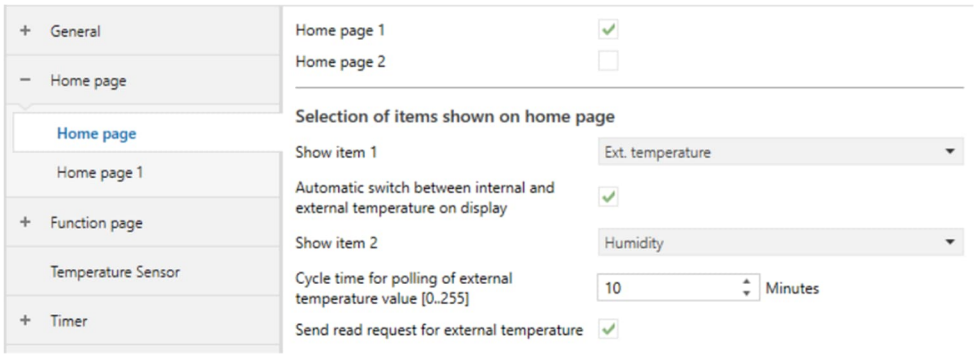
The following interfaces can be displayed if enabled (default is disabled) in "Advanced setting":

- "Timer" [→ 116]
- "Alarm" [→ 119]
- "Logic operations" [→ 123]
- "Scene control" [→ 134]

3.2 "Home page"

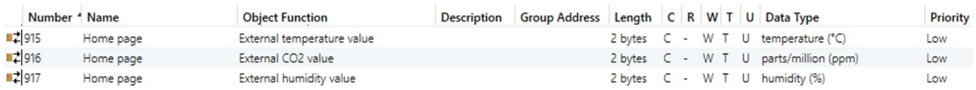
Parameters

Sets homepage number and selects the shown items on homepage.



Name	Description	Range
Home page 1…5	Enables or disables homepage.	Disable Enable
Selection of items shown on home page		
Show item 1	Defines display item on homepage.	Disable Internal temperature (default) External temperature
The parameter is displayed when "External temperature" is selected.		
{ Automatic switch between internal and external temperature on display	When external temperature sensor is selected, internal and external temperature are displayed on homepage in 5 s interval.	No (default) Yes
Show item 2	Defines display item on homepage. **Note**: Value "External temperature" cannot be selected if set for "Show item 1".	Disable External temperature Humidity (default) CO_2
Cycle time for polling of external temperature value [0…255]	Defines the period after which a read request is sent to retrieve an external value. **Note**: The last received temperature value is displayed if external temperature sensor fails.	0...255 minutes (default: 10 minutes)
Send read request for external temperature	Defines sending read request for external temperature value.	No Yes (default)

Communication objects



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
915	Home page	External temperature value			2 bytes	C	-	W	T	U	temperature (°C)	Low
916	Home page	External CO2 value			2 bytes	C	-	W	T	U	parts/million (ppm)	Low
917	Home page	External humidity value			2 bytes	C	-	W	T	U	humidity (%)	Low

No.	Name	Object function	Length	Flag	Data type
915	Home page	External temperature value	2 bytes	CWTU	9.001 temperature
Receives the external temperature value from bus.					
916	Home page	External CO2 value	2 bytes	CWTU	9.008 parts/million (ppm)
Receives external CO_2 value from bus.					
917	Home page	External humidity value	2 bytes	CWTU	9.007 humidity
Receives external humidity value from bus.					

3.2.1 "Home page x" parameters

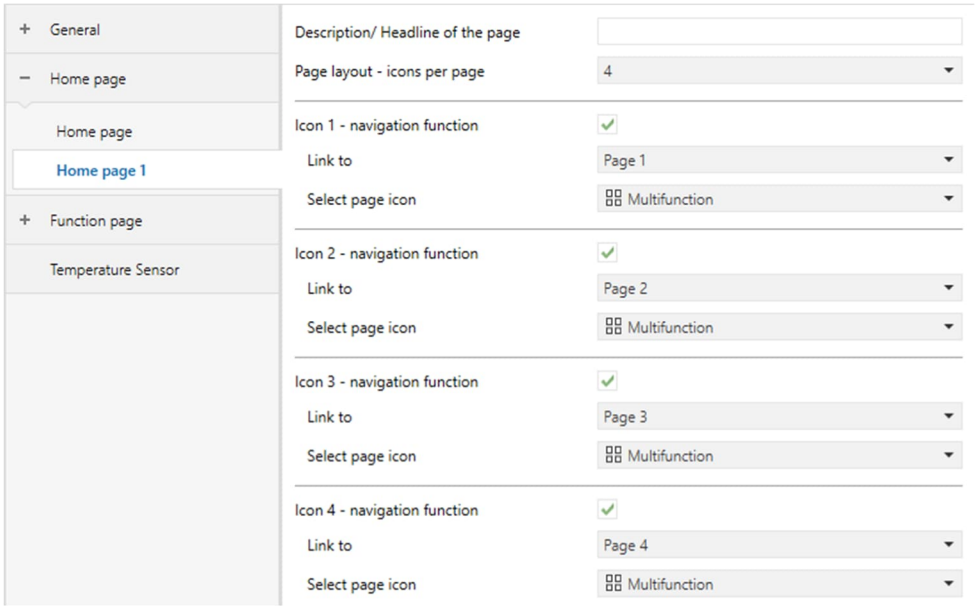
Homepage is navigation:

- Maximum five homepages allowed
- Maximum six icons allowed per page

When navigation is enabled, the icons can be linked to a defined function page. The first configured function page is displayed if navigation function for all pages is disabled.

Examples:

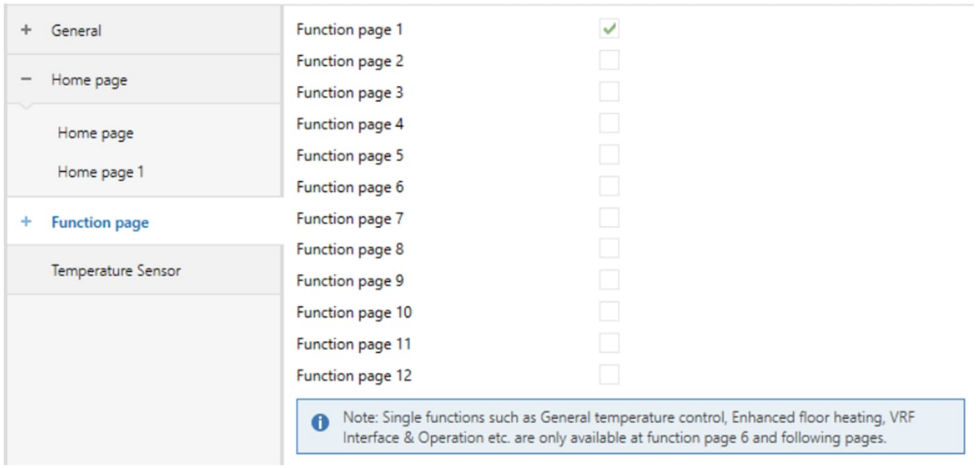
- Picture on the left: Max. five homepages are configured.
- Picture on the right: Function page instead of homepage.



Name		Description	Range
Description/Headline of the page		Sets the name of the homepage shown on screen. **Note**: ● Supports multiple languages. To display properly on screen, set "Codepage" to "Unicode (UTF-8)". Refer to **Language in display** in Parameter and communication objects [→ 41]. ● Approximately 12 characters can be displayed. It depends on the width of the single character as the space is limited on the display.	Max. 15byte text
Page Layout - icons per page		Determines how many icons are on one homepage. ● For an idea about how the page looks with different numbers of icons, refer to Multifunction page [→ 11] ● After configuration, user can directly tap one of the icons to go to the selected function page or operate the function.	3 / 4 (default) / 6
Icon x - navigation function		Enables or disables the navigation function for ICON x. x=3 / 4 / 6	Disable Enable (default)
The following parameters are displayed when "Icon x - navigation function" is enabled.			
	Link to	Defines function page or icon on multifunction page linked to navigation ICON x. ● Page 1...Page 12: Link to function page selected ● Icon in page 1...Icon in page 12: Link to the selected icon in the specified multifunction page **Note**: Configure all target (function pages or icons) links or the links become invalid.	Page 1 (default)...Page 12 Icon in page 1...Icon in page 12
	Select page icon	Displayed only when "Link to" is configured as "Page x". This parameter defines the Navigation icon.	Multifunction (default) Lighting Scenario ... Reception
	Icon number associated	Displayed only when "Link to" is configured as "Icon in page x".	1...6

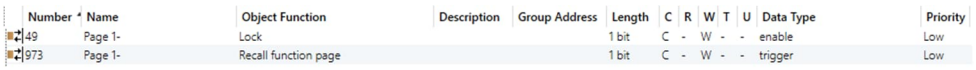
3.3 "Function page"

Parameters



Name	Description	Range
Function page 1...Function page 12	Enables or disables function page x. A total of 12 pages can be configured. When "Function page x" is enabled, parameter "Page x" is displayed and the Page x (x=1...12) can be configured. **Note**: The first 5 pages are multifunction pages only, pages 6 and on can be configured as either multifunction or single function pages such as Ventilation system, Air quality display, etc.	Disable Enable

Communication objects

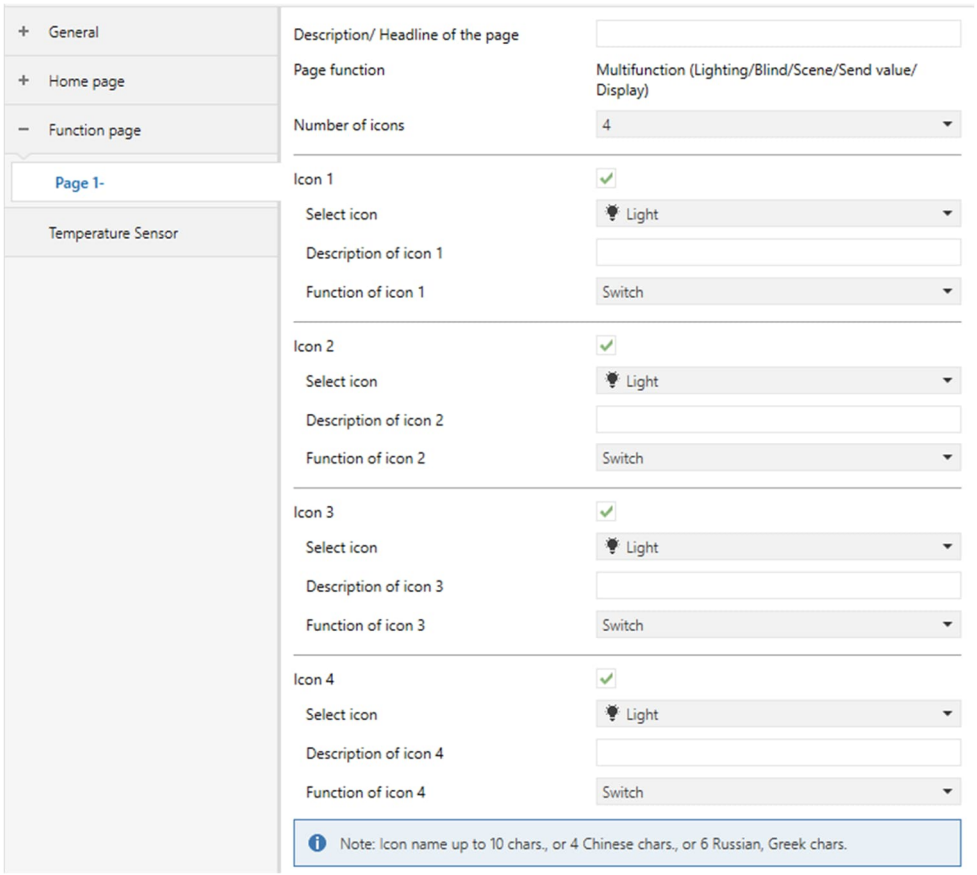


Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
49	Page 1-	Lock			1 bit	C	-	W	-	-	enable	Low
973	Page 1-	Recall function page			1 bit	C	-	W	-	-	trigger	Low

No.	Name	Object function	Length	Flag	Data type
49	Page x-	Lock	1 bit	CW	1.003 enable
Locks or unlocks all icon functions on page x. A total of 12 pages can be configured. Telegram value: 0: Lock 1: Unlock					
973	Page x-	Recall function page	1 bit	CW	1.017 trigger
Recalls the selected function page. Telegram: 1					

3.3.1 "Page x - Multifunction (Lighting/Blinds/Scene/Send value/Display)" parameters and communication objects

Parameters



Name	Description	Range
Description/Headline of the page	Names the "Function page x". **Note**: • Supports multiple languages. To display properly on screen, set "Codepage" to "Unicode (UTF-8)". Refer to **Language in display** in Parameter and communication objects [→ 41]. • Approximately 12 characters can be displayed. It depends on the width of the single character as the space is limited on the display.	15byte text
Page function	Configures the type of function page. **Note**: Pages 1...5 multifunction only; pages 6...12 can be either multifunction or single functions.	Multifunction (Lighting/Blind/Scene/Send value/Display)
Number of icons	Determines the page layout on this multifunction page. • For an idea about how the page looks with different numbers of icons, refer to Multifunction page [→ 11] • After configuration, user can directly tap one of the icons to go to the selected function page or operate the function.	3 / 4 (default) / 6
Icon x	Enables or disables the function of Icon x. x=3 / 4 / 6	Disable Enable (default)

Name	Description	Range
The following parameters are displayed when Icon x is enabled.		
Select icon	Determines which icon is used in display. **Note**: ● No icon, only text: Displayed with text only (no icon) The text is the name defined in parameter "Description of Icon x". For info on icons, see Functional page icons [→ 137]	No icon, only text Ceiling light ... Power ...
Description of Icon x	Sets the name of the Icon x. Maximum display on screen: 10 characters/letters but only 4 for Chinese, 6 for Russian or Greek.	12byte text
Function of icon 1	Sets the function of Icon x. ● Switch: Light switch on/off ● Bell function: Press/release switch ● Switch/dim: Light dimming and on/off ● Send value: Sends defined value to bus ● Brightness + Color temperature: Brightness and color temperature control ● Curtain blind: Open/close/stop and sliding 0…100 % **Note**: When curtain blind function is used, the device should be connected to the actuator of kind "shutter". ● Roller shutter: Up/down/stop and sliding 0…100 %, no slats ● Venetian blind: Up/down/stop and sliding 0…100 %, with slats ● Curtain step/move: Open/close/stop curtains ● Roller blind step/move: Up/down/stop roller shutters ● Scene: Short press to recall scene; long press to save scene ● Display 1bit value: Display on/off status of device ● Display value: Display multi-type value (optional with unit) ● Display text: Display string	Switch Bell function Switch/ dim Send value Brightness + Color temperature Curtain blind Roller shutter Venetian blind Curtain step/move Roller blind step/move Scene Display 1bit value Display value Display text
The following parameter is displayed when "Bell function" is selected.		
Operation mode	Sets bell operation mode.	Press - ON / Release - OFF (default) Press - OFF / Release - ON
The following parameters are displayed when "Send value" is selected.		
Data type	Sets data type of object used for value sending.	1bit [On/Off] 2bit [0…3] 4bit [0…15] 1byte value (default) 2byte [0…65535] 2byte [-32768…32767] 4byte [0...4294967295] 4byte float value
Send value when short press	Sets the output value sent by object when short pressing the icon. The value range is based on selected data type.	On Off (default)
Long press operation	Determines whether long operation is enabled or disabled.	Disable (default) Enable
Send value when long press	Sets the output value sent by object when long pressing the icon. The value range is based on selected data type. When "Long press operation" is enabled, this parameter is displayed. (Long press is longer than 0.5 seconds)	On (default) Off

Name			Description	Range
…	The following parameters are displayed when "Brightness + Color temperature" is selected.			
		Reaction on "off "operation	Sets related action when "off" operation is enabled.	Send switch object value off (default) Send RGBW objects value off
		Min. color temperature [2000...7000]	Defines minimum color temperature.	2000..7000 K (default: 2700 K)
		Max. color temperature [2000...7000]	Defines maximum color temperature.	2000..7000 K (default: 6500 K)
	The following parameters are displayed when "Scene" is selected.			
		Scene number for short press	Determines the Scene No. sent when short pressing the icon. Scenes No.1...64 correspond to telegram values 0...63.	Scene No. 1 (default)...Scene No.64
		Long press for scene storage	Configures enable scene storage via long press operation. (Long press means pressing longer than 3 seconds)	Disable (default) Enable
		Status active	Defines if enable or disable scene icon on function page. ● Enable: Selected scene icon is on. ● Disable: No changes to selected scene icons.	Disable Enable (default)
	The following parameters are displayed when "Display value" is selected.			
		Data type	Sets data type of object used for displaying value.	1byte unsigned value (DPT 5.010) (default) 1byte percentage value (DPT 5.001) 2byte unsigned value (DPT 7.001) 2byte signed value (DPT 8.001) 2byte float value (DPT 9.x) Temperature value (DPT 9.001) Pressure value (DPT 9.006) Humidity value (DPT 9.007) CO_2 value (DPT 9.008) Air flow (DPT 9.009) Concentration (DPT 9.030) 4byte unsigned value (DPT 12.001) 4byte float value (DPT 14.x)
		Factor (Display=value x factor x 0.1)	Defines the factor used for value display.	1...100 (default: 10)
		Decimal places	Defines decimal place. This parameter is displayed when 2byte values are selected.	Integer: 0...1 (default: 0) Float: 0...2 (default: 1)
		Unit text	Defines display unit.	5byte text

Communication objects

Note

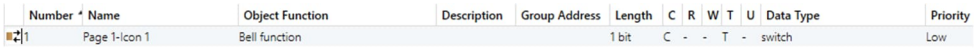
Page number x range: 1...12, Icon number y range: 1...6

Switch

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	Page 1-Icon 1	Switching			1 bit	C	-	-	T	-	switch	Low
3	Page 1-Icon 1	Status switching			1 bit	C	-	W	T	U	switch	Low

No.	Name	Object function	Length	Flag	Data type
1	Page x-Icon y	Switching	1 bit	CT	1.001 switch
Sends on/off telegrams to bus and controls the on /off of the lamp. Telegram value: 0: Off 1: On					
3	Page x-Icon y	Status switching	1 bit	CWTU	1.001 switch
Receives on/off status from other bus devices, such as dimmers and switch actuators.					

Bell function



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	Page 1-Icon 1	Bell function			1 bit	C	-	-	T	-	switch	Low

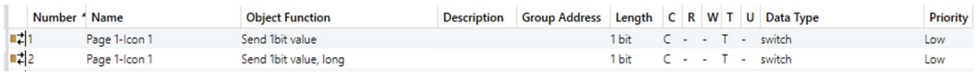
No.	Name	Object function	Length	Flag	Data type
1	Page x-Icon y	Bell function	1 bit	CT	1.001 switch
Sends on/off telegram to bus and controls the on/off of the bell. Telegram value: 0: Off 1: On					

Switch/dim

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	Page 1-Icon 1	Switching			1 bit	C	-	-	T	-	switch	Low
2	Page 1-Icon 1	Dim value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
3	Page 1-Icon 1	Status switching			1 bit	C	-	W	T	U	switch	Low
4	Page 1-Icon 1	Dimming			4 bit	C	-	W	T	-	dimming control	Low
5	Page 1-Icon 1	Status dim value			1 byte	C	-	W	T	U	percentage (0..100%)	Low

No.	Name	Object function	Length	Flag	Data type
1	Page x-Icon y	Switching	1 bit	CT	1.001 switch
Sends on/off telegram to bus and controls the on/off of the lamp. Telegram value: 0: Off 1: On					
2	Page x-Icon y	Dim value	1 byte	CT	5.001 percentage (0...100 %)
Sends dimming telegram to the bus, i.e., to send brightness values. Telegram: 0…100 %					
3	Page x-Icon y	Status switching	1 bit	CWTU	1.001 switch
Receives on/off status from other bus devices, such as dimmers and switch actuators.					
4	Page x-Icon y	Dimming	4 bits	CWT	3.007 dimming control
Sends the relative dimming telegram to bus, such as brighter, darker, or stop-dimming telegram.					
5	Page x-Icon y	Status dim value	1 byte	CWTU	5.001 percentage (0...100 %)
Receives the brightness status of the light in response to the dimmer. Telegram: 0…100 %					

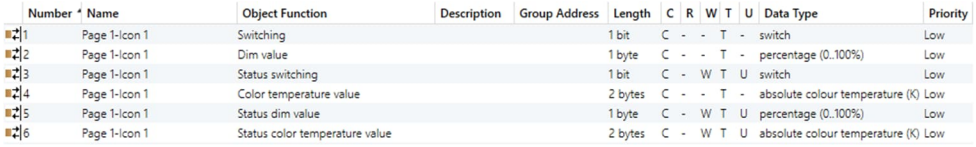
Send value



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	Page 1-Icon 1	Send 1bit value			1 bit	C	-	-	T	-	switch	Low
2	Page 1-Icon 1	Send 1bit value, long			1 bit	C	-	-	T	-	switch	Low

No.	Name	Object function	Length	Flag	Data type
1	Page x-Icon y	Send 1bit/2bit/4bit value Send 1byte /2byte unsigned value Send 1byte percent value Send 2byte signed value Send 4byte unsigned value Send 4byte float value	1bit on/off 2bit 0...3 4bit 0...15 1byte value 2byte 0...65535 2byte -32768...32767 4byte [0...4294967295] 4byte float value	CT	1.001 switch 2.001 switch control 3.007 dimming control 5.010 counter pulses (0...255) 5.001 percentage (0...100%) 7.001 pulses 8.001 pulses difference 12.001 counter pulses 14.x float value
Sends the preset output value of the parameter. The object type and value range are based on the data type set by the parameter.					
2	Page x-Icon y	Send 1bit/2bit/4bit value, long Send 1byte /2byte unsigned value, long Send 1byte percent value, long Send 2byte signed value, long	1bit on/off 2bit 0...3 4bit 0...15 1byte value 2byte 0...65535 2byte -32768...32767	CT	1.001 switch 2.001 switch control 3.007 dimming control 5.010 counter pulses (0...255) 5.001 percentage (0...100%) 7.001 pulses 8.001 pulses difference
Sends the preset output value of the parameter. It is displayed when "long press operation" is enabled and only for sending the output value of long press operation. The object type and value range are based on data type set by the parameter.					

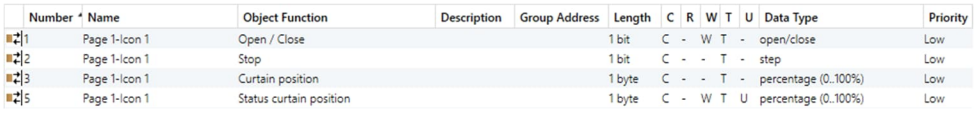
Brightness + Color temperature



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	Page 1-Icon 1	Switching			1 bit	C	-	-	T	-	switch	Low
2	Page 1-Icon 1	Dim value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
3	Page 1-Icon 1	Status switching			1 bit	C	-	W	T	U	switch	Low
4	Page 1-Icon 1	Color temperature value			2 bytes	C	-	-	T	-	absolute colour temperature (K)	Low
5	Page 1-Icon 1	Status dim value			1 byte	C	-	W	T	U	percentage (0..100%)	Low
6	Page 1-Icon 1	Status color temperature value			2 bytes	C	-	W	T	U	absolute colour temperature (K)	Low

No.	Name	Object function	Length	Flag	Data type
1	Page x-Icon y	Switching	1 bit	CT	1.001 switch
Sends the on/off telegram to bus and controls the on/off of the lamp. Telegram value: 0: Off 1: On					
2	Page x-Icon y	Dim value	1 byte	CT	5.001 percentage (0...100 %)
Sends dimming telegram to the bus, i.e., to send brightness values. Telegram: 0…100 %					
3	Page x-Icon y	Status switching	1 bit	CWTU	1.001 switch
Receives the on/off status from other bus devices, such as Dimmer and Switch actuator.					
4	Page x-Icon y	Color temperature value	2 bytes	CT	7.600 absolute color temperature
Sends the color temperature value to bus. Telegram value: 2000...7000 K					
5	Page x-Icon y	Status dim value	1 byte	CWTU	5.001 percentage (0...100 %)
Receives the brightness status of the light in response to the dimmer. Telegram: 0…100 %					
6	Page x-Icon y	Status color temperature value	2 bytes	CWTU	7.600 absolute color temperature
Receives color temperature value status. Telegram value: 2000...7000 K					

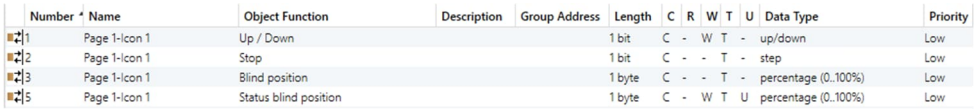
Curtain blind



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	Page 1-Icon 1	Open / Close			1 bit	C	-	W	T	-	open/close	Low
2	Page 1-Icon 1	Stop			1 bit	C	-	-	T	-	step	Low
3	Page 1-Icon 1	Curtain position			1 byte	C	-	-	T	-	percentage (0..100%)	Low
5	Page 1-Icon 1	Status curtain position			1 byte	C	-	W	T	U	percentage (0..100%)	Low

No.	Name	Object function	Length	Flag	Data type
1	Page x-Icon y	Open / Close	1 bit	CWT	1.009 open/close
Sends the open/close telegram to bus. Telegram value: 0: Open the curtain 1: Close the curtain					
2	Page x-Icon y	Stop	1 bit	CT	1.007 step
Sends a telegram for stopping the curtain movement to bus. Telegram value: 0&1: Stop					
3	Page x-Icon y	Curtain position	1 byte	CT	5.001 percentage (0...100 %)
Sends a telegram to control the position of the curtain to bus. Telegram value: 0...100 %					
5	Page x-Icon y	Status curtain position	1 byte	CWTU	5.001 percentage (0...100 %)
Receives a curtain position status in response to the window curtain actuator on bus. Telegram value: 0...100 %					

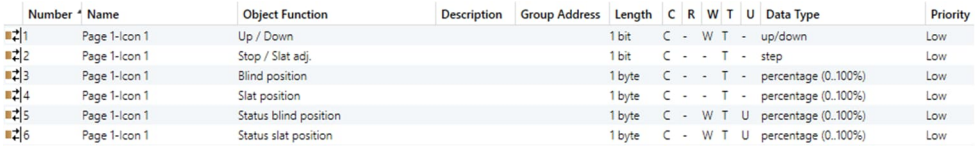
Roller shutter



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	Page 1-Icon 1	Up / Down			1 bit	C	-	W	T	-	up/down	Low
2	Page 1-Icon 1	Stop			1 bit	C	-	-	T	-	step	Low
3	Page 1-Icon 1	Blind position			1 byte	C	-	-	T	-	percentage (0..100%)	Low
5	Page 1-Icon 1	Status blind position			1 byte	C	-	W	T	U	percentage (0..100%)	Low

No.	Name	Object function	Length	Flag	Data type
1	Page x-Icon y	Up / Down	1 bit	CWT	1.008 up/down
Sends a telegram value to bus to control the opening/closing of the Roller shutter. Telegram value: 0: Move up 1: Move down					
2	Page x-Icon y	Stop	1 bit	CT	1.007 step
Sends a telegram for stopping the roller shutter movement to bus. Telegram value: 0&1: Stop					
3	Page x-Icon y	Blind position	1 byte	CT	5.001 percentage (0...100 %)
Sends a telegram to control the position of the roller shutter to bus. Telegram value: 0...100 %					
5	Page x-Icon y	Status blind position	1 byte	CWTU	5.001 percentage (0...100 %)
Receives a roller shutter position status in response to the roller shutter actuator on bus. Telegram value: 0...100 %					

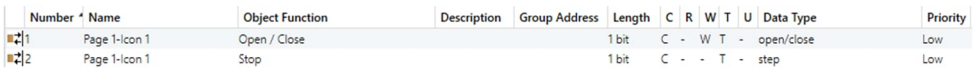
Venetian blind



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	Page 1-Icon 1	Up / Down			1 bit	C	-	W	T	-	up/down	Low
2	Page 1-Icon 1	Stop / Slat adj.			1 bit	C	-	-	T	-	step	Low
3	Page 1-Icon 1	Blind position			1 byte	C	-	-	T	-	percentage (0..100%)	Low
4	Page 1-Icon 1	Slat position			1 byte	C	-	-	T	-	percentage (0..100%)	Low
5	Page 1-Icon 1	Status blind position			1 byte	C	-	W	T	U	percentage (0..100%)	Low
6	Page 1-Icon 1	Status slat position			1 byte	C	-	W	T	U	percentage (0..100%)	Low

No.	Name	Object function	Length	Flag	Data type
1	Page x-Icon y	Up / Down	1 bit	CWT	1.008 up/down
Sends a telegram value to bus to control the opening/closing of the venetian blinds. Telegram value: 0: Move up 1: Move down					
2	Page x-Icon y	Stop / Slat adj.	1 bit	CT	1.007 step
Sends a telegram to bus to stop the movement of the venetian blinds or adjust the slat angle. Telegram value: 0: Stop/Slat adj. Up 1: Stop/Slat adj. Down					
3	Page x-Icon y	Blind position	1 byte	CT	5.001 percentage (0...100 %)
Sends a telegram to control the position of the venetian blinds to bus. Telegram value: 0...100 %					
4	Page x-Icon y	Slat position	1 byte	CT	5.001 percentage (0...100 %)
Receives a venetian blind position status in response to the venetian blind actuator on bus. Telegram value: 0...100 %					
5	Page x-Icon y	Status blind position	1 byte	CWTU	5.001 percentage (0...100 %)
Sends a telegram to control the angle position of the slats to bus. Telegram value: 0...100 %					
6	Page x-Icon y	Status slat position	1 byte	CWTU	5.001 percentage (0...100 %)
Receives the slat angle position state from bus. Telegram value: 0...100 %					

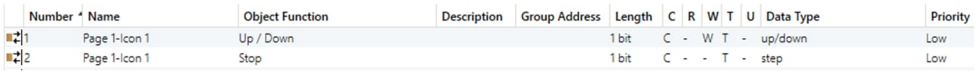
Curtain step/move



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	Page 1-Icon 1	Open / Close			1 bit	C	-	W	T	-	open/close	Low
2	Page 1-Icon 1	Stop			1 bit	C	-	-	T	-	step	Low

No.	Name	Object function	Length	Flag	Data type
1	Page x-Icon y	Open / Close	1 bit	CWT	1.009 open/close
Sends the open/close telegram to bus. Telegram value: 0: Open the curtain 1: Close the curtain					
2	Page x-Icon y	Stop	1 bit	CT	1.007 step
Sends a telegram to stop movement of blinds. Telegram value: 0&1: Stop					

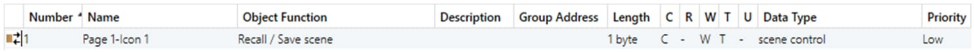
Roller blind step/move



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	Page 1-Icon 1	Up / Down			1 bit	C	-	W	T	-	up/down	Low
2	Page 1-Icon 1	Stop			1 bit	C	-	-	T	-	step	Low

No.	Name	Object function	Length	Flag	Data type
1	Page x-Icon y	Up / Down	1 bit	CWT	1.008 up/down
Sends a telegram value to bus to control the opening/closing of the Roller shutter. Telegram value: 0: Move up 1: Move down					
2	Page x-Icon y	Stop	1 bit	CT	1.007 step
Sends a telegram to stop movement of blinds to bus. Telegram value: 0&1: Stop					

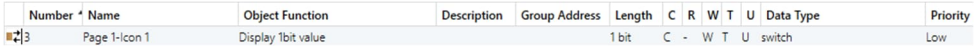
Scene



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
1	Page 1-Icon 1	Recall / Save scene			1 byte	C	-	W	T	-	scene control	Low

No.	Name	Object function	Length	Flag	Data type
1	Page x-Icon y	Recall / Save scene	1 byte	CWT	18.001 scene control
Sends a telegram of scene recall or scene storage. The highest bit 1 is the scene storage, and the highest bit 0 is the scene recall.					

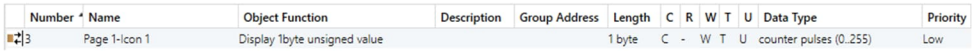
Display 1bit value



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
3	Page 1-Icon 1	Display 1bit value			1 bit	C	-	W	T	U	switch	Low

No.	Name	Object function	Length	Flag	Data type
3	Page x-Icon y	Display 1bit value	1 bit	CWTU	1.001 switch
Sends a telegram of 1 bit value display.					

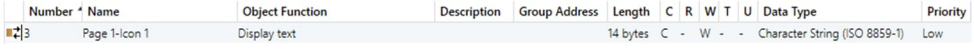
Display value



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
3	Page 1-Icon 1	Display 1byte unsigned value			1 byte	C	-	W	T	U	counter pulses (0..255)	Low

No.	Name	Object function	Length	Flag	Data type
3	Page x-Icon y	Display 1byte unsigned value Display 1byte percentage value Display 2byte unsigned value Display 2byte signed value Display 2byte float value Display temperature value Display pressure value Display humidity value Display CO2 value Display air flow value Display concentration value Display 4byte unsigned value Display 4byte float value	1byte unsigned value (DPT 5.010) 1byte percentage value (DPT 5.001) 2byte unsigned value (DPT 7.001) 2byte signed value (DPT 8.001) 2byte float value (DPT 9.x) Temperature value (DPT 9.001) Pressure value (DPT 9.006) Humidity value (DPT 9.007) CO2 value (DPT 9.008) Air flow (DPT 9.009) Concentration (DPT 9.030) 4byte unsigned value (DPT 12.001) 4byte float value (DPT 14.x)	CWTU	5.010 counter pulses (0...255) 5.001 percentage value 7.001 pulse 8.001 pulse difference 9.x float value 9.001 Temperature 9.006 Pressure (pa) 9.007 Humidity 9.008 parts/million (ppm) 9.009 Air flow (m^3/h) 9.030 concentration (ug/m^3) 12.001 counter pulses 14.x float value
Sends telegrams of value display.					

Display text



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
3	Page 1-Icon 1	Display text			14 bytes	C	-	W	-	-	Character String (ISO 8859-1)	Low

No.	Name	Object function	Length	Flag	Data type
3	Page x-Icon y	Display text	14 bytes	CW	16.001 character string (ISO 8859-1)
Sends a telegram of text display.					

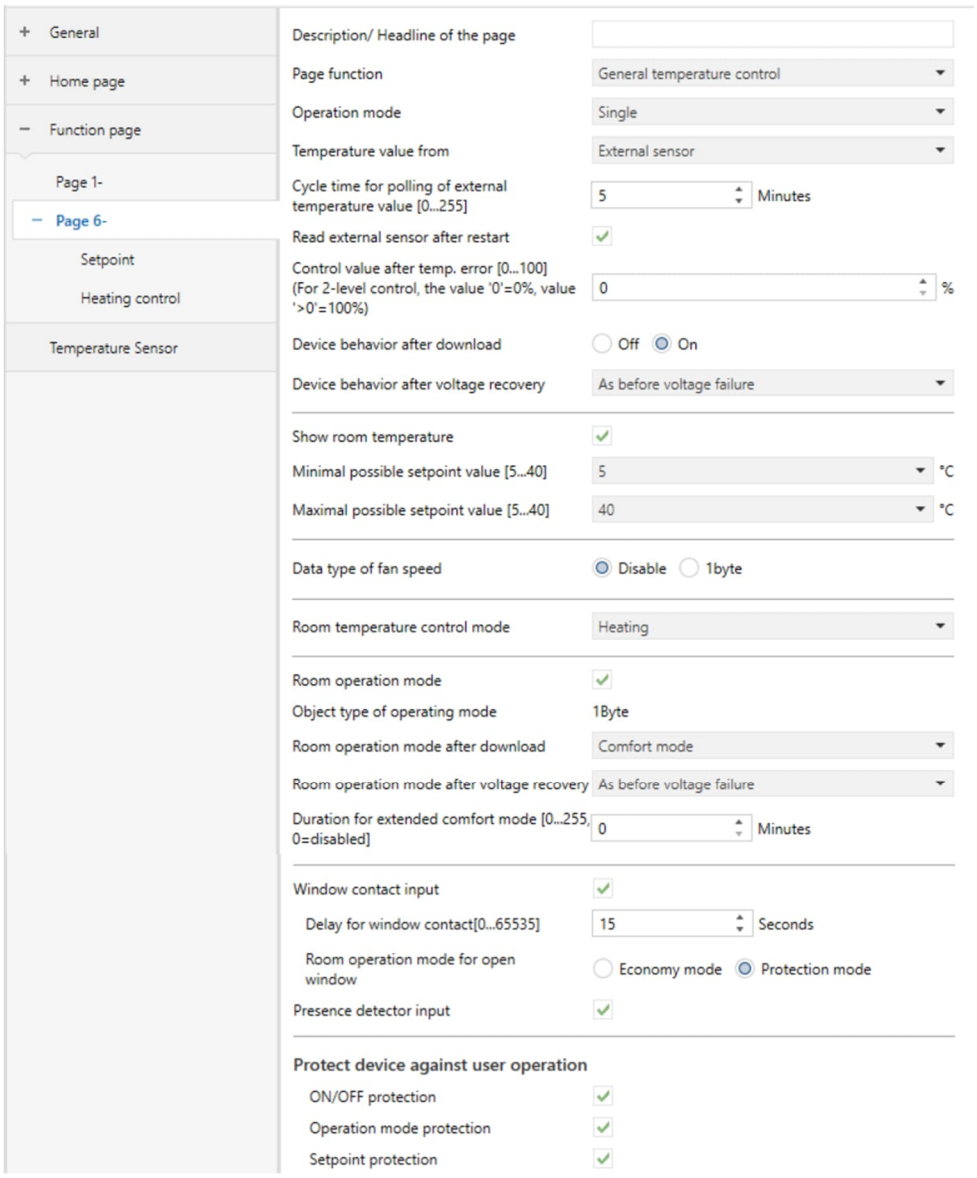
3.3.2 "Page x - General temperature control" parameters and communication objects

Parameters

Assign "Page x" as a single function –"General Temp. Control" page. General temperature control manages the following:

- Heating / Cooling separately or Heating and Cooling for 2-pipe/4-pipe systems
- Temperature setpoint adjustment (absolute or relative)
- 4 operating modes (Comfort, Economy, Standby, Protection)
- PI loop with selectable PWM and modulating (continuous) control
- With or without fan speed control

The device can be configured for a number of heating and/or cooling applications, such as fan coil application, chilled ceiling, electric heating.



Name	Description	Range
Description/Headline of the page	Names the "Function page x". **Note**: ● Supports multiple languages. To display properly on screen, set "Codepage" to "Unicode (UTF-8)". Refer to **Language in display** in Parameter and communication objects [→ 41]. ● Approximately 12 characters can be displayed. It depends on the width of the single character as the space is limited on the display.	15byte text
Page function	Configures the type of function page. **Note**: Pages 1...5 multifunction only; pages 6...12 can be either multifunction or single functions.	Multifunction (Lighting/Blind/Scene/Send value/Display) General temperature control Enhanced floor heating VRF Interface & Operation Ventilation System Air Quality display Energy Metering display Color and color temperature control Audio control
Operation mode	Sets operation mode. ● Single: Device is set to single control using a temperature control algorithm and direct actuator control. ● Manager: Device is set to multi-control with temperature control algorithm and as main output device for temperature control. Upon restarts, current status of switch, temperature setpoint, control mode, operating mode and fan speed read requests are sent to bus. ● Subordinate: Device is set to subordinate temperature control. It can only be used for touch control and display. When device restarts, read request of switch, temperature setpoint, control mode, operating mode and fan speed is sent to bus.	Single (default) Manager Subordinate
Temperature value from	Sets the resource of the temperature reference. ● Internal sensor: Built-in temperature sensor. The configuration refers to "Temperature sensor" [→ 115] ● External sensor: Temperature value over bus ● Internal and external sensor weighted: Using calculated value	Internal sensor (default) External sensor Internal and external sensor weighted
The following parameters are displayed only when "Internal and external sensor weighted" is selected.		
Weighting of internal and external value	Defines the exact weighting as a percentage.	10% internal, 90% external; 20% internal, 80% external; 30% internal, 70% external; 40% internal, 60% external; 50% internal, 50% external; (default) 60% internal, 40% external; 70% internal, 30% external; 80% internal, 20% external; 90% internal, 10% external
Change of actual temperature value for automatic sending	Defines automatic telegram sending when temperature changes.	Disable 0.5 K 1.0 K (default) 1.5 K ... 10 K
Cycle time for automatic sending of the actual temperature value [0…255, 0=disabled]	Defines automatic telegram sending cycle.	0...255 minutes (default: 0)

Name	Description	Range
The following parameters are displayed when "External sensor" or "Internal and external sensor weighted" is selected.		
Cycle time for polling of external temperature sensor [0...255]	Defines the period after which a read request is sent to get external value.	0…255 min (default: 5)
Read external sensor after restart	After the device is reset or programmed, a read request is sent or not.	No Yes (default)
The following parameters are displayed when "Single" or "Manager" is selected.		
Control value after temp. error [0…100%] (For 2-level control, the value '0'=0%, value '>0'=100%)	Setting for the control value when temperature error occurs. For 2-point control: If the parameter value is 0, the control value is set to 0 %; if the parameter value is more than 0, the control value is set to 100 %.	0...100 % (default: 0)
Device behavior after download	Indicates whether the controlled HVAC device or system is powered on/off after download.	Off On (default)
Device behavior after voltage recovery	Indicates whether the controlled HVAC device or system is powered on/off after voltage recovery.	On Off As before voltage failure (default)
Show room temperature	Sets whether to display current room temperature on General temperature control page.	Disable Enable (default)
The following parameter is displayed when "Subordinate" is selected.		
Enable room temperature setpoint shift	Sets whether room temperature setpoint shift is enabled. If setting to “Disable”, absolute setpoint is performed.	Disable (default) Enable
The following parameters are displayed when "Single" or "Manager" is selected or when "Subordinate" is selected & "Enable room temperature setpoint shift" is disabled.		
Minimal possible setpoint value [5...40]*	Configures the allowed minimum temperature setpoint.	5...40 ℃ (default: 5 °C)
Maximal possible setpoint value [5...40]*	Configures the allowed maximum temperature setpoint.	5...40 ℃ (default: 40 °C)
The following parameters are displayed when "Subordinate" is selected and "Enable room temperature setpoint shift" is enabled.		
Maximal negative temp. shift	Defines maximal negative temperature shift value.	-10...0 K (default: -3 K)
Maximal positive temp. shift	Defines maximal positive temperature shift value.	0...10 K (default: 3 K)
Temperature shift in steps of	Defines shift step.	0.1 / 0.2 / 0.5 / 1.0 / 2.0 K (default: 0.5 K)
Setpoint Visualization	Defines setpoint display type.	Relative (default) Absolute
The following parameter is displayed when "Absolute" is selected.		
Initial setpoint	Initial base setpoint	12.0...32.0 °C (default: 22.0 °C)
Data type of fan speed	Sets control type of fan speed. ● Disable: No fan operation ● 1bit: With fan speed operation **Note**: "1 bit" is displayed only if "Operation mode" is set as "Manager". ● 1byte: With fan speed operation and a separate page for configuration	Disable (default) 1bit 1byte
The following parameters are displayed when "Manager" and "1bit" are selected.		
1 bit object for fan speed off	Sets whether to enable fan speed off 1bit object.	Disable (default) Enable
Auto Operation (demand based ventilation)	Sets whether to enable auto operation of fan speed.	Disable (default) Enable
Room temperature control mode	Sets control mode.	Heating (default) Cooling Heating and cooling

Name	Description	Range
The following parameters are displayed when "Heating and cooling" and "Manager" / "Single" are selected.		
Heating/Cooling switchover	Sets heating/cooling switchover.	Only via screen Only via object Via both screen and object (default) Automatic changeover
Datatype of switchover mode	Defines heating/cooling switching data type. This parameter is displayed only when "Heating/Cooling switchover" is set as "Only via object" and "Via both screen and object".	1bit
Control mode after download	Sets the control mode after download.	Heating (default) Cooling
Control mode after voltage recovery	Sets the heating/cooling status after voltage recovery.	Heating Cooling As before voltage failure (default)
Room temperature control system	Sets the type of HVAC control system, i.e., pipe types for fan coil water inlet/outlet.	2 pipes system 4 pipes system (default)
Room operation mode	Sets whether to enable HVAC operation mode.	Disable Enable (default)
Option: Enable	The following parameters are displayed when "Room operation mode" is enabled.	
Visualization of Operation mode	Defines the display format of operation mode.	Text (default) Symbols DRA Symbols
Object type of operating mode	Defines the object type of operation mode. **Note**: Values 4×1Bit and 4×1Bit & 1byte display only when "Operation mode" is set as "Manager".	4×1Bit 1 Byte 4×1Bit & 1byte
The following parameters are displayed when "Single" or "Manager" is selected.		
Room operation mode after download	Sets the room operating mode after download.	Comfort mode (default) Standby mode Economy mode
Room operation mode after voltage recovery	Sets the room operating mode after voltage recovery.	Comfort mode Standby mode Economy mode As before voltage failure (default)
Duration for extended comfort mode [0...255, 0=disabled]	Sets the time delay in minutes for comfort mode automatically returning to Economy mode. ● 0=disabled, means "Comfort mode" does not automatically go to "Economy mode".	0…255 min (default: 0 min)
Window contact input	Enable or disable window contact input.	Disable (default) Enable
When "Window contact input" is enabled, the following parameters are displayed.		
Delay for window contact [0...65535]	Sets the delay time for window contact detection. ● Window open does not detect if window is opened within the set period. ● Otherwise, window open is detected.	0..65535 s (default: 15 s)
Room operation mode for open window	Sets room operating mode when window is open.	Economy mode Protection mode (default)
Presence detector input	Enable or disable presence detector input. **Note**: Displayed only when "Operation mode" is set as "Manager" or "Single".	Disable (default) Enable

Name		Description	Range
The following parameters are displayed when "Subordinate" is selected.			
	Green leaf	Enable or disable green leaf.	Disable (default) Enable
	Presence button	Presence setting via button on the display. ● Disable: Presence setting is disabled. ● Manually: Presence setting must be reset manually. ● Timer: Presence setting is reset automatically after schedule ends.	Disable (default) Manually Timer
Temperature setpoint is configured in a separate page. Refer to "Setpoint" parameters [→ 77]			
Option: Disable		The following parameter is displayed when "Room operation mode" is disabled and "Manager" / "Single" is selected.	
	Base setpoint (°C)	Sets initial temperature setpoint.	10.0 / 10.5 /11.0 / 11.5 / … / 34.0 / 34.5 / 35.0 °C (default: 20 °C)
The following parameters are displayed when "Heating and cooling" and "Subordinate" are selected.			
	Heating/Cooling switchover	Sets heating/cooling switchover.	Only via object
	Datatype of switchover mode	Defines heating/cooling switching data type.	1bit (default) 1byte
Protect device against user operation: When enabled, users cannot change items via HMI.			
ON/OFF protection		Enable or disable on/off protection.	Disable (default) Enable
Operation mode protection		Enable or disable operating mode protection. **Note**: Displayed only when "Room operation mode" is enabled.	Disable (default) Enable
Setpoint protection		Enable or disable setpoint protection.	Disable (default) Enable
The following parameter is displayed when "Data type of fan speed" is enabled.			
	Fan protection	Enable or disable fan protection.	Disable (default) Enable

Note

* Minimum and maximum setpoint value:

The minimum set point value cannot exceed the maximum value. The output is limited to the upper/lower limit value in this case.

Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6- (receive/send)	External temperature			2 bytes	C	-	W	T	U	temperature (°C)	Low
247	Page 6- (receive)	Setpoint (°C), base or absolute			2 bytes	C	-	W	-	U	temperature (°C)	Low
248	Page 6- (receive)	Control mode (0 = Cooling / 1 = Heating)			1 bit	C	-	W	-	U	cooling/heating	Low
249	Page 6- (receive)	Comfort mode			1 bit	C	-	W	-	U	enable	Low
250	Page 6- (receive)	Standby mode			1 bit	C	-	W	-	U	enable	Low
251	Page 6- (receive)	Economy mode			1 bit	C	-	W	-	U	enable	Low
252	Page 6- (receive)	Protection mode			1 bit	C	-	W	-	U	enable	Low
253	Page 6- (receive)	Fan speed low			1 bit	C	-	W	T	U	switch	Low
254	Page 6- (receive)	Fan speed medium			1 bit	C	-	W	T	U	switch	Low
255	Page 6- (receive)	Fan speed high			1 bit	C	-	W	T	U	switch	Low
256	Page 6- (receive)	Fan speed off			1 bit	C	-	W	T	U	switch	Low
257	Page 6- (receive)	Fan speed auto			1 bit	C	-	W	T	U	enable	Low
258	Page 6- (send)	Effective setpoint			2 bytes	C	R	-	T	-	temperature (°C)	Low
259	Page 6- (send)	Control mode (0 = Cooling / 1 = Heating)			1 bit	C	R	-	T	-	cooling/heating	Low
260	Page 6- (send)	Comfort mode			1 bit	C	R	-	T	-	enable	Low
261	Page 6- (send)	Standby mode			1 bit	C	R	-	T	-	enable	Low
262	Page 6- (send)	Economy mode			1 bit	C	R	-	T	-	enable	Low
263	Page 6- (send)	Protection mode			1 bit	C	R	-	T	-	enable	Low
264	Page 6- (send)	Heating control value			1 bit	C	-	-	T	-	switch	Low
265	Page 6- (send)	Cooling control value			1 bit	C	-	-	T	-	switch	Low
266	Page 6- (send)	Fan speed low			1 bit	C	-	-	T	-	switch	Low
267	Page 6- (send)	Fan speed medium			1 bit	C	-	-	T	-	switch	Low
268	Page 6- (send)	Fan speed high			1 bit	C	-	-	T	-	switch	Low
269	Page 6- (send)	Fan speed off			1 bit	C	-	-	T	-	switch	Low
270	Page 6- (send)	Fan speed auto			1 bit	C	R	-	T	-	enable	Low
271	Page 6- (send)	Power On/Off			1 bit	C	R	-	T	-	switch	Low
272	Page 6- (send)	Base setpoint (°C)			2 bytes	C	-	-	T	-	temperature (°C)	Low
273	Page 6- (send)	Actual temperature			2 bytes	C	R	-	T	-	temperature (°C)	Low
274	Page 6- (receive)	Power On/Off			1 bit	C	-	W	-	U	switch	Low
275	Page 6- (receive)	Operation mode			1 byte	C	-	W	-	U	HVAC mode	Low
276	Page 6- (send)	Operation mode			1 byte	C	R	-	T	-	HVAC mode	Low
277	Page 6- (receive)	Fan speed			1 byte	C	-	W	T	U	percentage (0..100%)	Low
278	Page 6- (send)	Fan speed			1 byte	C	R	-	T	-	percentage (0..100%)	Low
279	Page 6- (receive/send)	Window contact			1 bit	C	-	W	T	U	window/door	Low
280	Page 6- (receive/send)	Presence detector			1 bit	C	-	W	T	U	occupancy	Low
281	Page 6- (receive)	Room Energy Efficiency for Room Unit			1 byte	C	-	W	T	U	counter pulses (0..255)	Low
282	Page 6- (send)	Reset Energy Efficiency			1 bit	C	-	-	T	-	reset	Low
283	Page 6- (receive)	Presence button for Room Unit			1 bit	C	-	W	T	U	occupancy	Low
284	Page 6- (send)	Presence button input			1 bit	C	-	-	T	-	occupancy	Low
294	Page 6- (receive)	Lock			1 bit	C	-	W	-	-	enable	Low
247	Page 6- (receive)	Setpoint relative (K) output			2 bytes	C	-	W	T	U	temperature difference (K)	Low
248	Page 6- (receive)	Control mode (0 = None / 1 = Cooling / 2 = Heating)			1 byte	C	-	W	T	U	changeover mode	Low
258	Page 6- (send)	Setpoint relative (K) input			2 bytes	C	R	-	T	-	temperature difference (K)	Low
272	Page 6- (receive)	Setpoint absolute (°C) output			2 bytes	C	-	W	T	U	temperature (°C)	Low

Note

Page number x range: 1...12

No.	Name	Object function	Length	Flag	Data type
246	Page x- (receive/send)	External temperature	2 bytes	CWTU	9.001 temperature (°C)
Receives a temperature measurement value sent from a temperature sensor on bus or sends read requests to bus. Range: -50...99.8 °C					
247	Page x- (receive)	Setpoint (°C), base or absolute	2 bytes	Manager: CWU Subordinate: CWTU	9.001 temperature (°C)
Changes base temperature setpoint, i.e., Comfort temperature setpoint. Standby and Economy temperature setpoints are changed using a relative shift. If "Subordinate" is selected, the communication object is displayed only when parameter "Enable room temperature setpoint shift" is disabled.					
247	Page x- (receive)	Setpoint relative (K) output	2 bytes	Subordinate: CWTU	9.002 temperature difference (K)
Receives setpoint relative output from bus. The communication object is displayed only when "Subordinate" is selected, and parameter "Enable room temperature setpoint shift" is enabled.					
248	Page x- (receive)	Control mode (0 = Cooling / 1 = Heating)	1 bit	Manager & Single: CWU Subordinate: CWTU	1.100 cooling/heating
Receives the status feedback from heating and cooling on the bus, and the icon display is updated on screen to receive the telegram value. The telegram value is as follows: 0: Cooling 1: Heating					

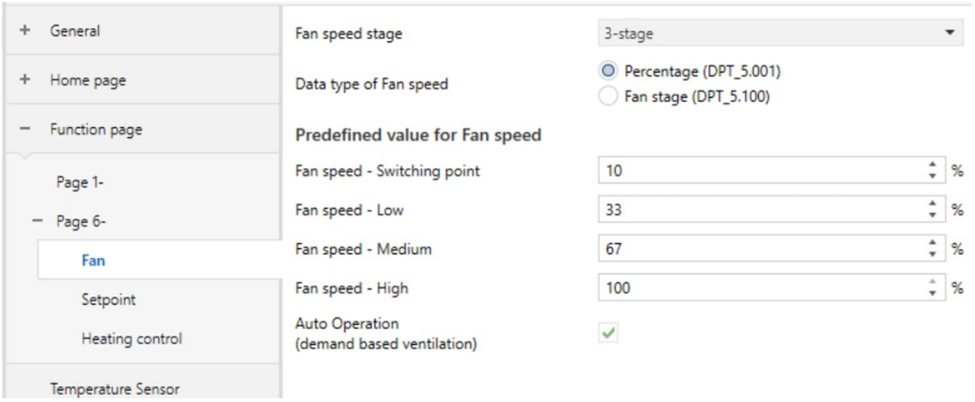
No.	Name	Object function	Length	Flag	Data type
248	Page x- (receive)	Control mode (0 = None / 1 = Cooling / 2 = Heating)	1 byte	Subordinate: CWTU	20.107 changeover mode
Receives the heating and cooling status from bus, and the icon display is updated based on the value received from bus. The telegram value is as follows: 0: None 1: Cooling 2: Heating The communication object is displayed only when "Subordinate" is selected and parameter "Datatype of switchover mode" is set as 1 byte.					
249 250 251 252	Page x- (receive)	Comfort mode Standby mode Economy mode Protection mode	1 bit	CWU	1.003 enable
Receives status feedback from operating mode control. Telegram "1" activates the related operating mode. The communication objects display when "Manager" is selected and parameter 'Operation mode" is enabled.					
253 254 255 256	Page x- (receive)	Fan speed low Fan speed medium Fan speed high Fan speed off	1 bit	CWTU	1.001 switch
Receives status feedback from fan speed control. Telegram "1" activates related fan speed. If "1bit off" is not enabled, fan speed off is displayed when telegram "0" is received. Otherwise, "0" has no effect. The communication objects are only visible when "Manager" is selected.					
257	Page x- (receive)	Fan speed auto	1 bit	CWTU	1.003 enable
Receives status feedback from automatic fan speed control. Telegram value: 0: Cancel automatic 1: Enable automatic The communication object is displayed only when "Manager" is selected and parameter "Auto Operation (demand based ventilation)" is enabled.					
258	Page x- (send)	Effective setpoint	2 bytes	Manager: CRT Subordinate: CT	9.001 temperature (℃)
Sends current temperature setpoint to bus. The communication object does not display when "Single" is selected.					
258	Page x- (send)	Setpoint relative (K) input	2 bytes	Subordinate: CRT	9.002 temperature difference (K)
Sends setpoint relative input to bus. The communication object is displayed only when "Subordinate" is selected, parameter "Enable room temperature setpoint shift" is enabled.					
259	Page x- (send)	Control mode (0 = Cooling / 1 = Heating)	1 bit	Manager: CRT Subordinate: CT	1.100 cooling/heating
Sends the telegram of heating and cooling changeover to bus. The telegram value is as follows: 0: Cooling 1: Heating The communication object does not display when "Single" is selected.					
260 261 262 263	Page x- (send)	Comfort mode Standby mode Economy mode Protection mode	1 bit	CRT	1.003 enable
Sends status of operating mode state to bus. The related object "1" to bus if activated. The communication objects only display when "Manager" is selected. It does not display if "Auto Operation (demand based ventilation)" is set to "1byte".					

No.	Name	Object function	Length	Flag	Data type
264	Page x- (send)	Heating control value	1 bit 1 byte	CT	1.001 switch / 5.001 percentage (0...100 %)
Sends the heating control value to switch HVAC and adjust the indoor temperature. Send telegram value (On/Off - two level control): on/off Send telegram value (PWM - PI control switching (1 bit)): on/off Send telegram value (Modulating - PI control continuous (8 bit)): 0...100% The communication object does not display when "Subordinate" is selected.					
265	Page x- (send)	Cooling control value	1 bit 1 byte	CT	1.001 switch 5.001 percentage (0...100 %)
Sends the cooling control value to switch HVAC and adjust the indoor temperature. Send telegram value (On/Off - two level control): On/Off Send telegram value (PWM - PI control switching (1 bit)): On/Off Send telegram value (Modulating - PI control continuous (8 bit)): 0...100% The communication object does not display when "Subordinate" is selected.					
266 267 268 269	Page x- (send)	Fan speed low Fan speed medium Fan speed high Fan speed off	1 bit	CT	1.001 switch
Sends the state of fan speed control. If telegram "1" is received, related fan speed is activated. If "1bit off" is not enabled, fan speed off is displayed for telegram "0". Otherwise, "0" has no effect. These communication objects only display when "Manager" is selected and parameter "Data type of fan speed" is set as "1bit".					
270	Page x- (send)	Fan speed auto	1 bit	Manager: CRT Subordinate & Single: CT	1.003 enable
Sends an automatic control telegram of the fan speed to bus. Telegram value: 0: Cancel automatic 1: Automatic					
271	Page x- (send)	Power On/Off	1 bit	Manager: CRT Subordinate: CT	1.001 switch
Sends thermostat switch state to bus. The communication object does not display when "Single" is selected.					
272	Page x- (send)	Base setpoint (°C)	2 bytes	CT	9.001 temperature (°C)
Sends current base temperature setpoint to bus. The communication object is displayed only when "Manager" is selected.					
272	Page x- (receive)	Setpoint absolute (°C) output	2 bytes	Subordinate: CWTU	9.001 temperature (°C)
Receives setpoint absolute output from bus and is displayed on device. The communication object is displayed only when "Subordinate" is selected, parameter "Enable room temperature setpoint shift" is enabled and parameter "Setpoint Visualization" is set as "Absolute".					
273	Page x- (send)	Actual temperature	2 bytes	CRT	9.001 temperature (°C)
Sends the combined actual temperature value to bus. The communication object is displayed only when parameter "Temperature value from" is set as "Internal and external sensor weighted".					
274	Page x- (receive)	Power On/Off	1 bit	Manager: CWU Subordinate: CWTU	1.001 switch
Receives the status feedback of thermostat switch from bus. The communication object does not display when "Single" is selected.					
275	Page x- (receive)	Operation mode	1 byte	Manager & Single: CWU Subordinate: CWTU	20.102 HVAC mode
Room operation mode receives feedback via 1byte object (Operation mode). 1 byte: The relationship between input value and operating mode is as follows: 0: Reserved; 1: Comfort mode; 2: Standby mode; 3: Economy mode; 4: Protection mode; 5...255: Reserved, unused.					

No.	Name	Object function	Length	Flag	Data type
276	Page x- (send)	Operation mode	1 byte	Manager: CRT Subordinate & Single: CT	20.102 DPT_HVAC Mode
Sends the telegram of the room operating mode to bus. When object type is "1byte", different telegrams mean different operating modes: 0: Reserved 1: Comfort mode; 2: Standby mode; 3: Economy mode; 4: Protection mode; 5...255: Reserved, not used					
277	Page x- (receive)	Fan speed	1 byte	CWTU	5.001 percentage (0...100 %)
1byte: The corresponding telegram value of each fan speed is defined by the parameter. Activate the corresponding fan speed on the screen, and the object receives the corresponding telegram value of the fan speed from bus.					
278	Page x- (send)	Fan speed	1 byte	Manager: CRT Subordinate & Single: CT	5.001 percentage (0...100 %)
Fan speed sends control telegrams for fan speed to bus via 1byte object "Fan speed". 1byte: The corresponding telegram value of each fan speed is defined by the parameter. Activate the corresponding fan speed on screen, and object 278 sends the corresponding telegram value of the fan speed to bus.					
279	Page x- (receive/send)	Window contact	1 bit	CWTU	1.019 Window/door
Receives the window contact telegram from bus or sends read request to bus. Telegram value: 1: Open 0: Close The communication object does not display when "Subordinate" is selected.					
280	Page x- (receive/send)	Presence detector	1 bit	CWTU	1.018 occupancy
Receives the presence detector telegram from bus or sends read request to bus. Telegram value: 0: Unoccupied 1: Occupied The communication object does not display when "Subordinate" is selected.					
281	Page x- (receive)	Room Energy Efficiency for Room Unit	1 byte	CWTU	NonStdDPT EnergyEfficiencyIndication (0…255)
Receives green leaf icon display format from bus. 0, undefined: Icon with black green leaf symbol 1, insufficient: Icon with red green leaf symbol 2, sufficient: Icon with red green leaf symbol 3, good: Icon with green green leaf symbol 4, excellent: Icon with green green leaf symbol Invalid values (5-255): Same as 0 The communication object is displayed only when "Subordinate" is selected, and parameter "Green leaf" is enabled.					
282	Page x- (send)	Reset Energy Efficiency	1 bit	CT	1.015 reset
Resets energy efficiency condition by sending value 1 to bus when red leaf is displayed. The communication object is displayed only when "Subordinate" is selected, and parameter "Green leaf" is enabled.					
283	Page x- (receive)	Presence button for Room Unit	1 bit	CWTU	1.018 occupancy
Receives occupancy state from bus. 0: Not occupied 1: Occupied The communication object is displayed only when "Subordinate" is selected, and parameter "Presence button" is set to "Manually" or "Timer".					
284	Page x- (send)	Presence button input	1 bit	CT	1.018 occupancy
Sends current state of the presence button. • Sends the opposite value of object "Presence button for Room Unit" if "Presence button" is set to "Manually". • Sends value 1 if "Presence button" is set to "Timer". The communication object is displayed only when "Subordinate" is selected, and parameter "Presence button" is set to "Manually" or "Timer".					
294	Page x- (receive)	Lock	1 bit	CW	1.003 enable

No.	Name	Object function	Length	Flag	Data type
Receives the telegram of lock from bus. Telegram value: 0: Lock 1: Unlock **Note**: During lock, the telegram can still be received.					

3.3.2.1 "Fan" parameters

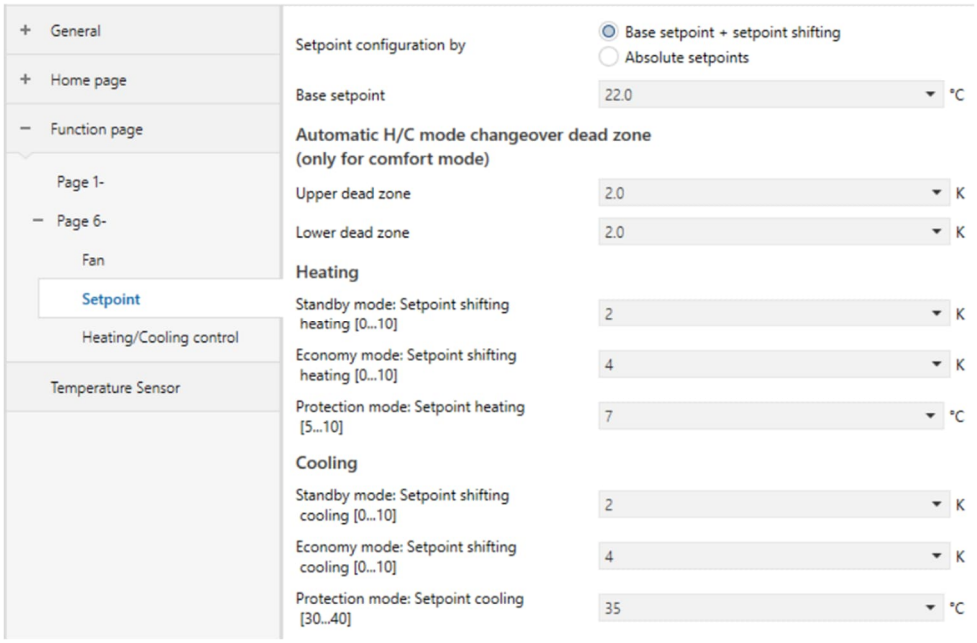


Note: The following parameters are displayed when "Data type of fan speed" is set as "1byte".

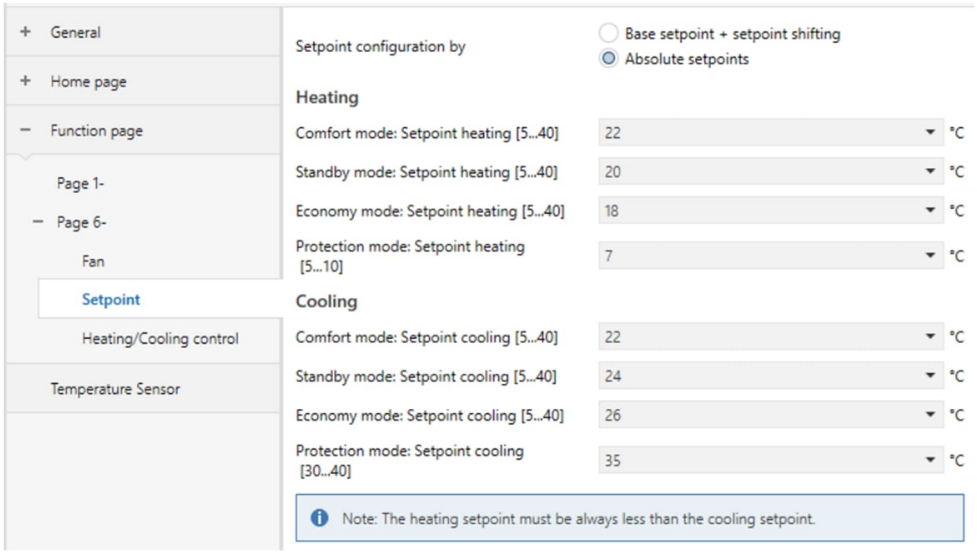
Name		Description	Range
Fan speed stage		Sets fan speed stage.	1-stage 2-stage 3-stage (default)
Data type of fan speed		Sets the fan speed data type.	Percentage (DPT_5.001) (default) Fan stage (DPT_5.100)
Predefined value for Fan speed			
The following parameters are displayed when "Percentage (DPT_5.001)" is enabled.			
	Fan speed - Switching point	Defines the value for start-up fan speed.	0…100 % (default: 10)
	Fan speed - Low	Defines the value for Fan speed - Low.	0…100 % (default: 33)
	Fan speed - Medium	Defines the value for Fan speed - Medium.	0…100 % (default: 67)
	Fan speed - High	Defines the value for Fan speed - High.	0…100 % (default: 100%)
The following parameters are displayed when "Fan stage (DPT_5.100)" is enabled.			
	Fan speed - Switching point	Defines the value for start-up fan speed.	0…255 (default: 1)
	Fan speed - Low	Defines the value for Fan speed - Low.	0…255 (default: 1)
	Fan speed - Medium	Defines the value for Fan speed - Medium.	0…255 (default: 2)
	Fan speed - High	Defines the value for Fan speed - High.	0…255 (default: 3)
Auto Operation (demand based ventilation)		Sets whether to enable automatic operation of fan speed.	Disable (default) Enable

3.3.2.2 "Setpoint" parameters

Base setpoint + setpoint shifting

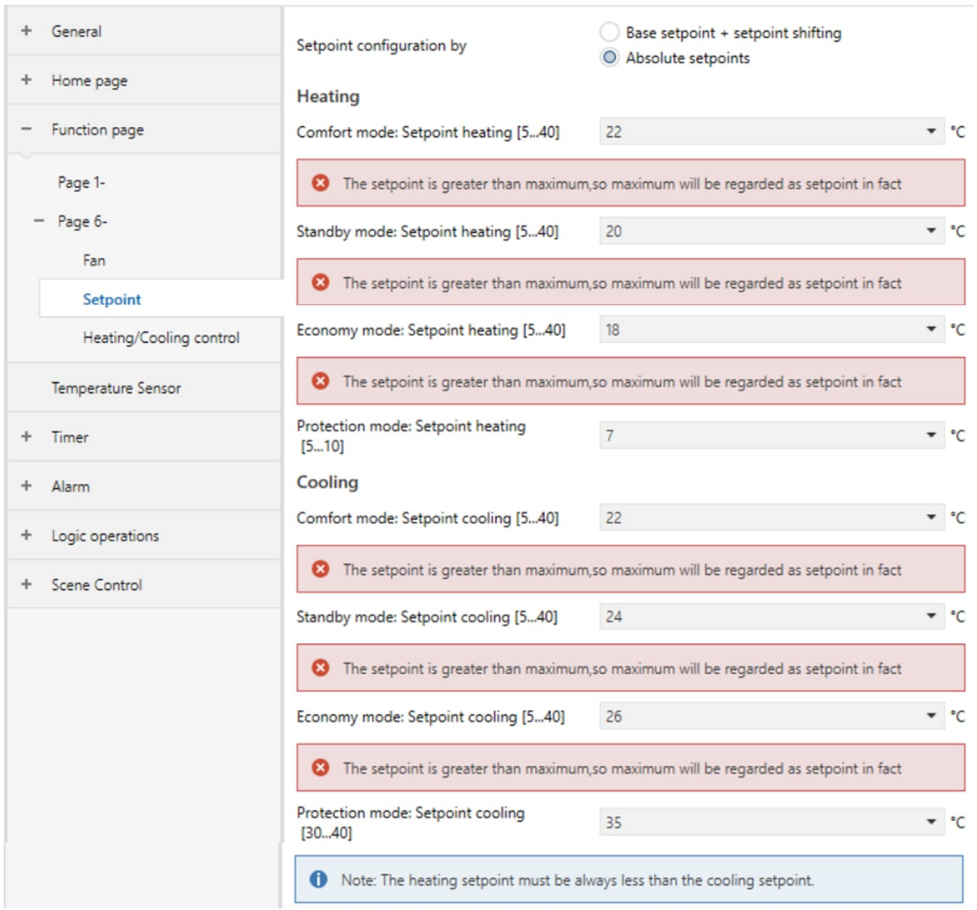


Absolute setpoints



Note: The page is displayed when "Room operation mode" is enabled and "Operation mode" is set to Single or Manager. Only the corresponding part of the above page is displayed if "Room temperature control mode" is set to "Heating" or "Cooling".

Important: All selected setpoints must be in the range configured by the parameters "Minimal possible setpoint value [5...40]" and "Maximal possible setpoint value [5...40]" on the "General Temp. Control" page (see "Page x - General temperature control" parameters and communication objects [→ 67]).



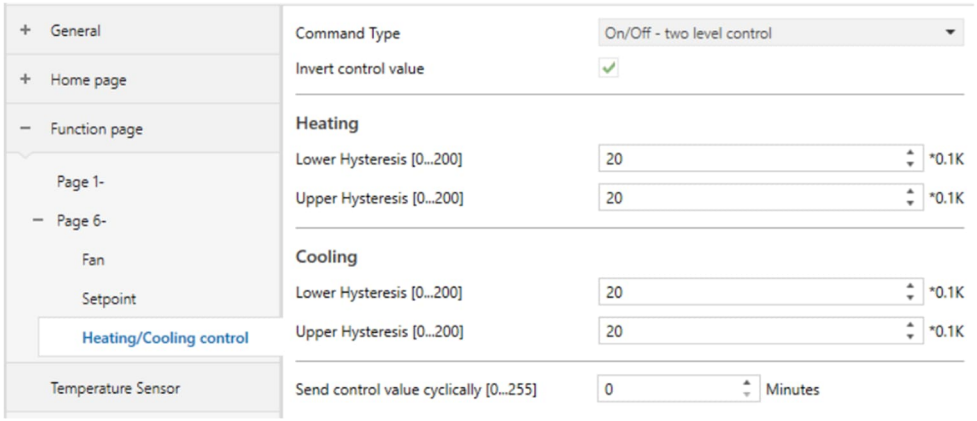
Note: Warnings display if the selected setpoints are outside the range as defined on the general temperature parameter page ("Page x - General temperature control" parameters and communication objects [→ 67]).

Name		Description	Range
Setpoint configuration by		This parameter is displayed when Room operating mode is enabled to set the adjust method of the temperature setpoint.	Base setpoint + setpoint shifting (default) Absolute setpoints
The following parameters are displayed when "Base setpoint + setpoint shifting" is selected.			
	Base setpoint (°C)	Sets the reference value of the set temperature, which provides the temperature setpoint of Comfort mode.	10.0 / 10.5 /11.0 / 11.5 / … / 34.0 / 34.5 /35.0 °C (default: 22 °C)
	Automatic Heating/Cooling mode changeover dead zone (only for comfort mode) - Displayed only if "Automatic changeover" is selected for the parameter "Heating/Cooling switchover".		
	Upper dead zone	In heating mode, when actual temperature is higher or equal to setpoint plus upper dead zone value, mode changes from heating to cooling.	0.5 1.0 1.5 2.0 (default) ... 10.0
	Lower dead zone	In cooling mode, when actual temperature is lower or equal to setpoint minus lower dead zone value, mode changes from cooling to heating.	0.5 1.0 1.5 2.0 (default) ... 10.0

Name		Description	Range
...	Heating - Displayed only if "Room temperature control mode" is set to "Heating" or "Heating and Cooling".		
	Standby mode: Setpoint shifting heating [0...10]	Sets the setpoint of Standby mode The setpoint of Standby mode is the base setpoint minus this value.	0...10 K (default: 2)
	Economy mode: Setpoint shifting heating [0...10]	Sets the setpoint of Economy mode The setpoint of Economy mode is the base setpoint minus this value.	0...10 K (default: 4)
	Protection mode: Setpoint heating [5...10]	Sets the absolute setpoint of Protection mode Under frost protection, a heating control On value is sent when ambient temperature is lower than this setpoint.	5...10 °C (default: 7 °C)
	Cooling - Displayed only if "Room temperature control mode" is set to "Cooling" or "Heating and Cooling".		
	Standby mode: Setpoint shifting cooling [0...10]	Sets the setpoint of Standby mode The setpoint of Standby mode is the base setpoint plus this value.	0...10 K (default: 2)
	Economy mode: Setpoint shifting cooling [0...10]	Sets the setpoint of Economy mode The setpoint of Economy mode is the base setpoint plus this value.	0...10 K (default: 4)
	Protection mode: Setpoint cooling [30...40]	Sets the absolute setpoint of Protection mode Under the heat protection, a cooling control on demand is sent when the ambient temperature is upper than setpoint.	30...40 °C (default: 35 °C)
The following parameters are displayed when "Absolute setpoints" are selected.			
	Heating - Displayed only if "Room temperature control mode" is set to "Heating" or "Heating and Cooling".		
	Comfort mode: Setpoint heating [5...40]	Sets the setpoint of Comfort mode	5...40 °C (default: 22 °C)
	Standby mode: Setpoint heating [5...40]	Sets the setpoint of Standby mode	5...40 °C (default: 20 °C)
	Economy mode: Setpoint heating [5...40]	Sets the setpoint of Economy mode	5...40 °C (default: 18 °C)
	Protection mode: Setpoint heating [5...10]	Sets the setpoint of Protection mode	5...10 °C (default: 7 °C)
	Cooling - Displayed only if "Room temperature control mode" is set to "Cooling" or "Heating and Cooling".		
	Comfort mode: Setpoint cooling [5...40]	Sets the setpoint of Comfort mode	5...40 °C (default: 22 °C)
	Standby mode: Setpoint cooling [5...40]	Sets the setpoint of Standby mode	5...40 °C (default: 24 °C)
	Economy mode: Setpoint cooling [5...40]	Sets the setpoint of Economy mode	5...40 °C (default: 26 °C)
	Protection mode: Setpoint cooling [30...40]	Sets the setpoint of Protection mode	30...40 °C (default: 35 °C)

3.3.2.3 "Heating/Cooling control" parameters

"Room temperature control mode" determines how the heating, cooling, or heating/cooling control page is displayed.



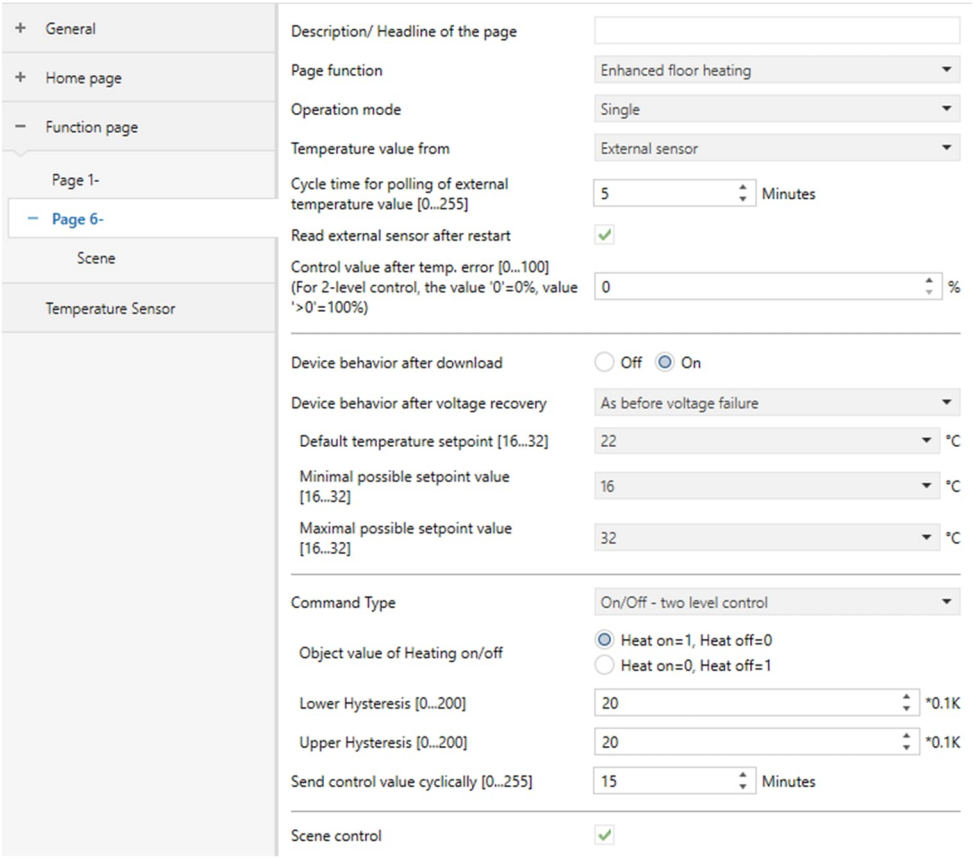
Name	Description	Range
Heating		
Command Type	Sets the control logic/method for heating application.	On/Off - two level control (default) PWM - PI control switching (1 bit) Modulating - PI control continuous (8 bits)
Invert control value	Sets whether to invert the control value to meet the requirement of different type of valves.	No (default) Yes
The following two parameters are displayed when "On/Off - two level control" is selected.		
Lower Hysteresis [0...200]	Sets the lower hysteresis temperature in HVAC Heating.	0...200*0.1 K (default: 20)
Upper Hysteresis [0...200]	Sets the upper hysteresis temperature in HVAC Heating.	0...200*0.1 K (default: 20)
Note: Under heating control: ● When the actual temperature (T) is > the temperature setpoint + the upper hysteresis, device stops heating ● When the actual temperature(T) is < the temperature setpoint - the lower hysteresis, device starts heating. For example, the lower hysteresis is 1 K, the upper hysteresis is 2 K, the temperature setpoint is 22℃, if T > 24℃, heating stops; if T < 21℃, heating starts; if T is between 21...24℃, it maintains the previous status.		
The following parameter is displayed when "PWM - PI control switching (1 bit)" is selected.		
Pulse width modulation period time [1...255]	Sets the frequency for sending the switch on/off value. The object sends the switch on/off value according to the duty cycle of the control value. For example, if the cycle time is set to 10 minutes and the control value is 80%, the object sends an "ON" telegram and 8 minutes later sends an "OFF" telegram. Two minutes later, the object resends an "ON" telegram and 8 minutes later an "OFF" telegram and repeatedly sends the telegrams at the defined interval.	1…255 min (default: 15)
The following parameter is displayed when "Modulating - PI control continuous (8 bits)" is selected.		
Send value on change of control value by [0…100, 0=disabled]	Defines minimum change value, i.e., the control value is sent to bus if the value change reaches this value.	0…100 % (default: 4)
The following parameter is displayed when "PWM - PI control switching (1 bit)" or "Modulating - PI control continuous (8 bits)" is selected.		
Heating Loop	Sets the responding speed of heating controller.	Hot water heating (5K/150min) (default) Floor heating (5K/240min) Electrical heating (4K/100min) Split unit / Fan coil (4K/90min) User defined

Name		Description	Range
The following parameters are displayed when "User defined" is selected.			
	Proportional range [10...100]	Customizes the P value.	10...100 *0.1K (default: 50)
	Integration time [0...255]	Customizes the I value.	0…255 min (default: 240)
Cooling			
Command Type		Sets the control logic/method for cooling application.	On/Off - two level control (default) PWM - PI control switching (1 bit) Modulating - PI control continuous (8 bits)
Invert control value		Sets whether to invert control value to meet the requirement of different type of valves.	No (default) Yes
The following two parameters are displayed when "On/Off - two level control" is selected.			
	Lower Hysteresis [0...200]	Sets the lower hysteresis temperature in HVAC Cooling.	0...200*0.1 K (default: 15)
	Upper Hysteresis [0...200]	Sets the upper hysteresis temperature in HVAC Cooling.	0...200*0.1 K (default: 20)
	Note: Under the cooling control: ● When the actual temperature (T) is < the temperature setpoint -the lower hysteresis, device stops cooling. ● When the actual temperature (T) is > the temperature setpoint +the upper hysteresis, device starts cooling. For example, the lower hysteresis is 1 K, the upper hysteresis is 2 K, the temperature setpoint is 26 ℃, if T < 25 ℃, cooling stops; if T > 28 ℃, cooling starts; if T is between 25...28 ℃, it maintains the previous state.		
The following parameter is displayed when "PWM - PI control switching (1 bit)" is selected.			
	Pulse width modulation period time [1...255]	Sets the frequency for sending the switch on/off value. The object sends the switch on/off value according to the duty cycle of the control value. For example, if the cycle time is set to 10 min and the control value is 80%, the object sends an "ON" telegram and 8 minutes later sends an "OFF" telegram. Two minutes later, the object resends an "ON" telegram and 8 minutes later an "OFF" telegram and repeatedly sends the telegrams at the defined interval.	1…255 min (default: 15)
The following parameter is displayed when "Modulating - PI control continuous (8 bits)" is selected.			
	Send value on change of control value by [0…100, 0=disabled]	Defines minimum change value, i.e., the control value is sent to bus if the value change reaches this parameter value.	0…100 % (default: 4)
The following parameter is displayed when "PWM - PI control switching (1 bit)" or "Modulating - PI control continuous (8 bits)" is selected.			
	Cooling Loop	Sets the response speed of the cooling controller.	Chilled ceiling (5K/240min) (default) Split unit (4K/90min) Fan coil unit (4K/90min) User defined
The following parameters are displayed when "User defined" is selected.			
	Proportional range [10...100]	Customizes the P value.	10...100 *0.1K (default: 40)
	Integration time [0...255]	Customizes the I value.	0…255 min (default: 150)
Send control value cyclically [0...255]		Sets the period for cyclically sending the control value to bus. **Note**: Value "0" equals disable.	0…255 min (default: 0)

3.3.3 "Page x - Enhanced floor heating" parameters and communication objects

Parameters

Assign "Page x" as single function –"Enhanced floor heating" page for floor heating application.



Name	Description	Range
Description/Headline of the page	Names the "Function page x". **Note**: • Supports multiple languages. To display properly on screen, set "Codepage" to "Unicode (UTF-8)". Refer to **Language in display** in Parameter and communication objects [→ 41]. • Approximately 12 characters can be displayed. It depends on the width of the single character as the space is limited on the display.	15byte text
Page function	Configures the type of function page. **Note**: Pages 1...5 multifunction only; pages 6...12 can be either multifunction or single functions.	Multifunction (Lighting/Blind/Scene/Send value/Display) General temperature control Enhanced floor heating VRF Interface & Operation Ventilation System Air Quality display Energy Metering display Color and color temperature control Audio control

Name	Description	Range
Operation mode	Sets operating mode. ● Single: Device is set to single control using a temperature control algorithm and direct actuator control. ● Manager: Device is set to main controller for multiple floor heating devices with temperature control algorithm. When device restarts, the state is sent to bus including power on/off, setpoints, etc. ● Subordinate: Without temperature control algorithm, device reads state from bus at restart, e.g., power on/off, setpoint, etc.	Single (default) Manager Subordinate
Temperature value from	Sets the resource for the temperature reference. ● Internal sensor, built-in temperature sensor. The configuration refers to "Temperature sensor" [→ 115] ● External sensor, temperature value over bus ● Internal and external sensor weighted: Using a calculated value	Internal sensor (default) External sensor Internal and external sensor weighted
The following parameters are displayed when "Internal and external sensor weighted" is selected.		
Weighting of internal and external value	Defines the exact weighting as a percentage.	10% internal, 90% external; 20% internal, 80% external; 30% internal, 70% external; 40% internal, 60% external; 50% internal, 50% external; (default) 60% internal, 40% external; 70% internal, 30% external; 80% internal, 20% external; 90% internal, 10% external
Change of actual temperature value for automatic sending	Defines sending an automatic telegram when temperature changes.	Disable 0.5 K 1.0 K (default) 1.5 K ... 10 K
Cycle time for automatic sending of the actual temperature value [0…255, 0=disabled]	Defines sending cycle of automatic telegrams.	0...255 minutes (default: 0)
The following parameters are displayed when "External sensor" or "Internal and external sensor weighted" is selected.		
Cycle time for polling of external temperature sensor [0...255]	Defines the period after which a read request is sent to retrieve an external value.	0…255 min (default: 5)
Read external sensor after restart	Whether a read request is sent after the bus is reset or programmed.	No Yes (default)
The following parameters are displayed when "Single" or "Manager" is selected.		
Control value after temp. error [0…100%] (For 2-level control, the value '0'=0%, value '>0'=100%)	Sets the control value for a temperature error occurs. For 2-point control: Parameter value 0 sets the control value to 0 %; parameter value greater than 0 sets the control value to 100 %.	0...100 % (default: 0)
Device behavior after download	Sets whether floor heating is switched on/off after application download.	Off On (default)
Device behavior after voltage recovery	Sets whether floor heating is switched on/off once power returns.	On Off As before voltage failure (default)
Default Temp. Setpoint [16…32]	Default temperature setpoint for floor heating.	16...32 ℃ (default: 22 ℃)
Minimal possible setpoint value [16...32]*	Configures the allowed minimum temperature setpoint.	16...32 ℃ (default: 16 ℃)
Maximal possible setpoint value [16...32]*	Configures the allowed maximum temperature setpoint.	16...32 ℃ (default: 32 ℃)

Name			Description	Range
The following parameters are displayed when "Single" or "Manager" is selected.				
	Command Type		Sets the temperature control logic / method.	On/Off - two level control (default) PWM - PI control switching (1 bit) Modulating - PI control continuous (8 bits)
	The following parameters are displayed when "On/Off - two level control" is selected.			
		Object value of Heating on/off	Defines how the value is interpreted for floor heating on/off.	Heat on=1, Heat off=0 (default) Heat on=0, Heat off=1
		Lower Hysteresis [0...200]	Sets the lower hysteresis temperature setpoint for floor heating.	0...200 *0.1 K (default: 20*0.1 K)
		Upper Hysteresis [0...200]	Sets the upper hysteresis temperature setpoint for floor heating.	0...200 *0.1 K (default: 20*0.1 K)
	Note: Under the heating control: ● When the actual temperature (T) is > the temperature setpoint + the upper hysteresis, device stops heating ● When the actual temperature(T) is < the temperature setpoint - the lower hysteresis, device starts heating. For example, the lower hysteresis is 1 K, the upper hysteresis is 2 K, the temperature setpoint is 22 ℃, if T > 24 ℃, heating stops; if T < 21 ℃, heating starts; if T is between 21...24 ℃, it maintains the previous status.			
	The following parameter is displayed when "PWM - PI control switching (1 bit)" is selected.			
		Pulse width modulation period time [1...255]	Sets the frequency for sending the switch on/off value. The object sends the switch on/off value according to the duty cycle of the control value. For example, if the cycle time is set to 10 minutes and the control value is 80%, the object sends an "ON" telegram and 8 minutes later sends an "OFF" telegram. Two minutes later, the object resends an "ON" telegram and 8 minutes later an "OFF" telegram and repeatedly sends the telegrams at the defined interval.	1…255 min (default: 15)
	The following parameters are displayed when "PWM - PI control switching (1 bit)" or "Modulating - PI control continuous (8 bits)" is selected.			
		Invert control value	Sets whether to invert control value to meet the requirement of different type of valves.	No (default) Yes
		Heating Loop	Sets the response speed of the heating PI controller.	Hot water heating (5K/150min) (default) Floor heating (5K/240min) Electrical heating (4K/100min) User defined
		The following parameters are displayed when "User defined" is selected.		
			Proportional range [10...100]	Customizes the P value.	10...100 *0.1K (default: 50*0.1K)
			Integration time [0...255]	Customizes the I value.	0…255 min (default: 240)
	Send control value cyclically [0...255]		Sets the cycle for sending a control value to the bus.	0…255 min (default: 15 min)
	Scene control		Enables or disables scene control function.	Disable (default) Enable

* Minimum and maximum setpoint value:

The minimum set point value cannot exceed the maximum value. The output is limited to the upper/lower limit value in this case.

Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6- (receive/send)	External temperature			2 bytes	C	-	W	T	U	temperature (°C)	Low
247	Page 6- (send)	Power On/Off			1 bit	C	R	-	T	-	switch	Low
248	Page 6- (send)	Heating On/Off			1 bit	C	-	-	T	-	switch	Low
249	Page 6- (receive)	Setpoint (°C)			2 bytes	C	-	W	-	U	temperature (°C)	Low
250	Page 6- (receive)	Power On/Off			1 bit	C	-	W	-	U	switch	Low
251	Page 6- (receive)	Scene			1 byte	C	-	W	-	-	scene control	Low
258	Page 6- (send)	Effective setpoint			2 bytes	C	R	-	T	-	temperature (°C)	Low
273	Page 6- (send)	Actual temperature			2 bytes	C	R	-	T	-	temperature (°C)	Low
294	Page 6- (receive)	Lock			1 bit	C	-	W	-	-	enable	Low

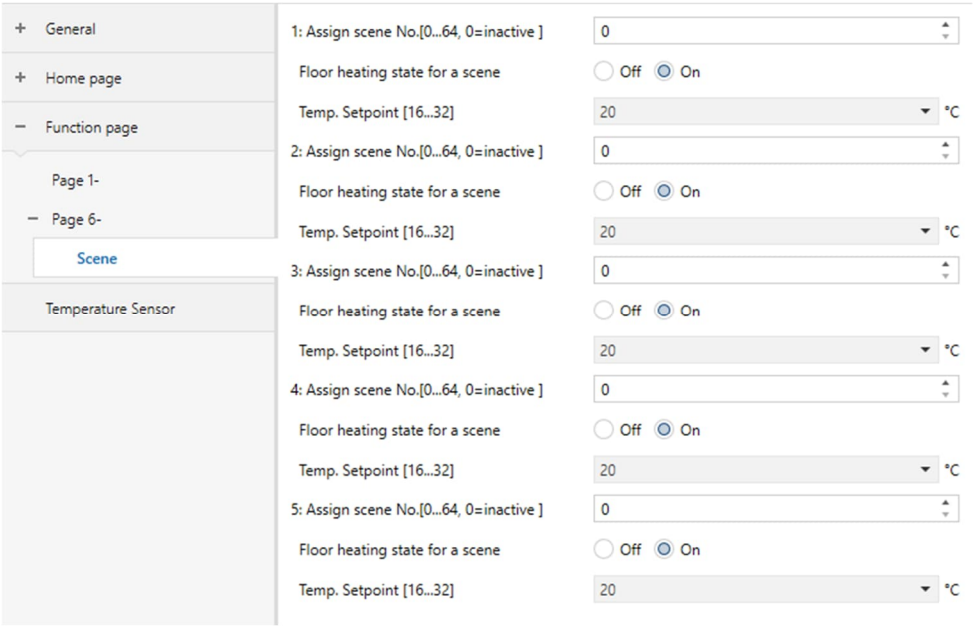
Note

Page number x range: 1...12

No.	Name	Object function	Length	Flag	Data type
246	Page x- (receive/send)	External temperature	2 bytes	CWTU	9.001 temperature (℃)
The communication object is displayed when the external sensor is set as the reference. Receives the temperature measurement value sent by the temperature sensor on the bus. Range: -50...99.8 ℃					
247	Page x- (send)	Power On/Off	1 bit	Manager: CRT Subordinate: CT	1.001 switch
Sends floor heating control switch state to bus. Telegram: 0: Off 1: On **Note**: In the Off state, all icons on screen are disabled except On/Off icon. The communication object does not display when "Single" is selected.					
248	Page x- (send)	Heating on/off Heating control value	1 bit 1 byte	CT	1.001 switch 5.001 percentage (0...100 %)
Sends floor heating control value to switch the floor heating valve. Send telegram value (On/Off - two level control): On/Off Send telegram value (PWM - PI control switching (1 bit)): On/Off Send telegram value (Modulating - PI control continuous (8 bits)): 0...100% The two communication objects do not display when "Subordinate" is selected.					
249	Page x- (receive)	Setpoint (°C)	2 bytes	Manager: CWU Subordinate: CWTU	9.001 temperature (℃)
Receives current temperature setpoint from bus. Range: 5...40 ℃ The communication object does not display when "Single" is selected.					
250	Page x- (receive)	Power On/Off	1 bit	Manager: CWU Subordinate: CWTU	1.001 switch
Receives feedback on floor heating control switch from bus. The communication object does not display when "Single" is selected.					
251	Page x- (receive)	Scene	1 byte	CW	18.001 scene control
Recalls or saves the floor heating scene control from bus. The parameter is set to scene No.1...64 and the actual corresponding telegram value is 0...63. The communication object does not display when "Subordinate" is selected.					
258	Page x- (send)	Effective setpoint	2 bytes	Manager: CRT Subordinate: CT	9.001 temperature (℃)
Sends current temperature setpoint to bus. The communication object does not display when "Single" is selected.					
273	Page x- (send)	Actual temperature	2 bytes	CRT	9.001 temperature (℃)
Sends actual combined temperature to bus. The communication object is displayed only when parameter "Temperature value from" is set as "Internal and external sensor weighted".					
294	Page x- (receive)	Lock	1 bit	CW	1.003 enable
Receives the telegram of lock from bus. Telegram value: 0: Lock 1: Unlock **Note**: During lock, the telegram can still be received.					

3.3.3.1 "Scene" parameters

Setting for floor heating scenes; a total of 5 scenes are available.

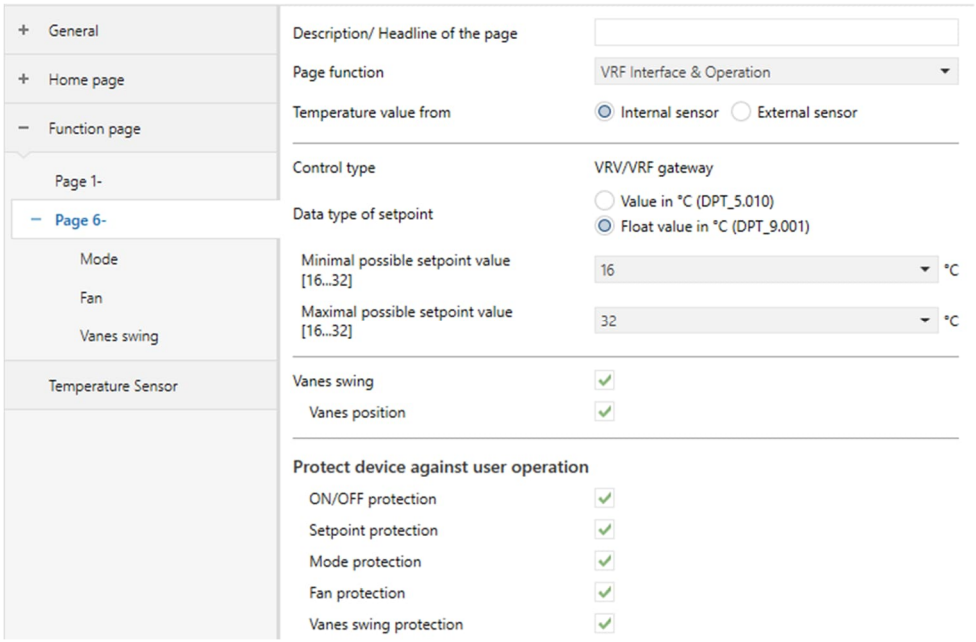


Name	Description	Range
x: Assign scene No. [0...64, 0=inactive]	Sets scene number. x=1...5	0…64 (default: 0)
Floor heating state for a scene	Sets the power on/off state for the floor heating interface of scene x.	Off On (default)
Temp. Setpoint [16...32]	Sets the temperature setpoint of scene x.	16...32 ℃ (default: 20 ℃)

3.3.4 "Page x - VRF Interface & Operation" parameters and communication objects

Parameters

Assign "Page x" as a single function –"VRF Interface & Operation" page. It acts as the interface & Operation unit for VRF air conditioning system (VRF refers to variable Refrigerant Flow HVAC technology). Connect the unit via a gateway to operate with a VRF device.



Name	Description	Range
Description/Headline of the page	Names the "Function page x". **Note**: • Supports multiple languages. To display properly on screen, set "Codepage" to "Unicode (UTF-8)". Refer to **Language in display** in Parameter and communication objects [→ 41]. • Approximately 12 characters can be displayed. It depends on the width of the single character as the space is limited on the display.	15byte text
Page function	Configures the type of function page. **Note**: Pages 1...5 multifunction only; pages 6...12 can be either multifunction or single functions.	Multifunction (Lighting/Blind/Scene/Send value/Display) General temperature control Enhanced floor heating VRF Interface & Operation Ventilation System Air Quality display Energy Metering display Color and color temperature control Audio control
Temperature value from	Sets the resource of the temperature reference.	Internal sensor (default) External sensor
The following two parameters are displayed when "External sensor" is selected.		
Cycle time for polling of external temperature value [0…255]	Defines the period after which a read request is sent to retrieve an external value.	0…255 min (default: 5)
Read external sensor after restart	Whether a read request is sent after the bus is reset or programmed.	No Yes (default)

Name	Description	Range
Control type	Defines control type. (Nothing to select).	VRV/VRF gateway
Data type of setpoint	Sets the setpoint data type.	Value in °C (DPT_5.010) Float value in °C (DPT_9.001) (default)
Minimal possible setpoint value [16...32]*	Configures the allowed minimum temperature setpoint.	16...32 ℃ (default: 16 ℃)
Maximal possible setpoint value [16...32]*	Configures the allowed maximum temperature setpoint.	16...32 ℃ (default: 32 ℃)
Vanes swing	Enables or disables control of vanes swing.	Disable (default) Enable
The following parameter is displayed when "Vanes swing" is enabled.		
{ Vanes position	Enables or disables control of vanes position.	Disable (default) Enable
Protect device against user operation - If protection is enabled, users cannot change item via HMI.		
ON/OFF protection	Enables or disables On/Off protection.	Disable (default) Enable
Setpoint protection	Enables or disables setpoint protection.	Disable (default) Enable
Mode protection	Enables or disables mode protection.	Disable (default) Enable
Fan protection	Enables or disables fan protection.	Disable (default) Enable
Vanes swing protection	Enables or disables vanes swing protection.	Disable (default) Enable

* Minimum and maximum setpoint value:

The minimum set point value cannot exceed the maximum value. The output is limited to the upper/lower limit value in this case.

Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6- (receive/send)	External temperature			2 bytes	C	-	W	T	U	temperature (°C)	Low
247	Page 6- (send)	Power On/Off			1 bit	C	-	-	T	-	switch	Low
248	Page 6- (receive)	Power On/Off			1 bit	C	-	W	T	U	switch	Low
249	Page 6- (send)	Control mode			1 byte	C	-	-	T	-	HVAC control mode	Low
250	Page 6- (receive)	Control mode			1 byte	C	-	W	T	U	HVAC control mode	Low
254	Page 6- (send)	Fan speed			1 byte	C	-	-	T	-	percentage (0..100%)	Low
255	Page 6- (receive)	Fan speed			1 byte	C	-	W	T	U	percentage (0..100%)	Low
257	Page 6- (send)	Vanes swing (1-swing,0-stop)			1 bit	C	-	-	T	-	start/stop	Low
258	Page 6- (receive)	Vanes swing (1-swing,0-stop)			1 bit	C	-	W	T	U	start/stop	Low
259	Page 6- (send)	Vanes position 1..5			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
260	Page 6- (receive)	Vanes position 1..5			1 byte	C	-	W	T	U	counter pulses (0..255)	Low
261	Page 6- (send)	Current setpoint adjustment			2 bytes	C	-	-	T	-	temperature (°C)	Low
262	Page 6- (receive/send)	Current setpoint adjustment			2 bytes	C	-	W	T	U	temperature (°C)	Low
294	Page 6- (receive)	Lock			1 bit	C	-	W	-	-	enable	Low

Note

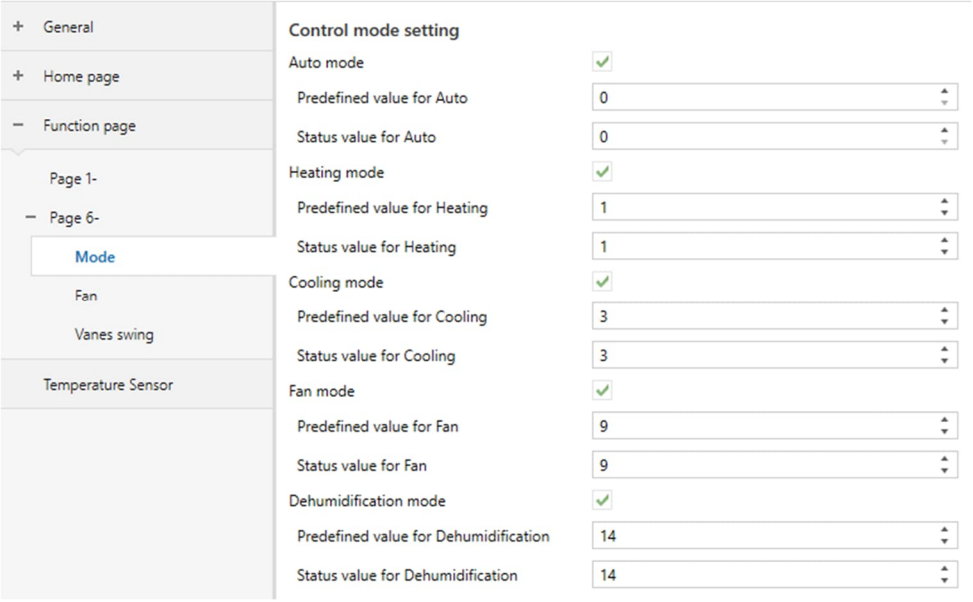
Page number x range: 1...12

No.	Name	Object function	Length	Flag	Data type
246	Page x- (receive/send)	External temperature	2 bytes	CWTU	9.001 temperature (℃)
Receives the temperature measurement value sent by the external temperature sensor on the bus and is displayed on screen. It is displayed when "External sensor" is selected.					
247	Page x- (send)	Power On/Off	1 bit	CT	1.001 switch
Sends air conditioning switch telegrams.					

No.	Name	Object function	Length	Flag	Data type
248	Page x- (receive)	Power On/Off	1 bit	CWTU	1.001 switch
Receives feedback from the status of the air-conditioning switch. Telegram: 0: Off 1: On					
249	Page x- (send)	Control mode	1 byte	CT	20.105 HVAC control mode
Sends the control telegram for each mode of air conditioning. Telegram: 0: Auto, 1: Heating, 3: Cooling, 9: Ventilation, 14: Dehumidification					
250	Page x- (receive)	Control mode	1 byte	CWTU	20.105 HVAC control mode
Receives status feedback of air conditioning mode. Telegram: 0: Auto, 1: Heating, 3: Cooling, 9: Ventilation, 14: Dehumidification					
254	Page x- (send)	Fan speed	1 byte	CT	5.001 percentage (0...100 %) 5.100 fan stage
Sends the control telegram of each fan speed. Telegram value depends on selected data type.					
255	Page x- (receive)	Fan speed	1 byte	CWTU	5.001 percentage (0...100 %) 5.100 fan stage
Receives the status feedback telegram of each fan speed. Telegram value depends on selected data type.					
257	Page x- (send)	Vanes swing (1-swing,0-stop)	1 bit	CT	1.010 start/stop
Sends vanes swing control telegram.					
258	Page x- (receive)	Vanes swing (1-swing,0-stop)	1 bit	CWTU	1.010 start/stop
Receives vanes swing status feedback.					
259	Page x- (send)	Vanes position 1...5	1 byte	CT	5.010 counter pulses (0...255)
Sends the control telegram of the vanes position 1...5. Users can define as desired.					
260	Page x- (receive)	Vanes position 1...5	1 byte	CWTU	5.010 counter pulses (0...255)
Receives the status feedback telegram of the vanes position 1...5.					
261	Page x- (send)	Current setpoint adjustment	1 byte 2 bytes	CT	5.010 counter pulses (0...255) 9.001 temperature
Sends current setpoint adjustment telegram. **Note**: The object type is set by parameters. ● 2byte is suitable for KNX standard. ● 1byte is KNX non-standard, usually suitable for user customization, the telegram value is the actual temperature value, such as 17 ℃ message value is 17 (decimal number).					
262	Page x- (receive/send)	Current setpoint adjustment	1 byte 2 bytes	CWTU	5.010 counter pulses (0...255) 9.001 temperature
Sends and receives the temperature setpoint of the air conditioner.					
294	Page x- (receive)	Lock	1 bit	CW	1.003 enable
Receives the telegram of lock from bus. Telegram value: 0: Lock 1: Unlock **Note**: During lock, the telegram can still be received.					

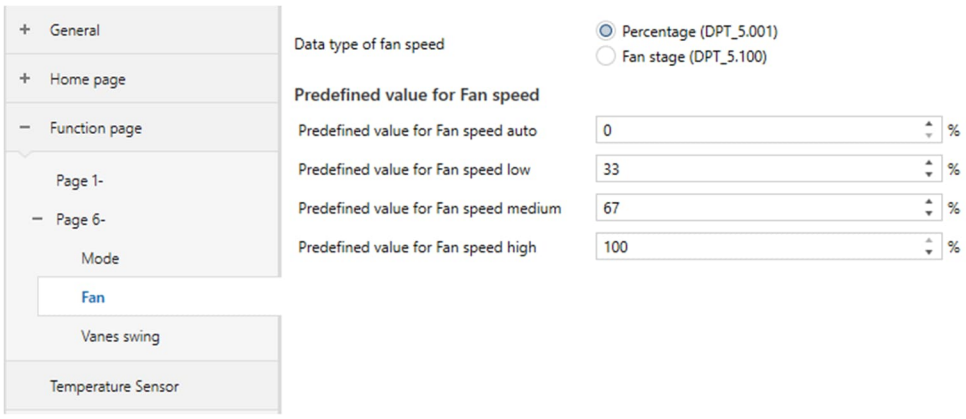
3.3.4.1 "Mode" parameters

Defines the received and sent values for the following objects.



Name		Description	Range
Control mode setting			
Auto mode		Enables or disables auto mode.	Disable Enable (default)
The following parameters are displayed when "Auto mode" is enabled.			
{	Predefined value for Auto	Defines value for Auto mode.	0...255 (default: 0)
	Status value for Auto	Feedback on Auto mode.	0...255 (default: 0)
Heating mode		Enables or disables Heating mode.	Disable Enable (default)
The following parameters are displayed when "Heating mode" is enabled.			
{	Predefined value for Heating	Defines value for Heating mode.	0...255 (default: 1)
	Status value for Heating	Feedback on Heating mode.	0...255 (default: 1)
Cooling mode		Enables or disables Cooling mode.	Disable Enable (default)
The following parameters are displayed when "Cooling mode" is enabled.			
{	Predefined value for Cooling	Defines value for Cooling mode.	0...255 (default: 3)
	Status value for Cooling	Feedback on Cooling mode.	0...255 (default: 3)
Fan mode		Enables or disables Fan mode.	Disable Enable (default)
The following parameters are displayed when "Fan mode" is enabled.			
{	Predefined value for Fan	Defines value for Fan mode.	0...255 (default: 9)
	Status value for Fan	Feedback on Fan mode.	0...255 (default: 9)
Dehumidification mode		Enables or disables Dehumidification mode.	Disable Enable (default)
The following parameters are displayed when "Dehumidification mode" is enabled.			
{	Predefined value for Dehumidification	Defines value for Dehumidification mode.	0...255 (default: 14)
	Status value for Dehumidification	Feedback on Dehumidification mode.	0...255 (default: 14)

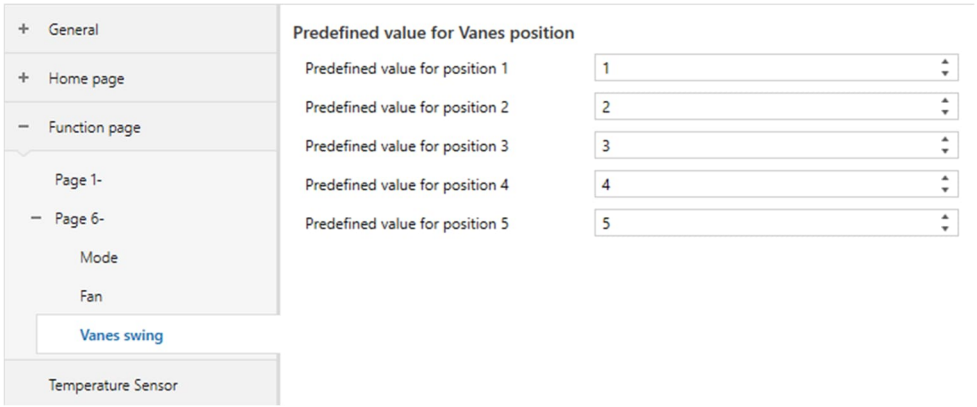
3.3.4.2 "Fan" parameters



Name		Description	Range
Data type of fan speed		Sets the data type for fan speed.	Percentage (DPT_5.001) (default) Fan stage (DPT_5.100)
The following parameters are displayed when "Fan stage (DPT_5.100)" is selected.			
	Predefined value for Fan speed auto	Defines value for fan speed auto.	0...255 (default: 0)
	Predefined value for Fan speed low	Defines value for fan speed low.	1...255 (default: 1)
	Predefined value for Fan speed medium	Defines value for fan speed medium.	1...255 (default: 2)
	Predefined value for Fan speed high	Defines value for fan speed high.	1...255 (default: 3)
The following parameters are displayed when "Percentage (DPT_5.001) " is selected.			
	Predefined value for Fan speed auto	Defines value for fan speed auto.	0...100 % (default: 0 %)
	Predefined value for Fan speed low	Defines value for fan speed low.	0...100 % (default: 33 %)
	Predefined value for Fan speed medium	Defines value for fan speed medium.	0...100 % (default: 67 %)
	Predefined value for Fan speed high	Defines value for fan speed high.	0...100 % (default: 100 %)

3.3.4.3 "Vanes swing" parameters

The parameters are displayed when "Vanes position" is enabled.

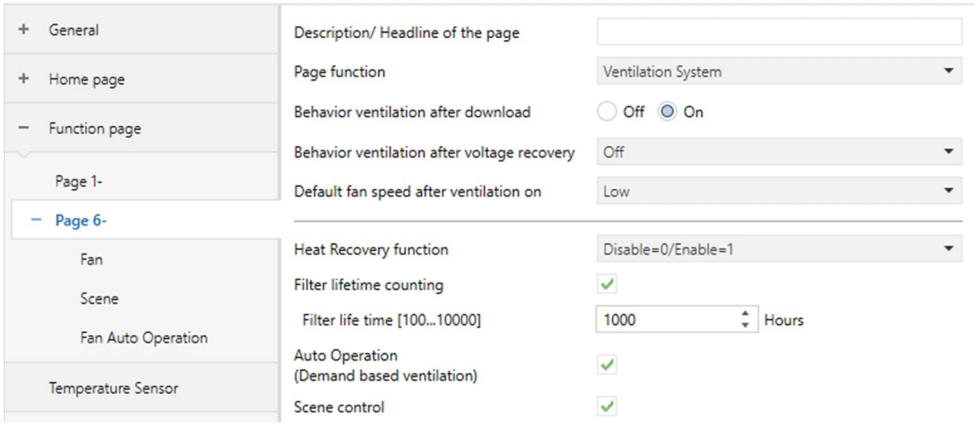


Name		Description	Range
Predefined value for Vanes position			
	Predefined value for position 1	Defines the corresponding control value for vanes position 1.	0...255 (default: 1)
	Predefined value for position 2	Defines the corresponding control value for vanes position 2.	0...255 (default: 2)
	Predefined value for position 3	Defines the corresponding control value for vanes position 3.	0...255 (default: 3)
	Predefined value for position 4	Defines the corresponding control value for vanes position 4.	0...255 (default: 4)
	Predefined value for position 5	Defines the corresponding control value for vanes position 5.	0...255 (default: 5)

3.3.5 "Page x - Ventilation System" parameters and communication objects

Parameters

Assign "Page x" as a single function –"Ventilation System" page.



Name	Description	Range
Description/Headline of the page	Names the "Function page x". **Note**: • Supports multiple languages. To display properly on screen, set "Codepage" to "Unicode (UTF-8)". Refer to **Language in display** in Parameter and communication objects [→ 41]. • Approximately 12 characters can be displayed. It depends on the width of the single character as the space is limited on the display.	15byte text
Page function	Configures the type of function page. **Note**: Pages 1...5 multifunction only; pages 6...12 can be either multifunction or single functions.	Multifunction (Lighting/Blind/Scene/Send value/Display) General temperature control Enhanced floor heating VRF Interface & Operation Ventilation System Air Quality display Energy Metering display Color and color temperature control Audio control
Behavior ventilation after download	Sets whether Ventilation system is powered on/off after the application is downloaded	Off On (default)
Behavior ventilation after voltage recovery	Sets whether Ventilation system is powered on/off after power returns.	Off (default) On As before voltage failure
Default fan speed after ventilation on	Sets the default fan speed after power on.	Low (default) Medium High
Heat Recovery function	Sets whether to enable heat recovery function. If disable=0/enable=1 or disable=1/enable=0 is selected, the heat recovery function is enabled by default, in other words, when the device is powered on, the function is enabled. **Disable** means heat recovery cannot be controlled.	Disable Disable=0/Enable=1 (default) Disable=1/Enable=0

Name		Description	Range
Filter lifetime counting		Sets whether to enable the filter timer function.	Enable Disable (default)
	Filter life time [100…10000]	Displayed only if **Enable** is selected for Filter lifetime counting. It sets the life span of the filter. An alarm triggers when the lifetime counts down to 0. It informs the operator to change or clean the filter. "Filter timer counter" provides the value. The counter can be reset via bus through object "Filter timer reset" or via user operation on screen.	100...10000 Hours (default: 1000)
Auto Operation (Demand based ventilation)		Sets whether the demand-based Ventilation function is enabled. When this option is enabled, ventilation is operated automatically by the air quality state and the defined setpoint.	Enable Disable (default)
Scene control		Sets whether to enable the scene function. Five scenes can be set if enabled.	Enable Disable (default)

Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6- (send)	Power On/Off			1 bit	C	-	-	T	-	switch	Low
247	Page 6- (receive)	Power On/Off			1 bit	C	-	W	T	U	switch	Low
248	Page 6- (receive)	En./Dis. Heat recovery			1 bit	C	-	W	-	-	enable	Low
249	Page 6- (send)	Heat recovery			1 bit	C	-	-	T	-	switch	Low
250	Page 6- (receive)	Filter timer reset			1 bit	C	-	W	-	-	reset	Low
251	Page 6- (receive/send)	Filter timer counter			2 bytes	C	-	W	T	U	time (h)	Low
252	Page 6- (send)	Filter alarm			1 bit	C	-	-	T	-	alarm	Low
253	Page 6- (receive/send)	Fan Speed No.1 1Bit			1 bit	C	-	W	T	U	switch	Low
254	Page 6- (receive/send)	Fan Speed No.2 1Bit			1 bit	C	-	W	T	U	switch	Low
255	Page 6- (receive/send)	Fan Speed No.3 1Bit			1 bit	C	-	W	T	U	switch	Low
256	Page 6- (receive/send)	Automatic function			1 bit	C	-	W	T	U	enable	Low
257	Page 6- (receive/send)	CO2 value			2 bytes	C	-	W	T	U	parts/million (ppm)	Low
258	Page 6- (receive/send)	PM2.5 value			2 bytes	C	-	W	T	U	pulses	Low
259	Page 6- (receive)	Scene			1 byte	C	-	W	-	-	scene control	Low
260	Page 6- (send)	Fan speed			1 byte	C	-	-	T	-	percentage (0..100%)	Low
261	Page 6- (receive)	Fan speed			1 byte	C	-	W	T	U	percentage (0..100%)	Low
262	Page 6- (receive)	Heat recovery			1 bit	C	-	W	T	U	switch	Low
294	Page 6- (receive)	Lock			1 bit	C	-	W	-	-	enable	Low

Note

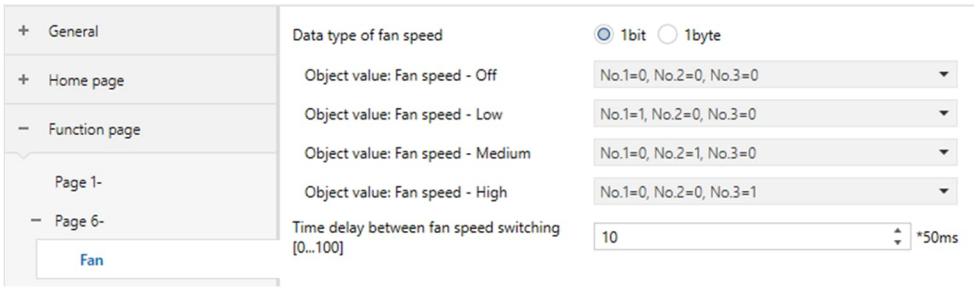
Page number x range: 1...12

No.	Name	Object function	Length	Flag	Data type
246	Page x- (send)	Power On/Off	1 bit	CT	1.001 switch
Sends a ventilation system control switch telegram. Telegram value: 0: The ventilation system control interface is off and the interface is not operational 1: The ventilation system control interface is on and the interface is operational					
247	Page x- (receive)	Power On/Off	1 bit	CWTU	1.001 switch
Receives the feedback on the ventilation system control status. Telegram value: 0: The ventilation system control interface is off and the interface is not operational 1: The ventilation system control interface is on and the interface is operational					
248	Page x- (receive)	En./Dis. Heat recovery	1 bit	CW	1.003 enable
Disables/enables heat recovery in the ventilation system. The disabled/enabled telegram value is specifically defined by the parameter. When disabled, heat recovery is turned off and cannot be controlled.					
249	Page x- (send)	Heat recovery	1 bit	CT	1.001 switch
Sends the control command on/off ventilation system heat recovery and receives the feedback value. Telegram value: 0: Off 1: On					
250	Page x- (receive)	Filter timer reset	1 bit	CW	1.015 reset
Resets the filter time, and after the filter is reset and starts a new count after reset. Telegram value: 1: Reset					

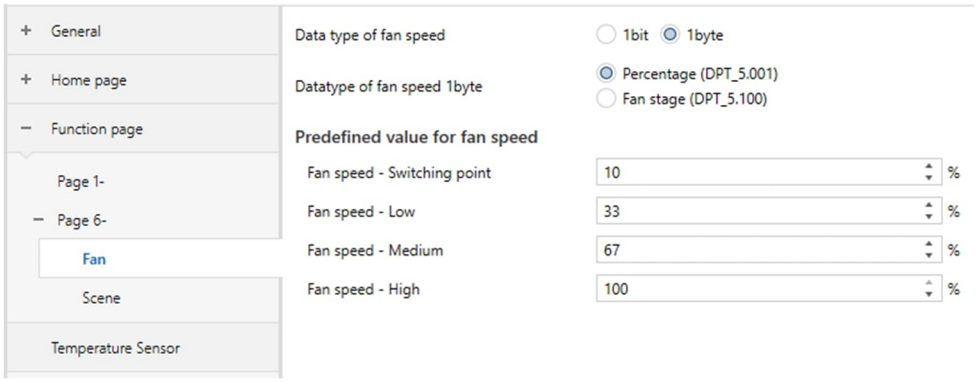
No.	Name	Object function	Length	Flag	Data type
251	Page x- (receive/send)	Filter timer counter	2 bytes	CWTU	7.007 time(h)
Counts the lifetime of the filter. When the count value changes, it can be sent to the bus, and the time can also be modified over the bus. The filter time counter unit is hours.					
252	Page x- (send)	Filter alarm	1 bit	CT	1.005 alarm
Once the set value is reached, the communication object issues an alarm to remind the user to replace the filter. Telegram value: 1: Alarm					
253 254 255	Page x- (receive/send)	Fan Speed No.1 1Bit Fan Speed No.2 1Bit Fan Speed No.3 1Bit	1 bit	CWTU	1.001 switch
The communication objects can view when the fan speed type is "1bit", the fan speed is controlled by the three objects at the same time, and the specific telegram value corresponding to each fan speed is defined by the parameters. Feedback can be received, but the feedback value also needs to correspond to the defined parameter value to update the display on the screen.					
256	Page x- (receive/send)	Automatic function	1 bit	CWTU	1.003 enable
Enables the automatic operation of ventilation system. After the device is reset or programmed, the automatic operation is not enabled by default. Turning off the device, manual adjustment of the fan speed and calling a scene can disable the automatic operation.					
257	Page x- (receive/send)	CO2 value	2 bytes	CWTU	9.008 parts/million (ppm) 7.001 pulses
Receives the input of the CO_2 value and get the corresponding value from the bus to update the value on display in ppm. Range: 0...4000 ppm If the control value of the automatic operation is CO_2, the ventilation system can be set to automatically adjust the fan speed according to the concentration of CO_2. The data type of the object is set by the parameter.					
258	Page x- (receive/send)	PM2.5 value	2 bytes	CWTU	9.030 concentration (ug/m^3) 7.001 pulses
Receives the input of PM2.5 value and get the corresponding value from the bus to update the value on display in ug/m^3. Range: 0...999 ug/m^3 If the control value of the automatic operation is PM2.5, the ventilation system can be set to automatically adjust the fan speed according to the concentration of PM2.5. The data type of the object is set by the parameter.					
259	Page x- (receive)	Scene	1 byte	CW	18.001 scene control
Recalls the scene control of the ventilation system. The parameter is set to 1...64, and the actual corresponding telegram value is 0...63.					
260	Page x- (send)	Fan speed	1 byte	CT	5.010 percentage (0...100 %)
Fan speed (send): The communication object is displayed when the fan speed type is "1byte" and sends a telegram to the bus to control the fan speed. The specific telegram value corresponding to each fan speed is defined by the parameters.					
261	Page x- (receive)	Fan speed	1 byte	CWTU	5.010 percentage (0...100 %) 5.100 percentage (0...100 %)
Status fan speed (receive): The communication object is displayed when the fan speed type is "1byte" and receives the status feedback of the fan speed. The specific telegram value corresponding to each fan speed is defined by the parameter.					
262	Page x- (receive)	Heat recovery	1 bit	CWTU	1.001 switch
Receives the ventilation system heat recovery status feedback value. Telegram value: 0: Off 1: On					
294	Page x- (receive)	Lock	1 bit	CW	1.003 enable
Receives the telegram of lock from bus. Telegram value: 0: Lock 1: Unlock **Note**: During lock, the telegram can still be received.					

3.3.5.1 "Fan" parameters

1bit



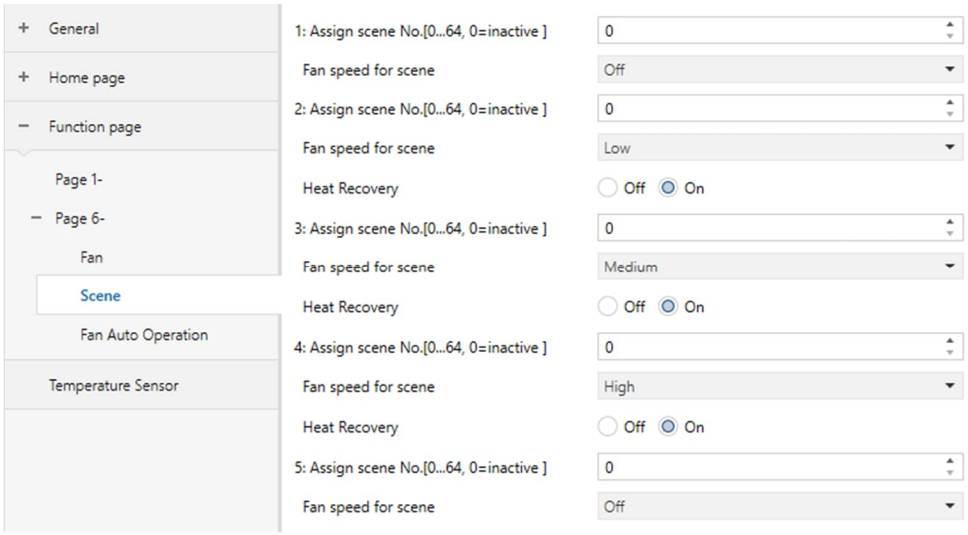
1byte



Name		Description	Range
Data type of fan speed		Sets the fan speed data type.	1 bit 1 byte (default)
1bit			
	Object value: Fan speed - Off	Defines the value sent to switch each fan speed (three 1bit objects at the same time). Displayed only if "1 bit" is selected for "Data type of fan speed"	No.1=0, No.2=0, No.3=0 (default for off) No.1=1, No.2=0, No.3=0 (default for low) No.1=0, No.2=1, No.3=0 (default for medium) No.1=1, No.2=1, No.3=0 No.1=0, No.2=0, No.3=1 (default for high) No.1=1, No.2=0, No.3=1 No.1=0, No.2=1, No.3=1 No.1=1, No.2=1, No.3=1
	Object value: Fan speed - Low		
	Object value: Fan speed - Medium		
	Object value: Fan speed - High		
Time delay between fan speed switching [0...100]		Determines the time delay for switching in milliseconds. The setting should also consider the fans technical specifications. For a value of 1…100 is chosen, the following occurs when switching the fan speed from A to B: 1. Switched off 2. Pause (time delay defined) 3. Switches to new speed 4. Sends the telegram to bus. The fan speed switches directly from A to B for a value of "0".	[0...100] * 50ms (default: 10*50ms)

Name		Description	Range
1byte			
Datatype of fan speed 1byte		Sets the data type of 1byte fan speed.	Percentage (DPT_5.001) (default) Fan stage (DPT_5.100)
Predefined value for Fan speed			
The following parameters are displayed when "Percentage (DPT_5.001)" is selected.			
{	Fan speed - Switching point	Defines the value for start-up fan.	0..100 % (default: 10 %)
	Fan speed - Low	Defines the value for Fan speed - Low.	0..100 % (default: 33 %)
	Fan speed - Medium	Defines the value for Fan speed - Medium.	0..100 % (default: 67 %)
	Fan speed - High	Defines the value for Fan speed - High.	0..100 % (default: 100 %)
The following parameters are displayed when "Fan stage (DPT_5.100)" is selected.			
{	Fan speed - Switching point	Defines the value for start-up fan.	0...255 (default: 1)
	Fan speed - Low	Defines the value for Fan speed - Low.	0...255 (default: 1)
	Fan speed - Medium	Defines the value for Fan speed - Medium.	0...255 (default: 2)
	Fan speed - High	Defines the value for Fan speed - High.	0...255 (default: 3)

3.3.5.2 "Scene" parameters



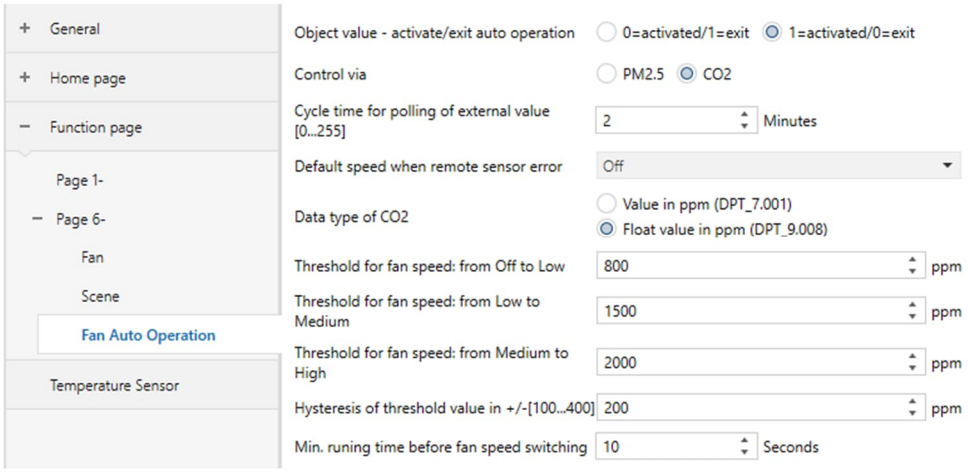
Note

When parameter "Scene control" is enabled, the following parameters are displayed.

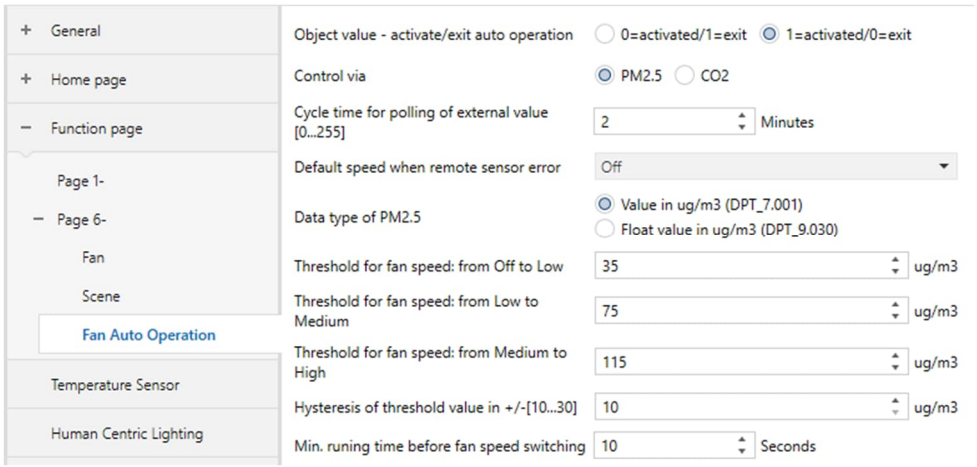
Name	Description	Range
x: Assign scene No. [0...64, 0=inactive]	Sets the scene number. x=1...5	0…64, 0 = inactive (default: 0)
Fan speed for scene	Fan speed state for a specific scene	Off Low Medium High
Heat Recovery	Heat recovery for a specific scene	On (default) Off

3.3.5.3 "Fan Auto Operation" parameters

CO_2



PM2.5



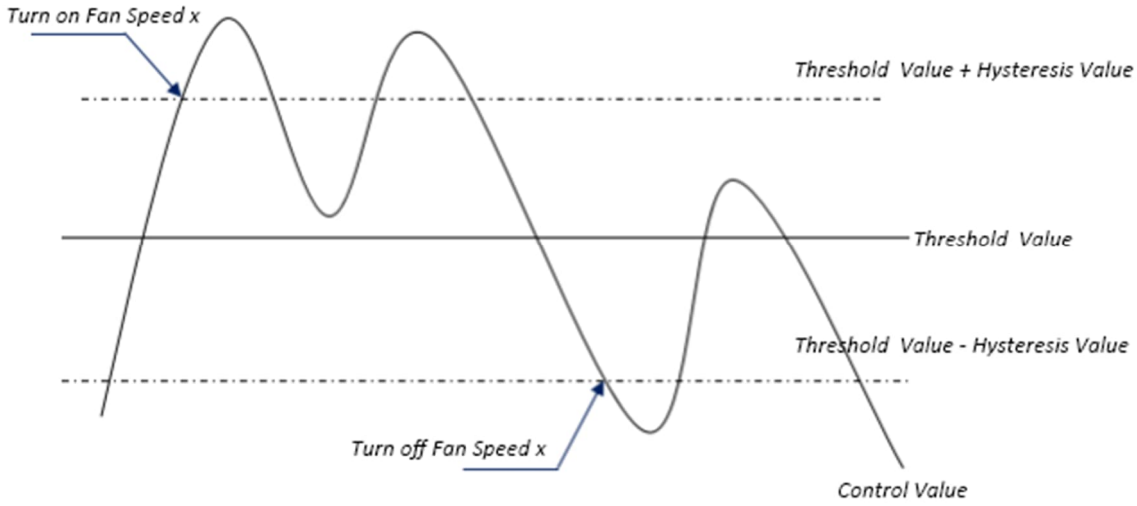
Note

The following parameters are displayed when "Auto Operation (Demand based ventilation)" is enabled.

Name	Description	Range
Object value - activate/exit auto operation	Sets the telegram value to activate automatic operation.	0=Activated/1=exit 1=Activated/0=exit (default)
Control via	The control value source to set the automatic operation.	PM2.5 CO_2 (default)
Cycle time for polling of external value [0...255]	Defines the period after which a read request is sent to retrieve an external value.	0...255 min (default: 2)
Default speed when remote sensor error	Sets the default fan speed when read of remote sensor value fails. **Note**: No response is interpreted as a sensor failure.	Off (default) Low Medium High

Name		Description	Range
CO_2			
	Data type of CO2	Determines data type of CO_2. The selection is based on the connected CO_2 sensor data type.	Value in ppm (DPT_7.001) Float value in ppm (DPT_9.008) (default)
	Threshold for fan speed: from Off to Low	If the control value is greater than or equal to the threshold set by this parameter, fan speed is set to Low; if the remote sensor value is less than the threshold, the fan is turned off.	1...4000 ppm (default: 800 ppm)
	Threshold for fan speed: from Low to Medium	If the control value is greater than or equal to the threshold set by this parameter, then fan speed is set to Medium.	1...4000 ppm (default: 1500 ppm)
	Threshold for fan speed: from Medium to High	If the control value is greater than or equal to the threshold set by this parameter, the fan speed is set to High. The controller evaluates the threshold in ascending order. It first checks OFF to low fan speed threshold →low fan speed to medium fan speed threshold →medium fan speed to high fan speed threshold. The correctness of functional execution is guaranteed only in this case: The threshold of OFF to low fan speed is lower than that of low fan speed to medium fan speed, and the threshold of low fan speed to medium fan speed is lower than that of medium fan speed to high fan speed.	1...4000 ppm (default: 2000 ppm)
	Hysteresis of threshold value in +/- [100...400]	Sets the hysteresis value (dead band) for the threshold to avoid unnecessary action of the fan when the control value fluctuates near the threshold. *	100...400 ppm (default: 200 ppm)
PM2.5			
	Data type of PM2.5	Determines the data type of PM2.5. The selection is based on the connected PM2.5 sensor data type.	Value in ug/m^3 (DPT_7.001) (default) Float value in ug/m^3 (DPT_9.030)
	Threshold for fan speed: from Off to Low	If the control value is greater than or equal to the threshold set by this parameter, the fan speed is set to Low; if the remote sensor value is less than the threshold, the fan is turned off.	1...999 µg/m^3 (default: 35)
	Threshold for fan speed: from Low to Medium	If the control value is greater than or equal to the threshold set by this parameter, then the fan speed is set to Medium.	1...999 µg/m^3 (default: 75)
	Threshold for fan speed: from Medium to High	If the control value is greater than or equal to the threshold set by this parameter, the fan speed is set to High. The controller evaluates the threshold in ascending order. First check OFF to low fan speed threshold →low fan speed to medium fan speed threshold →medium fan speed to high fan speed threshold. The correctness of functional execution is guaranteed only in this case: The threshold of OFF to low fan speed is lower than that of low fan speed to medium fan speed, and the threshold of low fan speed to medium fan speed is lower than that of medium fan speed to high fan speed.	1...999 µg/m^3 (default: 115)
	Hysteresis of threshold value in +/- [10…30]	Sets the hysteresis value (dead band) of the threshold to avoid unnecessary action of the fan when the control value fluctuates near the threshold. *	10...30 µg/m^3 (default: 10)
Min. running time before fan speed switching [s]		Defines the residence time of the fan from the current fan speed to a higher fan speed or lower fan speed, that is, the minimum time for a fan speed operation. If user needs to switch to another fan speed, you need to wait for this period before switching. If the current fan speed has been running long enough, the fan speed can be changed quickly.	0...65535 s (default: 10)

* For example, the fan is controlled via PM2.5. The hysteresis is 10 µg/m³ and the threshold is 35 µg/m³, then the upper limit threshold is 45 µg/m³ (Threshold value + Hysteresis value) and the lower limit threshold is 25 µg/m³ (Threshold value - Hysteresis value). When the control value (PM 2.5 concentration in this example) is between 25 ...45 µg/m³, the action of the fan is not activated, and the previous state is maintained. Only if the PM2.5 concentration is lower than 25 µg/m³ or higher than or equal to 45 µg/m³, the fan speed is changed as shown in the following figure:



Note: When hysteresis is enabled, if the threshold overlap occurs, the fan's action is specified as follows:

1) Hysteresis determines the control point where Fan speed conversion occurs;

2) If fan speed conversion occurs, the new fan speed is determined by the control value and the threshold value, irrespective of hysteresis.

Example 1

Take PM2.5 as an example:

- OFF to Low fan speed threshold value is 35 µg/m³.
- Low fan speed to Medium fan speed threshold value is 55 µg/m³.
- Medium fan speed to High fan speed threshold value is 75 µg/m³.
- Hysteresis value is 25 µg/m³.

The fan speed of the fan turbine increases from OFF: The fan OFF state changes at a control value of 60 µg/m³ (≥25 µg/m³ + 35 µg/m³), and the new fan speed is Medium (because 60 µg/m³ is between 55 µg/m³ and 75 µg/m³, irrespective of hysteresis), so the low fan speed is ignored.

The behavior of the fan speed when descending from fan speed High: The fan speed changes at a control value of 50 µg/m³ (<75 µg/m³ - 25 µg/m³), and the new fan speed is Low (because 50 µg/m³ is between 35 µg/m³ and 55 µg/m³, irrespective of hysteresis), so the fan speed Medium is ignored.

Example 2

Take PM2.5 as an example

- OFF to Low fan speed threshold value is 20 µg/m³.
- Low fan speed to Medium fan speed threshold value is 40 µg/m³.
- Medium fan speed to High fan speed threshold value is 70 µg/m³.
- Hysteresis value is 10 µg/m³.

When fan speed is increasing from OFF: The fan speed Low is turned on when the control value is 30 µg/m³ （≥20 µg/m³ + 10 µg/m³). When the control value 41 µg/m³ is received, the new speed is set to Medium (because 41 µg/m³ is between 40 µg/m³ and 70 µg/m³, irrespective of hysteresis), therefore fan speed Low is ignored. When the control value 39 µg/m³ is received, the new speed is set to Low (because 39 µg/m³ is between 20 µg/m³ and 40 µg/m³, irrespective of hysteresis).

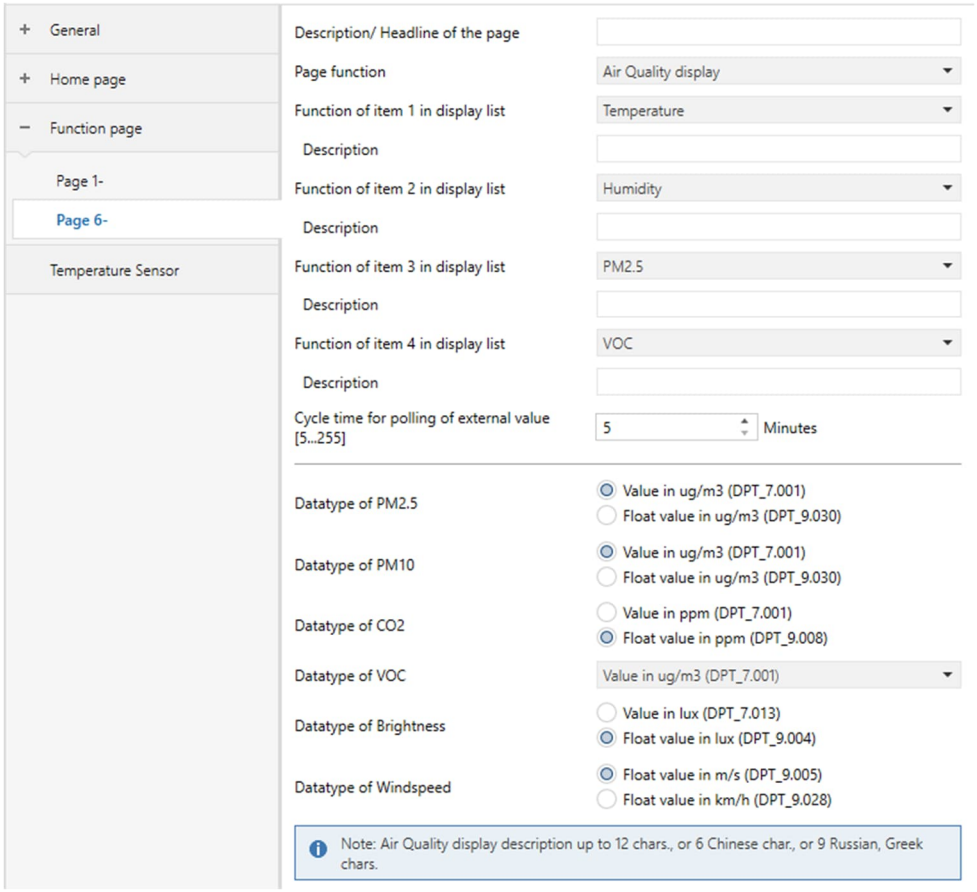
When fan speed descending from fan speed High: When the control value 39 µg/m³ is received, the new fan speed is Low (because 39 µg/m³ is between 20 µg/m³ and 40 µg/m³), therefore the fan speed Medium is ignored.

3) When the control value is 0, the fan is off at any circumstances.

3.3.6 "Page x - Air Quality display" parameters and communication objects

Parameters

Assign "Page x" as a single function –"Air Quality display" page.



Name	Description	Range
Description/Headline of the page	Names the "Function page x". **Note**: • Supports multiple languages. To display properly on screen, set "Codepage" to "Unicode (UTF-8)". Refer to **Language in display** in Parameter and communication objects [→ 41]. • Approximately 12 characters can be displayed. It depends on the width of the single character as the space is limited on the display.	15byte text
Page function	Configures the type of function page. **Note**: Pages 1...5 multifunction only; pages 6...12 can be either multifunction or single functions.	Multifunction (Lighting/Blind/Scene/Send value/Display) General temperature control Enhanced floor heating VRF Interface & Operation Ventilation System Air Quality display Energy Metering display Color and color temperature control Audio control

Name	Description	Range
Function of item 1 in display list...Function of item 4 in display list	Selects up to 4 items for display out of the list. All values are from bus.	Disable Temperature (default for item 1) Humidity (default for item 2) PM2.5 (default for item 3) PM10 CO2 VOC (default for item 4) AQI Brightness Windspeed Rain
Description (available for four selected items)	Names the function of item x in display list.	18byte text
Cycle time for polling of external value [5...255]	Defines the period after which a read request is sent to get external value.	5...255 Minutes (default: 5)
Datatype of PM2.5	Sets the data type of PM2.5.	Value in ug/m^3 (DPT_7.001) (default) Float value in ug/m^3 (DPT_9.030)
Datatype of PM10	Sets the data type of PM10.	Value in ug/m^3 (DPT_7.001) (default) Float value in ug/m^3 (DPT_9.030)
Datatype of CO2	Sets the data type of CO_2.	Value in ppm (DPT_7.001) Float value in ppm (DPT_9.008) (default)
Datatype of VOC	Sets the data type of VOC	Value in ug/m^3 (DPT_7.001) (default) Float value in ug/m^3 (DPT_9.030) Float value in ppm (DPT_9.008)
Datatype of Brightness	Sets the data type of brightness.	Value in lux (DPT_7.013) Float value in lux (DPT_9.004) (default)
Datatype of Windspeed	Sets the data type of windspeed.	Float value in m/s (DPT_9.005) (default) Float value in km/h (DPT_9.028)

Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page6-Items 1	Temperature			2 bytes	C	-	W	T	U	temperature (°C)	Low
247	Page6-Items 2	Humidity			2 bytes	C	-	W	T	U	humidity (%)	Low
248	Page6-Items 3	PM2.5			2 bytes	C	-	W	T	U	pulses	Low
249	Page6-Items 4	VOC			2 bytes	C	-	W	T	U	pulses	Low
246	Page6-Items 1	PM10			2 bytes	C	-	W	T	U	pulses	Low
247	Page6-Items 2	CO2			2 bytes	C	-	W	T	U	pulses	Low
248	Page6-Items 3	AQI			2 bytes	C	-	W	T	U	pulses	Low
249	Page6-Items 4	Brightness			2 bytes	C	-	W	T	U	brightness (lux)	Low
246	Page6-Items 1	Windspeed			2 bytes	C	-	W	T	U	speed (m/s)	Low
247	Page6-Items 2	Rain			1 bit	C	-	W	T	U	switch	Low

Note

Page number x range: 1...12

Object function depends on the value of parameters "Function of item 1 in display list"..."Function of item 4 in display list".

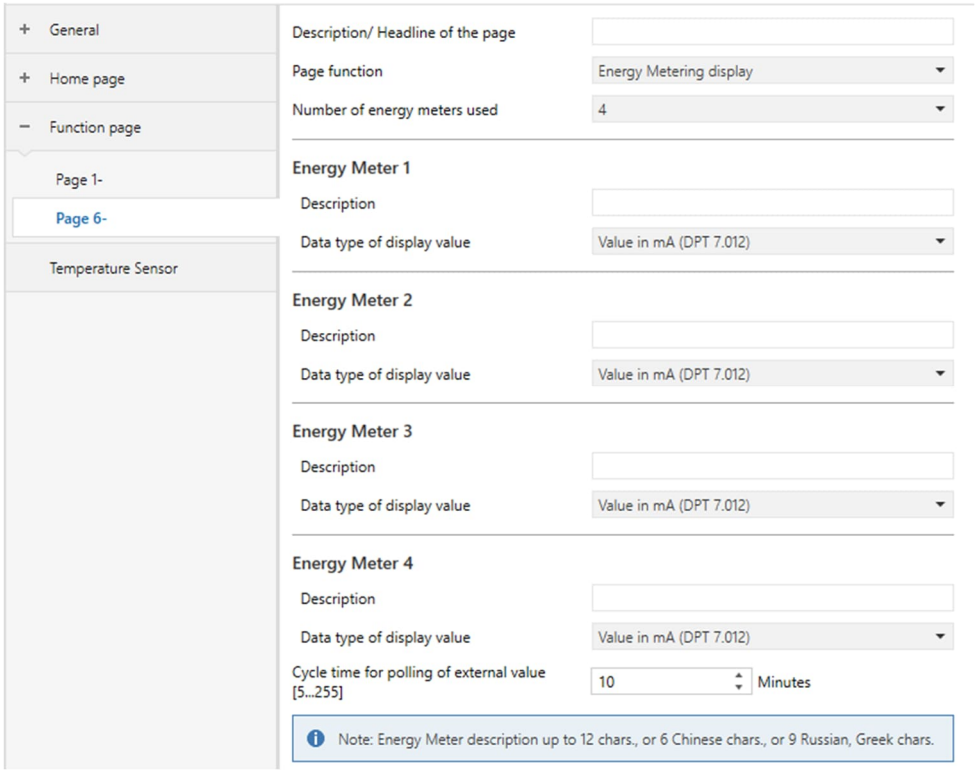
No.	Name	Object function	Length	Flag	Data type
246 247 248 249	Pagex-Items 1 Pagex-Items 2 Pagex-Items 3 Pagex-Items 4	Temperature	2 bytes	CWTU	9.001 temperature (℃)
Receives temperature measurements sent from the temperature sensor on the bus. Range: -40...40 ℃					

No.	Name	Object function	Length	Flag	Data type
246 247 248 249	Pagex-Items 1 Pagex-Items 2 Pagex-Items 3 Pagex-Items 4	Humidity	2 bytes	CWTU	9.007 humidity (%)
Receives a humidity measurement sent from a humidity sensor on a bus. Range：0...100 %					
246 247 248 249	Pagex-Items 1 Pagex-Items 2 Pagex-Items 3 Pagex-Items 4	PM2.5	2 bytes	CWTU	7.001 pulses 9.030 concentration(ug/m^3)
Receives the input of PM2.5 value and get the corresponding value from the bus to be updated to display in µg/m^3. Range: 0...999ug/m^3, the data type of the object is set by the parameter.					
246 247 248 249	Pagex-Items 1 Pagex-Items 2 Pagex-Items 3 Pagex-Items 4	PM10	2 bytes	CWTU	7.001 pulses 9.030 concentration(ug/m^3)
Receives the input of PM10 value, get the corresponding value update to display from bus, the unit is µg/m^3. Range:0...999 ug/m^3, the data type of the object is set by the parameter.					
246 247 248 249	Pagex-Items 1 Pagex-Items 2 Pagex-Items 3 Pagex-Items 4	CO2	2 bytes	CWTU	7.001 pulses 9.008 parts/million (ppm)
Receives the input of the CO_2 value and get the corresponding value from the bus to be updated to the display in ppm. Range:0...4000 ppm					
246 247 248 249	Pagex-Items 1 Pagex-Items 2 Pagex-Items 3 Pagex-Items 4	VOC	2 bytes	CWTU	7.001 pulses 9.008 parts/million (ppm) 9.030 concentration (ug/m^3)
Receives the input of the VOC value and get the corresponding value from the bus to be updated to the display in mg/m^3.Range: 0...9.99 mg/m^3, the data type of the object is set by the parameter. When the object data type is selected for 7.001 pulses, the percentile ratio is reduced based on DPT 7.001 pulses, e.g., the receiving value is 5000 ug/m^3 and the actual display value is 5.00 mg/m^3.					
246 247 248 249	Pagex-Items 1 Pagex-Items 2 Pagex-Items 3 Pagex-Items 4	AQI	2 bytes	CWTU	7.001 pulses
Receives the input of AQI value and update the corresponding value from the bus to display. Range: 0...500					
246 247 248 249	Pagex-Items 1 Pagex-Items 2 Pagex-Items 3 Pagex-Items 4	Brightness	2 bytes	CWTU	7.013 brightness (lux) 9.004 lux
Receives the input of the brightness value and get the corresponding value from the bus to be updated to the display in lux. Range:0...5000 lux. The data type of the object is set by the parameter.					
246 247 248 249	Pagex-Items 1 Pagex-Items 2 Pagex-Items 3 Pagex-Items 4	Windspeed	2 bytes	CWTU	9.005 speed (m/s) 9.028 wind speed
Receives the input of the wind speed value and get the corresponding value from the bus to be updated to the display in m/s. Range:0...50 m/s					
246 247 248 249	Pagex-Items 1 Pagex-Items 2 Pagex-Items 3 Pagex-Items 4	Rain	1 bit	CWTU	1.001 switch
Receives the input of the rain display and get the corresponding value from the bus to be updated to the display. Telegram: Rain; No rain					

3.3.7 "Page x - Energy Metering display" parameters and communication objects

Parameters

Assign "Page x" as a single function –"Energy Metering display" page.



Name	Description	Range
Description/Headline of the page	Names the "Function page x". **Note**: • Supports multiple languages. To display properly on screen, set "Codepage" to "Unicode (UTF-8)". Refer to **Language in display** in Parameter and communication objects [→ 41]. • Approximately 12 characters can be displayed. It depends on the width of the single character as the space is limited on the display.	15byte text
Page function	Configures the type of function page. **Note**: Pages 1...5 multifunction only; pages 6...12 can be either multifunction or single functions.	Multifunction (Lighting/Blind/Scene/Send value/Display) General temperature control Enhanced floor heating VRF Interface & Operation Ventilation System Air Quality display Energy Metering display Color and color temperature control Audio control
Number of energy meters used	Sets the number of energy metering.	1...8 (default: 4)
Energy Meter 1...Energy Meter 8	Energy Meter number	-
Description	Description of the energy display item. **Note**: Approximately 14…15 characters can be displayed. It depends on the width of the single character as the space is limited on the display.	18byte text

Name	Description	Range
Data type of display value	Sets the data type of energy metering display.	Value in mA (DPT 7.012) (default) Float value in mA (DPT 9.021) Float value in A (DPT 14.019) Float value in mV (DPT 9.020) Float value in V (DPT 14.027) Float value in W (DPT 14.056) Float value in kW (DPT 9.024) Value in Wh (DPT 13.010) Value in kWh (DPT 13.013)
Cycle time for polling of external value [5...255]	Defines the period after which a read request is sent to get external value.	5...255 (default: 10)

Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page6-Energy Meter 1	Current in mA (DPT 7.012)			2 bytes	C	-	W	T	U	current (mA)	Low
247	Page6-Energy Meter 2	Current in mA (DPT 9.021)			2 bytes	C	-	W	T	U	current (mA)	Low
248	Page6-Energy Meter 3	Current in A (DPT 14.019)			4 bytes	C	-	W	T	U	electric current (A)	Low
249	Page6-Energy Meter 4	Voltage in mV (DPT 9.020)			2 bytes	C	-	W	T	U	voltage (mV)	Low
250	Page6-Energy Meter 5	Voltage in V (DPT 14.027)			4 bytes	C	-	W	T	U	electric potential (V)	Low
251	Page6-Energy Meter 6	Power in W (DPT 14.056)			4 bytes	C	-	W	T	U	power (W)	Low
252	Page6-Energy Meter 7	Power in kW (DPT 9.024)			2 bytes	C	-	W	T	U	power (kW)	Low
253	Page6-Energy Meter 8	Active energy in Wh (DPT 13.010)			4 bytes	C	-	W	T	U	active energy (Wh)	Low
295	Page7-Energy Meter 1	Active energy in kWh (DPT 13.013)			4 bytes	C	-	W	T	U	active energy (kWh)	Low

Note

Page number x range: 1...12, energy meter number range 1...8

No.	Name	Object function	Length	Flag	Data type
246	Page x-Energy Meter 1	Current in mA (DPT 7.012)	2 bytes	CWTU	7.012 current (mA)
Receives the current value from the bus and update it to the screen display. The display range is 0...65535 mA, and the resolution is 1 mA.					
247	Pagex-Energy Meter 2	Current in mA (DPT 9.021)	2 bytes	CWTU	9.021 current (mA)
Receives the current value from the bus and update it to the screen display. The display range is -670760...670760 mA, and the resolution is 0.01 mA.					
248	Pagex-Energy Meter 3	Current in A (DPT 14.019)	4 bytes	CWTU	14.019 electric current (A)
Receives the current value from the bus and update it to the screen display. The display range is -99999999.9...99999999.9 A, and the resolution is 0.1 A.					
249	Pagex-Energy Meter 4	Voltage in mV (DPT 9.020)	2 bytes	CWTU	9.020 voltage (mV)
Receives voltage values from the bus and update them to the screen display. The display range is-670760mV...670760 mV, and the resolution is 0.01 mV.					
250	Pagex-Energy Meter 5	Voltage in V (DPT 14.027)	4 bytes	CWTU	14.027 electric potential (V)
Receives voltage values from the bus and update them to the screen display. The display range is：-99999999.9...99999999.9 V, and the resolution is 0.1 V.					
251	Pagex-Energy Meter 6	Power in W (DPT 14.056)	4 bytes	CWTU	14.056 power (W)
Receives the power values from the bus and update them to the screen display. The display range is-99999999.9... 99999999.9 W, and the resolution is 0.1 W.					
252	Pagex-Energy Meter 7	Power in kW (DPT 9.024)	2 bytes	CWTU	9.024 power (kW)
Receives the power values from the bus and update them to the screen display. The display range is-670760...670760 kW, and the resolution is 0.01 kW.					

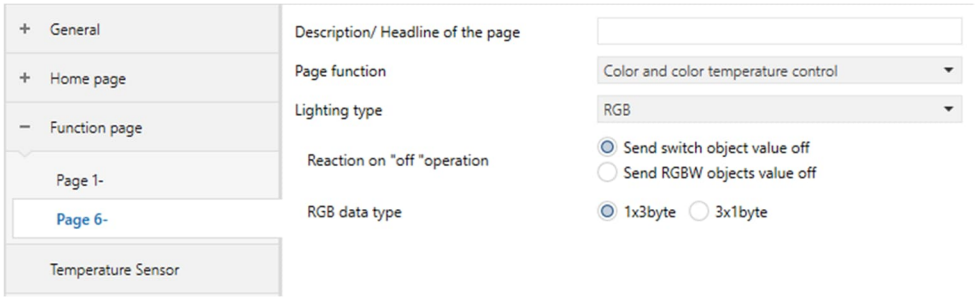
No.	Name	Object function	Length	Flag	Data type
253	Pagex-Energy Meter 8	Active energy in Wh (DPT 13.010)	4 bytes	CWTU	13.010 active energy (Wh)
Receives the electrical values from the bus and update them to the screen display. The display range is：-2147483648...2147483647 Wh, and the resolution is 1 Wh.					
295	Page x-Energy Meter 1	Active energy in kWh (DPT 13.013)	4 bytes	CWTU	13.013 active energy (kWh)
Receives the electrical values from the bus and update them to the screen display. The display range is：-2147483648...2147483647 kWh, and the resolution is 1 kWh.					

3.3.8 "Page x - Color and color temperature control" parameters and communication objects

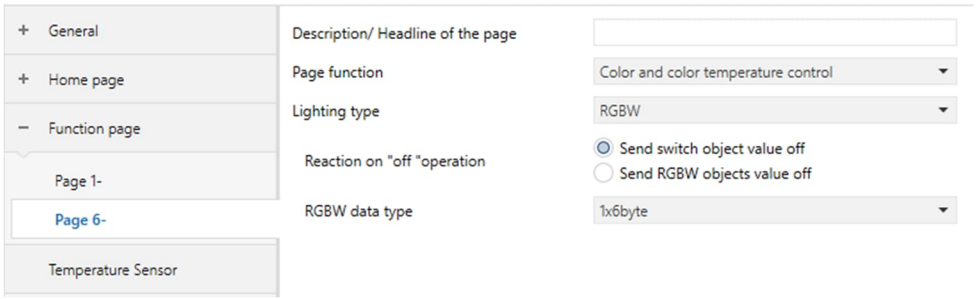
Parameters

Assign "Page x" as a single function –"Color and color temperature control" page.

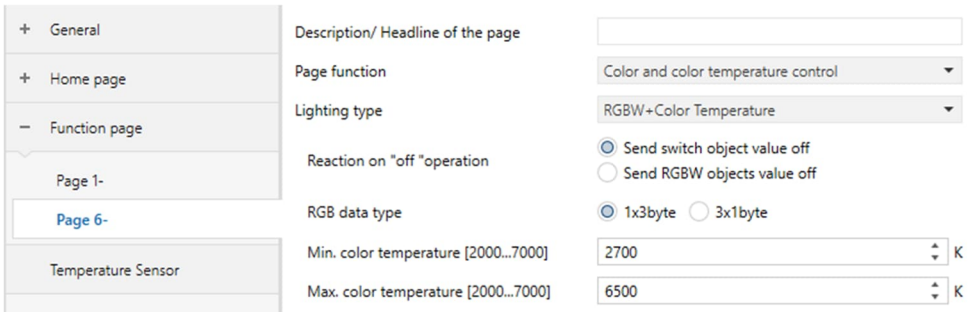
RGB



RGBW



RGBW+Color Temperature



Name		Description	Range
Description/Headline of the page		Names the "Function page x". **Note**: ● Supports multiple languages. To display properly on screen, set "Codepage" to "Unicode (UTF-8)". Refer to **Language in display** in Parameter and communication objects [→ 41]. ● Approximately 12 characters can be displayed. It depends on the width of the single character as the space is limited on the display.	15byte text
Page function		Configures the type of function page. **Note**: Pages 1...5 multifunction only; pages 6...12 can be either multifunction or single functions.	Multifunction (Lighting/Blind/Scene/Send value/Display) General temperature control Enhanced floor heating VRF Interface & Operation Ventilation System Air Quality display Energy Metering display Color and color temperature control Audio control
Lighting type		Sets the RGB type **Note**: R: red; G: green; B: blue; W: white	RGB (default) RGBW RGBW+Color Temperature
Reaction on "off "operation		Defines the action during "off" operation.	Send switch object value off (default) Send RGBW objects value off
The following parameter is displayed when "RGB" or "RGBW+Color Temperature" is selected.			
{	RGB data type	Sets the object type of RGB.	1X3byte (default) 3X1byte
The following parameter is displayed when "RGBW" is selected.			
{	RGBW data type	Sets the object type of RGBW.	1X6byte (default) 4X1byte 3byte+1byte
The following parameters are displayed when "RGBW+Color Temperature" is selected.			
{	Min. color temperature [2000...7000]	Defines minimum color temperature value.	2000...7000 K (default: 2700)
{	Max. color temperature [2000...7000]	Defines maximum color temperature value.	2000...7000 K (default: 6500)

Communication objects

Note

Page number x range: 1...12

RGB _1x3byte

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6-	RGB dimming value			3 bytes	C	-	-	T	-	RGB value 3x(0..255)	Low
252	Page 6-	Status RGB brightness			3 bytes	C	-	W	T	U	RGB value 3x(0..255)	Low
258	Page 6-	Switching			1 bit	C	-	-	T	-	switch	Low
259	Page 6-	Status switching			1 bit	C	-	W	T	U	switch	Low
294	Page 6-	Lock			1 bit	C	-	W	-	-	enable	Low

RGB _3x1byte

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6-	Red dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
247	Page 6-	Green dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
248	Page 6-	Blue dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
252	Page 6-	Status red brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
253	Page 6-	Status green brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
254	Page 6-	Status blue brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
258	Page 6-	Switching			1 bit	C	-	-	T	-	switch	Low
259	Page 6-	Status switching			1 bit	C	-	W	T	U	switch	Low
294	Page 6-	Lock			1 bit	C	-	W	-	-	enable	Low

RGBW _1x6byte

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6-	RGBW dimming value			6 bytes	C	-	-	T	-	RGBW value 4x(0..100%)	Low
252	Page 6-	Status RGBW brightness			6 bytes	C	-	W	T	U	RGBW value 4x(0..100%)	Low
258	Page 6-	Switching			1 bit	C	-	-	T	-	switch	Low
259	Page 6-	Status switching			1 bit	C	-	W	T	U	switch	Low
294	Page 6-	Lock			1 bit	C	-	W	-	-	enable	Low

RGBW _3byte+1byte

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6-	RGB dimming value			3 bytes	C	-	-	T	-	RGB value 3x(0..255)	Low
249	Page 6-	White dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
252	Page 6-	Status RGB brightness			3 bytes	C	-	W	T	U	RGB value 3x(0..255)	Low
255	Page 6-	Status white brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
258	Page 6-	Switching			1 bit	C	-	-	T	-	switch	Low
259	Page 6-	Status switching			1 bit	C	-	W	T	U	switch	Low
294	Page 6-	Lock			1 bit	C	-	W	-	-	enable	Low

RGBW _4x1byte

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6-	Red dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
247	Page 6-	Green dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
248	Page 6-	Blue dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
249	Page 6-	White dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
252	Page 6-	Status red brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
253	Page 6-	Status green brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
254	Page 6-	Status blue brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
255	Page 6-	Status white brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
258	Page 6-	Switching			1 bit	C	-	-	T	-	switch	Low
259	Page 6-	Status switching			1 bit	C	-	W	T	U	switch	Low
294	Page 6-	Lock			1 bit	C	-	W	-	-	enable	Low

RGBW+Color temperature_1x3byte

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6-	RGB dimming value			3 bytes	C	-	-	T	-	RGB value 3x(0..255)	Low
250	Page 6-	Brightness value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
251	Page 6-	Color temperature value			2 bytes	C	-	-	T	-	absolute colour temperature (K)	Low
252	Page 6-	Status RGB brightness			3 bytes	C	-	W	T	U	RGB value 3x(0..255)	Low
256	Page 6-	Status brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
257	Page 6-	Status color temperature value			2 bytes	C	-	W	T	U	absolute colour temperature (K)	Low
258	Page 6-	Switching			1 bit	C	-	-	T	-	switch	Low
259	Page 6-	Status switching			1 bit	C	-	W	T	U	switch	Low
294	Page 6-	Lock			1 bit	C	-	W	-	-	enable	Low

RGBW+Color temperature_3x1byte

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6-	Red dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
247	Page 6-	Green dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
248	Page 6-	Blue dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
250	Page 6-	Brightness value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
251	Page 6-	Color temperature value			2 bytes	C	-	-	T	-	absolute colour temperature (K)	Low
252	Page 6-	Status red brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
253	Page 6-	Status green brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
254	Page 6-	Status blue brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
256	Page 6-	Status brightness			1 byte	C	-	W	T	U	percentage (0..100%)	Low
257	Page 6-	Status color temperature value			2 bytes	C	-	W	T	U	absolute colour temperature (K)	Low
258	Page 6-	Switching			1 bit	C	-	-	T	-	switch	Low
259	Page 6-	Status switching			1 bit	C	-	W	T	U	switch	Low
294	Page 6-	Lock			1 bit	C	-	W	-	-	enable	Low

No.	Name	Object function	Length	Flag	Data type
246	Page x-	RGB dimming value	3 bytes	CT	232.600 RGB value 3x (0...255)
252		Status RGB brightness		CWTU	

Theses communication objects are displayed when 1x3byte is selected for the RGB object type, 3byte+1byte is selected for RGBW object type or 1x3byte is selected for RGBW+Color temperature object type. They control brightness of multiple-color lamps and adjust color temperature.

- Object 246 sends the brightness value for the RGB three-color lamp to bus.
- Object 252 receives the brightness value of the RGB three-color lamp from bus.

3-Byte Code for RGB Dimming Object Data Type: U8 U8 U8, as follows:

3_{MSB} R UUUUUUUU	2 G UUUUUUUU	1_{LSB} B UUUUUUUU

R: red dimming value; G: green dimming value; B: blue dimming value; MSB: most significant bit; LSB: least significant bit.

246	Page x-	RGBW dimming value	6 bytes	CT	251.600 RGBW value 4x(0...100 %)
252		Status RGBW brightness		CWTU	

The communication objects are displayed when 1x6byte is selected for the RGBW object type. They control brightness of multiple-color lamps.

- Object 246 sends the brightness value for the RGBW four-color lamp to bus.
- Object 252 receives the brightness value of the RGBW four-color lamp from bus.

Encoding of the data type of the 6-byte RGBW dimming object: U8 U8 U8 U8 R8 R4 B4, as follows:

6_{MSB} R UUUUUUUU	5 G UUUUUUUU	4 B UUUUUUUU	3 W UUUUUUUU	2 Reserve 00000000	1_{LSB} r r r r mR mG mB mW 0000BBBB

MSB: most significant bit; R: red dimming value; G: green dimming value; B: blue dimming value; W: white dimming value; LSB: least significant bit; r: reserved; mR: determines whether the red dimming value is valid, 0 = invalid, 1 = valid; mG: determines whether the green dimming value is valid, 0 = invalid, 1 = valid; mB: determines whether the blue dimming value is valid, 0 = invalid, 1 = valid; mW: Determines whether the white dimming value is valid,0 = invalid,1 =valid.

246	Page x-	Red dimming value	1 byte	CT	5.001 percentage (0...100%)
252		Status red brightness		CWTU	

The communication objects are displayed when 3x1byte is selected for the RGB object type, 4x1byte is selected for RGBW object type or 3x1byte is selected for RGBW+Color temperature object type. They control brightness of multiple-color lamps and adjust color temperature. Telegram value: 0...100 %

- Object 246 sends the brightness value of R (red) to bus.
- Object 252 receives the brightness value of R (red).

247	Page x-	Green dimming value	1 byte	CT	5.001 percentage (0...100%)
253		Status green brightness		CWTU	

The communication objects are displayed when 3x1byte is selected for the RGB object type, 4x1byte is selected for RGBW object type or 3x1byte is selected for RGBW+Color temperature object type. They control brightness of multiple-color lamps and adjust color temperature. Telegram value: 0...100 %

- Object 247 sends the brightness value of G (green) to bus.
- Object 253 receives the brightness value of G (green).

248	Page x-	Blue dimming value	1 byte	CT	5.001 percentage (0...100%)
254		Status blue brightness		CWTU	

The communication objects are displayed when 3x1byte is selected for the RGB object type, 4x1byte is selected for RGBW object type or 3x1byte is selected for RGBW+Color temperature object type. They control brightness of multiple-color lamps and adjust color temperature. Telegram value: 0...100 %

- Object 248 sends the brightness value of B (blue) to bus.
- Object 254 receives the brightness value of B (blue).

249	Page x-	White dimming value	1 byte	CT	5.001 percentage (0...100%)
255		Status white brightness		CWTU	

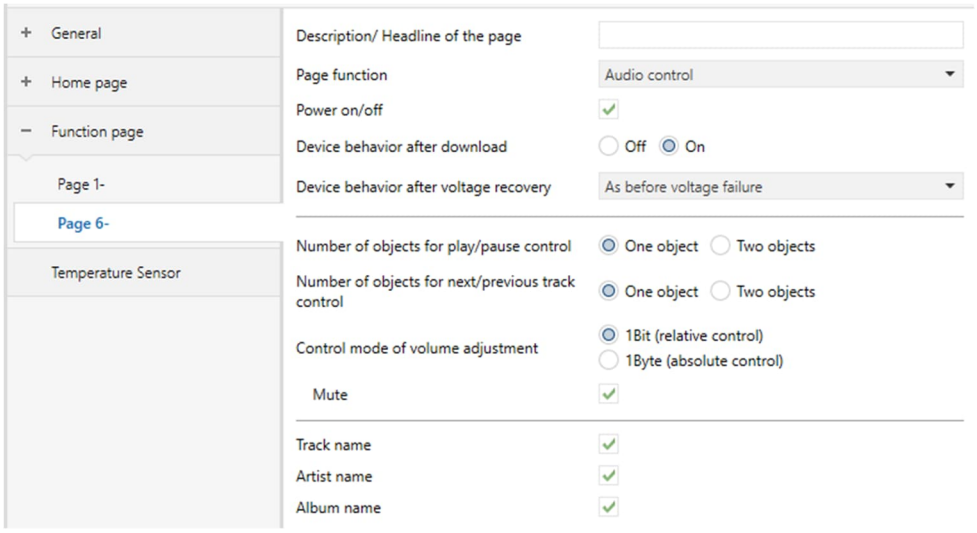
No.	Name	Object function	Length	Flag	Data type
The communication objects are displayed when 3byte+1byte or 4x1byte is selected for the RGBW object type. They control brightness of multiple-color lamps. Telegram value: 0...100 % ● Object 249 sends the brightness value of W (white) to bus. ● Object 255 receives the brightness value of W (white).					
250	Page x-	Brightness value	1 byte	CT	5.001 percentage (0...100%)
256		Status brightness		CWTU	
The communication objects are displayed for the RGBW+Color temperature object type. They control brightness of single-color and bi-color lamps. Telegram value: 0...100 % ● Object 250 sends the brightness value for the lamp to bus. ● Object 256 receives the brightness value of the lamp from bus.					
251	Page x-	Color temperature value	2 bytes	CT	7.600 absolute color temperature (K)
257		Status color temperature value		CWTU	
The communication objects are displayed for the RGBW+Color temperature object type. They adjust color temperature of single-color and bi-color lamps. Telegram value: 2000...7000 K ● Object 251 sends the color temperature control value for the lamp to bus. ● Object 257 receives the color temperature control value of the lamp from bus.					
258	Page x-	Switching	1 bit	CT	1.001 switch
259		Status switching		CWTU	
Controls light switch. Telegram value: 0: Off 1: On ● Object 258 sends on/off control telegram for light to bus. ● Object 259 receives status feedback of on/off control from bus.					
294	Page x-	Lock	1 bit	CW	1.003 enable
Receives the telegram of lock from bus. Telegram value: 0: Lock 1: Unlock **Note**: During lock, the telegram can still be received.					

3.3.9 "Page x - Audio control" parameters and communication objects

Parameters

Assign "Page x" as a single function –"Audio control" page.

When function is enabled, the objects for audio control are visible, such as Off/On, play/pause, volume, previous song/next song, album name, track name, artist name, etc. The music could be sourced from USB/SD/AUX/FM/BT. For some of the music sources, a gateway is needed.



Name	Description	Range
Description/Headline of the page	Names the "Function page x". **Note**: • Supports multiple languages. To display properly on screen, set "Codepage" to "Unicode (UTF-8)". Refer to **Language in display** in Parameter and communication objects [→ 41]. • Approximately 12 characters can be displayed. It depends on the width of the single character as the space is limited on the display.	15byte text
Page function	Configures the type of function page. **Note**: Pages 1...5 multifunction only; pages 6...12 can be either multifunction or single functions.	Multifunction (Lighting/Blind/Scene/Send value/Display) General temperature control Enhanced floor heating VRF Interface & Operation Ventilation System Air Quality display Energy Metering display Color and color temperature control Audio control
Power On/Off	Selects power on or off.	Disable Enable (default)

Name		Description	Range
The following parameters are displayed when "Power On/Off" is enabled.			
	Device behavior after download	Sets on/off status of audio function after the application is downloaded	Off On (default)
	Device behavior after voltage recovery	Sets if the device is powered on/off after voltage recovery.	Off On As before voltage failure (default)
Number of objects for play/pause control		Sets object number for play and pause control.	One object (default) Two objects
Number of objects for next/previous track control		Sets object number for next/previous control.	One object (default) Two objects
Control mode of volume adjustment		Sets control mode of volume adjustment.	1Bit (relative control) (default) 1Byte (absolute control)
The following parameter is displayed when "1Bit (relative control)" is selected.			
	Mute	Enables or disables mute function.	Disable (default) Enable
The following parameters are displayed when "1Byte (absolute control)" is selected.			
	Object datatype	Sets object data type.	Percentage (DPT_5.001) Percentage (DPT_5.004)
	Max. volume value [10...100]	Sets maximum volume.	10...100 % (default: 100 %)
Track name		Enables or disables track name function.	Disable (default) Enable
Artist name		Enables or disables artist name function.	Disable (default) Enable
Album name		Enables or disables Album name function.	Disable (default) Enable

Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
246	Page 6- (send)	Power On/Off			1 bit	C	-	-	T	-	switch	Low
249	Page 6- (send)	Absolute volume			1 byte	C	-	-	T	-	percentage (0..100%)	Low
253	Page 6- (receive)	Power On/Off			1 bit	C	-	W	T	U	switch	Low
255	Page 6- (receive)	Absolute volume			1 byte	C	-	W	T	U	percentage (0..100%)	Low
258	Page 6- (receive/send)	Track name			14 bytes	C	-	W	T	U	Character String (ISO 8859-1)	Low
259	Page 6- (receive/send)	Album name			14 bytes	C	-	W	T	U	Character String (ISO 8859-1)	Low
260	Page 6- (receive/send)	Artist name			14 bytes	C	-	W	T	U	Character String (ISO 8859-1)	Low
261	Page 6- (send)	Play			1 bit	C	-	-	T	-	trigger	Low
262	Page 6- (send)	Pause			1 bit	C	-	-	T	-	trigger	Low
263	Page 6- (receive)	Play			1 bit	C	-	W	T	U	trigger	Low
264	Page 6- (receive)	Pause			1 bit	C	-	W	T	U	trigger	Low
265	Page 6- (send)	Next track			1 bit	C	-	-	T	-	trigger	Low
266	Page 6- (send)	Previous track			1 bit	C	-	-	T	-	trigger	Low
247	Page 6- (send)	Play=1/Pause=0			1 bit	C	-	-	T	-	start/stop	Low
248	Page 6- (send)	Next track=1/Previous track=0			1 bit	C	-	-	T	-	step	Low
252	Page 6- (send)	Volume+=1/Volume-=0			1 bit	C	-	-	T	-	step	Low
254	Page 6- (receive)	Play=1/Pause=0			1 bit	C	-	W	T	U	start/stop	Low
256	Page 6- (send)	Mute			1 bit	C	-	-	T	-	enable	Low
257	Page 6- (receive)	Mute			1 bit	C	-	W	T	U	enable	Low

Page number x range: 1...12

No.	Name	Object function	Length	Flag	Data type
246	Page x- (send)	Power On/Off	1 bit	CT	1.001 switch
Sends the background music on/off controlling telegram to the bus, to control the power of the audio module. Telegram value: 0: Off 1: On					
247	Page x- (send)	Play=1/Pause=0	1 bit	CT	1.010 start/stop
Displayed when "One object" is selected. Plays/stops the music in the audio module. Telegram value: 0: Pause playing music 1: Play music					
248	Page x- (send)	Next track=1/Previous track=0	1 bit	CT	1.007 step
Displayed when "One object" is selected. Switches the audio module to previous song/next song. Telegram value: 0: Play the previous song 1: Play the next song					
249	Page x- (send)	Absolute volume	1 byte	CT	5.001 percentage 5.004 percentage
Displayed when parameter "Control mode of volume adjustment" is set to "1Byte (absolute control)". Adjusts the audio volume. Telegram value is based on different data type: 0...100 % / 0...255.					
252	Page x- (send)	Volume+=1/Volume-=0	1 bit	CT	1.007 step
Displayed when parameter "Control mode of volume adjustment" is set as "1Bit (relative control)". Adjusts the audio volume. Telegram value: 0: Decrease volume 1: Increase volume					
253	Page x- (receive)	Power On/Off	1 bit	CWTU	1.001 switch
Receives feedback from the switch status of the audio on the bus. Telegram value: 0: Off 1: On					

No.	Name	Object function	Length	Flag	Data type
254	Page x- (receive)	Play=1/Pause=0	1 bit	CWTU	1.010 start/stop
Displayed when "One object" is selected. Receives feedback of play/stop music in the audio module. Telegram value: 0: Pause playing music 1: Play music					
255	Page x- (receive)	Absolute volume	1 byte	CWTU	5.001 percentage 5.004 percentage
Displayed when parameter "Control mode of volume adjustment" is set as "1Byte (absolute control)". Receives feedback on audio volume. Telegram value depends on different data type: 0...100 % / 0...255.					
256	Page x- (send)	Mute	1 bit	CT	1.003 enable
Displayed when parameter "Control mode of volume adjustment" is set as "1Bit (relative control)" and mute is enabled. Sends audio mute request to bus.					
257	Page x- (receive)	Mute	1 bit	CWTU	1.003 enable
Displayed when parameter "Control mode of volume adjustment" is set as "1Bit (relative control)" and mute is enabled. Receives feedback of audio mute.					
258	Page x- (receive/send)	Track name	14 bytes	CWTU	16.001 character string (ISO 8859-1)
Receives track name from bus and is displayed on HMI.					
259	Page x- (receive/send)	Album name	14 bytes	CWTU	16.001 character string (ISO 8859-1)
Receives album name from bus and is displayed on HMI.					
260	Page x- (receive/send)	Artist name	14 bytes	CWTU	16.001 character string (ISO 8859-1)
Receives artist name from bus and is displayed on HMI.					
261	Page x- (send)	Play	1 bit	CT	1.003 enable
Displayed when "Two objects" is selected. Plays music in the audio module. Telegram value: 1: Play					
262	Page x- (send)	Pause	1 bit	CT	1.003 enable
Displayed when "Two objects" is selected. Stops music in the audio module. Telegram value: 1: Stop					
263	Page x- (receive)	Play	1 bit	CWTU	1.003 enable
Displayed when "Two objects" is selected. Receives feedback of audio play. Telegram value: 1: Play					
264	Page x- (receive)	Pause	1 bit	CWTU	1.003 enable
Displayed when "Two objects" is selected. Receives feedback of audio pause. Telegram value: 1: Stop					
265	Page x- (send)	Next track	1 bit	CT	1.003 enable
Displayed when "Two objects" is selected. Switches to next song. Telegram value: 1: Next					
266	Page x- (send)	Previous track	1 bit	CT	1.003 enable
Displayed when "Two objects" is selected. Switches to previous song. Telegram value: 1: Previous					

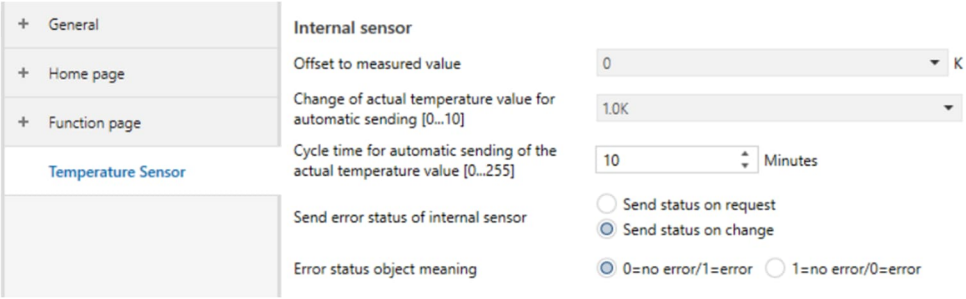
3.4 "Temperature sensor"

Sensor parameters

Sensor parameters configure the internal sensor (built-in temperature sensor).

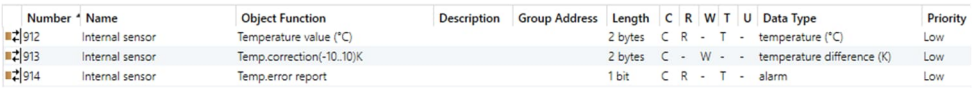
Built-in temperature sensor:

- NTC 100K
- The sensor is located at the bottom of the device inside the metal frame.



Name	Description	Range
Internal sensor	Built-in temperature sensor configuration	
Offset to measured value	Permits on-site temperature adjustment to synchronize with reference.	-10...10 K (default: 0 K)
Change of actual temperature value for automatic sending	Configures the temperature change, after which the device sends the current temperature value to bus. The temperature is not sent for "Disable".	1…10K (default: 1.0K) Disable
Cycle time for automatic sending of the actual temperature value [0...255]	Configures the time interval in minutes after which the device sends the internal temperature value to the bus. This action is independent of the "Change of actual temperature value for automatic sending" defined above. Automatic sending starts immediately after programming or reset.	0...255 min (default: 10)
Send error status of internal sensor	Defines how the error status is reported when built-in sensor fails.	Send status on request Send status on change (default)
Error status object meaning	Defines the meaning of the object value • Built-in sensor failure definition: When the temperature value exceeds the range of -20 ℃ …+ 60 ℃, it's considered as sensor failure. • Communication failure caused by built-in sensor hardware issue.	0=no error/1=error (default) 1=no error/0=error

Communication objects

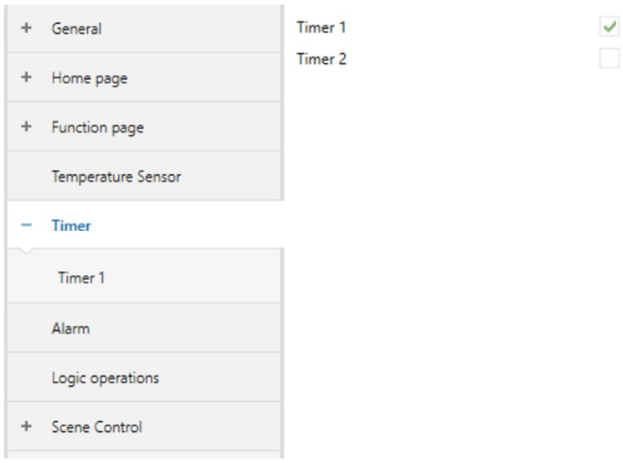


Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
912	Internal sensor	Temperature value (°C)			2 bytes	C	R	-	T	-	temperature (°C)	Low
913	Internal sensor	Temp.correction(-10..10)K			2 bytes	C	-	W	-	-	temperature difference (K)	Low
914	Internal sensor	Temp.error report			1 bit	C	R	-	T	-	alarm	Low

No.	Name	Object function	Length	Flag	Data type
912	Internal sensor	Temperature value (°C)	2 bytes	CRT	9.001 temperature (℃)
Transmits the temperature value detected by the built-in temperature sensor to bus. Range: -50...99.8 ℃					
913	Internal sensor	Temp.correction (-10...10) K	2 bytes	CW	9.002 temperature difference
Corrects the temperature measured value of the built-in temperature sensor via bus.					
914	Internal sensor	Temp. error report	1 bit	CRT	1.005 alarm
Sends the error report of the built-in temperature sensor, and the object value is defined according to the parameter.					

3.5 "Timer"

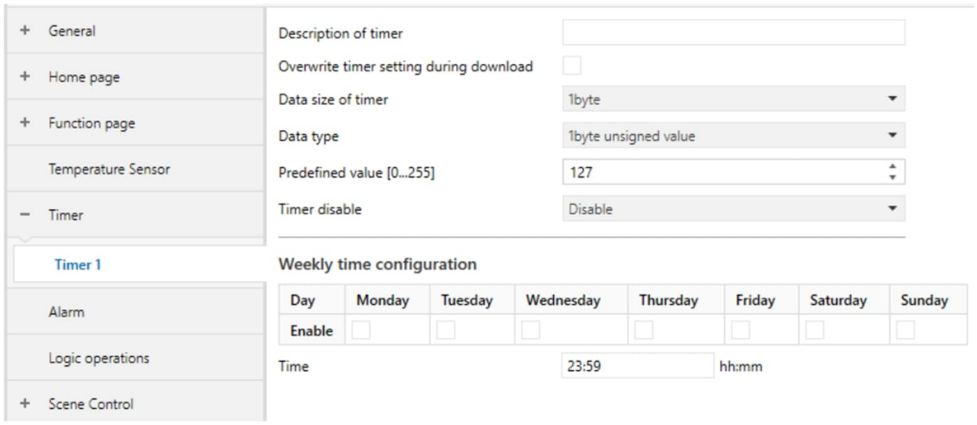
Parameters



Name	Description	Range
Timer 1...Timer 8	Shows a separate timer options page when enabled. You can set the timer function that is used for each specific timer.	Enable Disable

3.5.1 "Timer x" parameters and communication objects

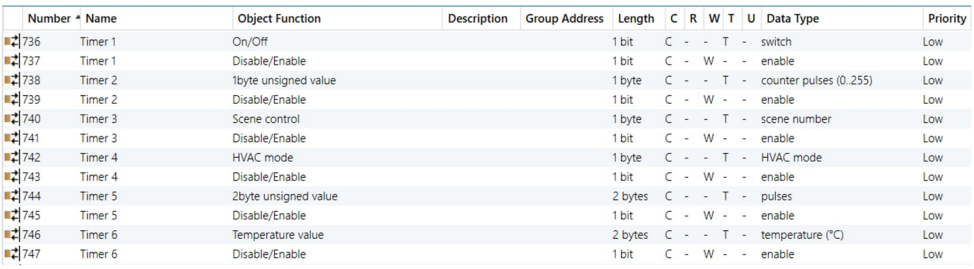
Parameters



Name	Description	Range
Description of timer	Names the "Timer x". **Note**: • Supports multiple languages. To display properly on screen, set "Codepage" to "Unicode (UTF-8)". Refer to **Language in display** in Parameter and communication objects [→ 41]. • Maximum 12 characters displayed, but only 5 characters for Chinese, 7 characters for Russian or Greek.	12byte text

Name	Description	Range
Overwrite timer setting during download	Defines whether the timer function setting is overwritten after new database download. Note: If "Overwrite timer setting during download" is enabled, the "Weekly time configuration" will be downloaded to device and the timer will be active after download. Otherwise, the current timer setting on HMI will be kept. For new created timer, the timer will be active after download whether this parameter is enabled or not.	No (default) Yes
Data size of timer	Selects the data size of the value sent when it reaches the trigger moment of timer x.	1bit [On/Off] 1byte (default) 2byte
The following parameter is displayed when "1bit [On/Off]" is selected.		
Predefined value: On / Off	Sets the telegram value sent when it reaches the trigger moment for timer x. The value range is based on the selected data type (previous parameter).	On Off (default)
The following parameter is displayed when "1byte" or "2byte" is selected.		
"1byte" is selected		
Data type	Selects the value data type when it reaches the trigger moment for timer x.	1byte unsigned value (default) 1byte [scene] HVAC mode
Datatype: 1byte unsigned value Predefined value [0…255]	Sets the telegram value sent when it reaches the trigger moment for timer x. The value range is based on the selected Data type.	0...255 (default: 127)
Datatype: 1byte [scene] Predefined Scene No. [1…64]		Scene No.1 (default)...Scene No.64
Datatype: HVAC mode Predefined value [HVAC mode]		Comfort mode (default) Standby mode Economy mode Protection mode
"2byte" is selected		
Data type	Selects the data type of the sent value when it reaches the trigger moment for timer x.	2byte unsigned value (default) Temperature value
Datatype: 2byte unsigned value Predefined value [0…65535]	Sets the telegram value sent when it reaches the trigger moment for timer x. The value range is based on the selected Data type.	0…65535 (default: 32767)
Datatype: Temperature value Predefined value [-5...45°C]		-5...45 °C (default: 25 °C)
Timer disable	Determines whether it is possible to enable or disable the timer function via object and the trigger value of enabling/disabling the function.	Disable (default) Disable=0/Enable=1 Disable=1/Enable=0
Weekly time configuration		
Monday...Sunday	Configures the day of a week to enable timer x.	Enable Disable (default)
Time	Configures the specific time of timer x.	00:00~23:59 hh:mm (default: 23:59)

Communication objects

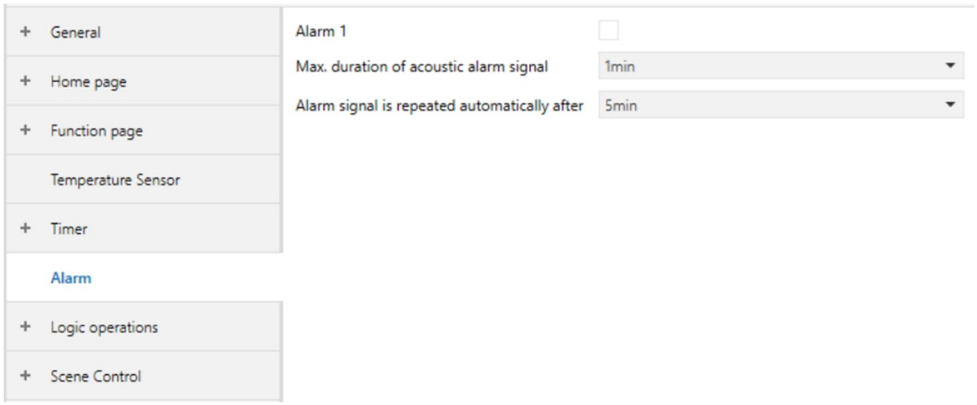


Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
736	Timer 1	On/Off			1 bit	C	-	-	T	-	switch	Low
737	Timer 1	Disable/Enable			1 bit	C	-	W	-	-	enable	Low
738	Timer 2	1byte unsigned value			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
739	Timer 2	Disable/Enable			1 bit	C	-	W	-	-	enable	Low
740	Timer 3	Scene control			1 byte	C	-	-	T	-	scene number	Low
741	Timer 3	Disable/Enable			1 bit	C	-	W	-	-	enable	Low
742	Timer 4	HVAC mode			1 byte	C	-	-	T	-	HVAC mode	Low
743	Timer 4	Disable/Enable			1 bit	C	-	W	-	-	enable	Low
744	Timer 5	2byte unsigned value			2 bytes	C	-	-	T	-	pulses	Low
745	Timer 5	Disable/Enable			1 bit	C	-	W	-	-	enable	Low
746	Timer 6	Temperature value			2 bytes	C	-	-	T	-	temperature (°C)	Low
747	Timer 6	Disable/Enable			1 bit	C	-	W	-	-	enable	Low

No.	Name	Object function	Length	Flag	Data type
736	Timer x	On/Off	1 bit	CT	1.001 switch
Sends the preset telegram value of the timer function to the bus. The timer function, default value and object type are set by the parameters. A total of 16 timers (x = 16) can be set.					
737 739 741 743 745 747	Timer x	Disable/Enable	1 bit	CW	1.003 enable
Disables/enables timer function x. The disable/enable telegram value is specifically defined by the parameter. When disabled, timer x function is also disabled.					
738	Timer x	1byte unsigned value	1 byte	CT	5.010 counter pulses (0...255)
Sends the preset telegram value of the timer function to the bus. The timer function, default value and object type are set by the parameters. A total of 16 timers (x = 16) can be set.					
740	Timer x	Scene control	1 byte	CT	17.001 scene number
Sends the preset telegram value of the timer function to the bus. The timer function, default value and object type are set by the parameters. A total of 16 timers (x = 16) can be set.					
742	Timer x	HVAC mode	1 byte	CT	20.102 HVAC mode
Sends the preset telegram value of the timer function to the bus. The timer function, default value and object type are set by the parameters. A total of 16 timers (x = 16) can be set.					
744	Timer x	2byte unsigned value	2 bytes	CT	7.001 pulses
Sends the preset telegram value of the timer function to the bus. The timer function, default value and object type are set by the parameters. A total of 16 timers (x = 16) can be set.					
746	Timer x	Temperature value	2 bytes	CT	9.001 temperature
Sends the preset telegram value of the timer function to the bus. The timer function, default value and object type are set by the parameters. A total of 16 timers (x = 16) can be set.					

3.6 "Alarm"

Parameters

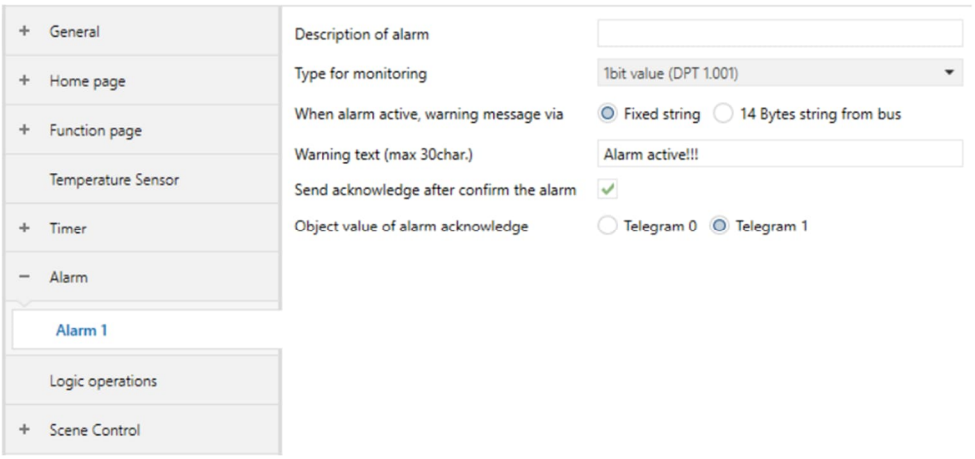


Name	Description	Range
Alarm 1...Alarm 5	If Alarm x is enabled, a separate page with alarm options is displayed. You can configure each specific alarm.	Enable Disable (default)
Max. duration of acoustic alarm signal	Defines the maximum duration of acoustic alarm signal.	Disable 10s 20s 30s 1min (default) 2min 3min 4min 5min 10min 15min 20min 25min 30min
Alarm signal is repeated automatically after	Defines the period the alarm signal is repeated. This parameter does not display if the parameter "Max. duration of acoustic alarm signal" is set to "Disable".	Disable 10s 20s 30s 1min 2min 3min 4min 5min (default) 10min 15min 20min 25min 30min

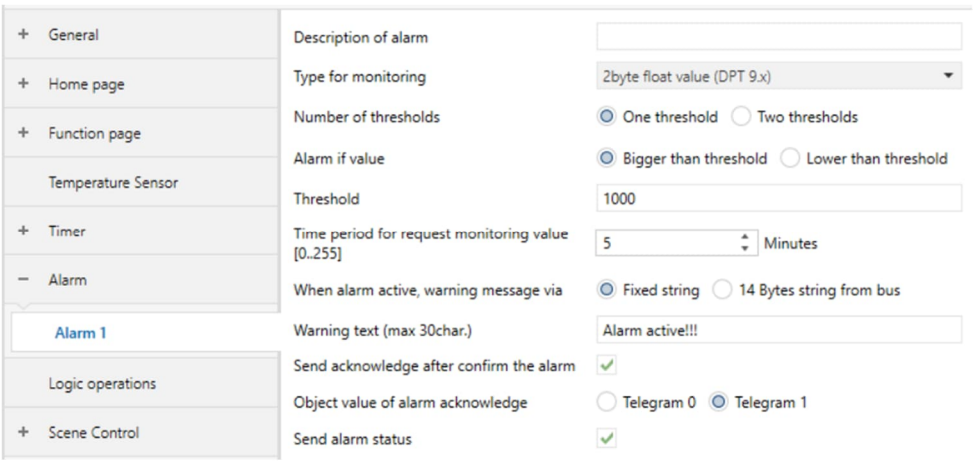
3.6.1 "Alarm x" parameters and communication objects

Parameters

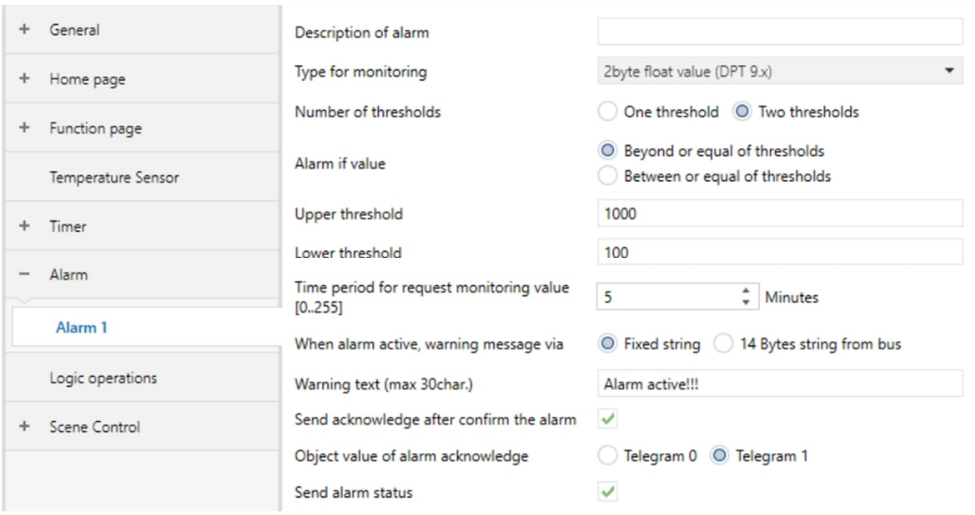
1 bit value



One threshold



Two thresholds



Name	Description	Range
Description of alarm	Names the "Alarm page x".	12byte text
Type for monitoring	Defines the data type of the monitored value.	1bit value (DPT 1.001) (default) 2byte float value (DPT 9.x) Temperature value (DPT 9.001) Pressure value (DPT 9.006) Humidity value (DPT 9.007) CO2 value (DPT 9.008) Air flow (DPT 9.009) Concentration (DPT 9.030)
The following parameters are displayed when "2byte float value (DPT 9.x)/ Temperature value (DPT 9.001) / Pressure value (DPT 9.006) / Humidity value (DPT 9.007) / CO2 value (DPT 9.008) / Air flow (DPT 9.009) / Concentration (DPT 9.030)" is selected.		
Number of thresholds	Defines the number of thresholds.	One threshold (default) Two thresholds
Send alarm status	Defines if 1 bit telegram is sent to bus when alarm is activated or cancelled.	No (default) Yes
The following parameters are displayed when "One threshold" is selected.		
Alarm if value	Defines alarm condition.	Bigger than threshold (default) Lower than threshold
Threshold	Defines threshold value.	-670760...670760 The value range depends on the value of parameter "Type for monitoring".
The following parameters are displayed when "Two thresholds" is selected.		
Alarm if value	Defines alarm condition.	Beyond or equal of thresholds (default) Between or equal of thresholds
Upper threshold	Defines upper threshold value.	-670760...670760 The value range depends on the value of parameter "Type for monitoring".
Lower threshold	Defines lower threshold value.	-670760...670760 The value range depends on the value of parameter "Type for monitoring".
Time period for request monitoring value [0...255]	Defines period for request of monitoring value. It does not display when "1bit value (DPT 1.001)" is selected.	0…255 minutes (default: 5)
When alarm active, warning message via	Defines the warning message format when alarm is active.	Fixed string (default) 14 Bytes string from bus
The following parameter is displayed when "Fixed string" is selected.		
Warning text (max 30char.)	Defines warning text.	30 characters (default: Alarm active!!!)
Send acknowledge after confirm the alarm	Defines whether acknowledge is sent after the alarm is confirmed.	No (default) Yes
The following parameter is displayed when "Yes" is selected.		
Object value of alarm acknowledge	Defines telegram value of acknowledge.	Telegram 0 Telegram 1 (default)

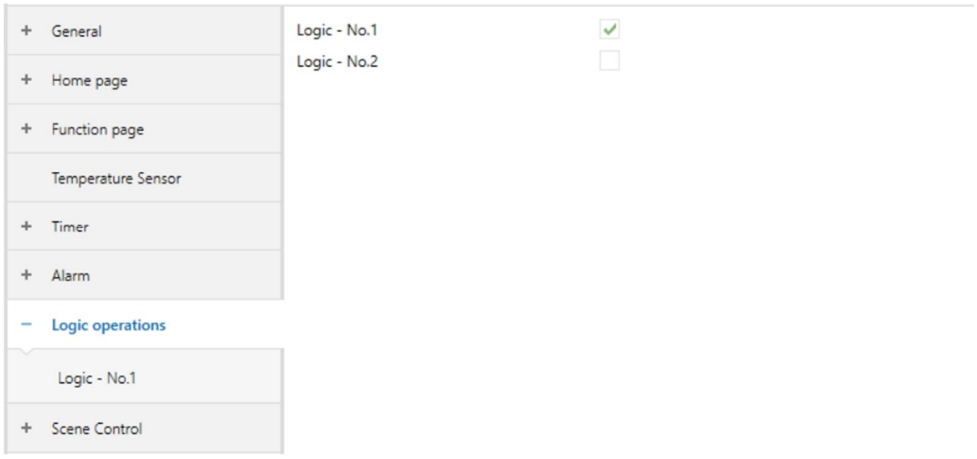
Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
953	Alarm 1	Alarm monitored value			2 bytes	C	-	W	T	U	2-byte float value	Low
954	Alarm 1	Alarm message			14 bytes	C	-	W	-	-	Character String (ISO 8859-1)	Low
955	Alarm 1	Alarm acknowledge			1 bit	C	-	-	T	-	acknowledge	Low
956	Alarm 1	Status alarm			1 bit	C	-	-	T	-	alarm	Low
953	Alarm 1	Alarm input			1 bit	C	-	W	T	U	switch	Low

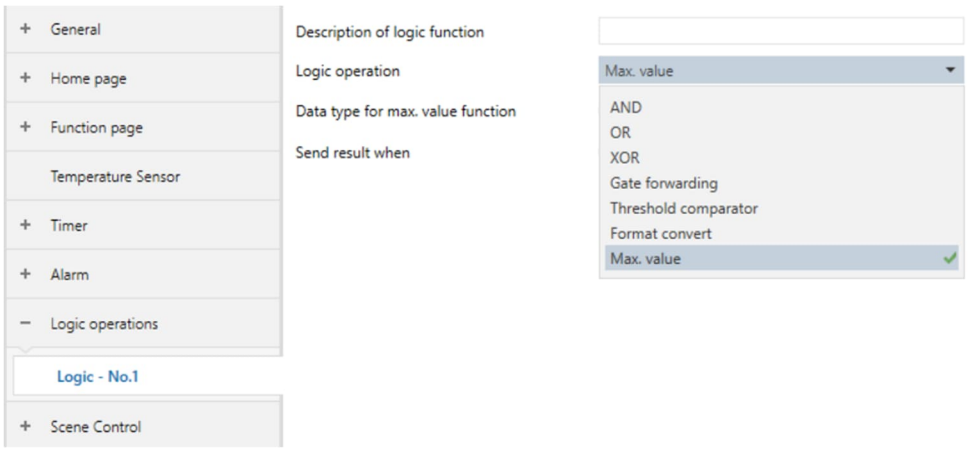
No.	Name	Object function	Length	Flag	Data type
953	Alarm 1…5	Alarm input Alarm monitored value	1 bit 2 bytes	CWTU	1.001 alarm 9.x float value 9.001 temperature 9.006 pressure (pa) 9.007 humidity 9.008 parts/million (ppm) 9.009 air flow (m^3/h) 9.030 concentration (ug/m^3)
Receives alarm trigger signal, i.e. the value to be monitored. "Alarm input" is displayed when "Type for monitoring" is selected as "1bit value (DPT 1.001) ".					
954	Alarm 1…5	Alarm message	14 bytes	CW	16.001 character string (ISO 8859-1)
Receives alarm message from bus.					
955	Alarm 1…5	Alarm acknowledge	1 bit	CT	1.016 acknowledge
Sends acknowledge telegram to bus when alarm is confirmed.					
956	Alarm 1…5	Status alarm	1 bit	CT	1.005 alarm
Sends 1 bit telegram to bus when alarm is activated or cancelled.					

3.7 "Logic operations"

Parameters



Parameter setting "Logic operations" enables the logic calculation; a total of 8 logic functions can be configured.



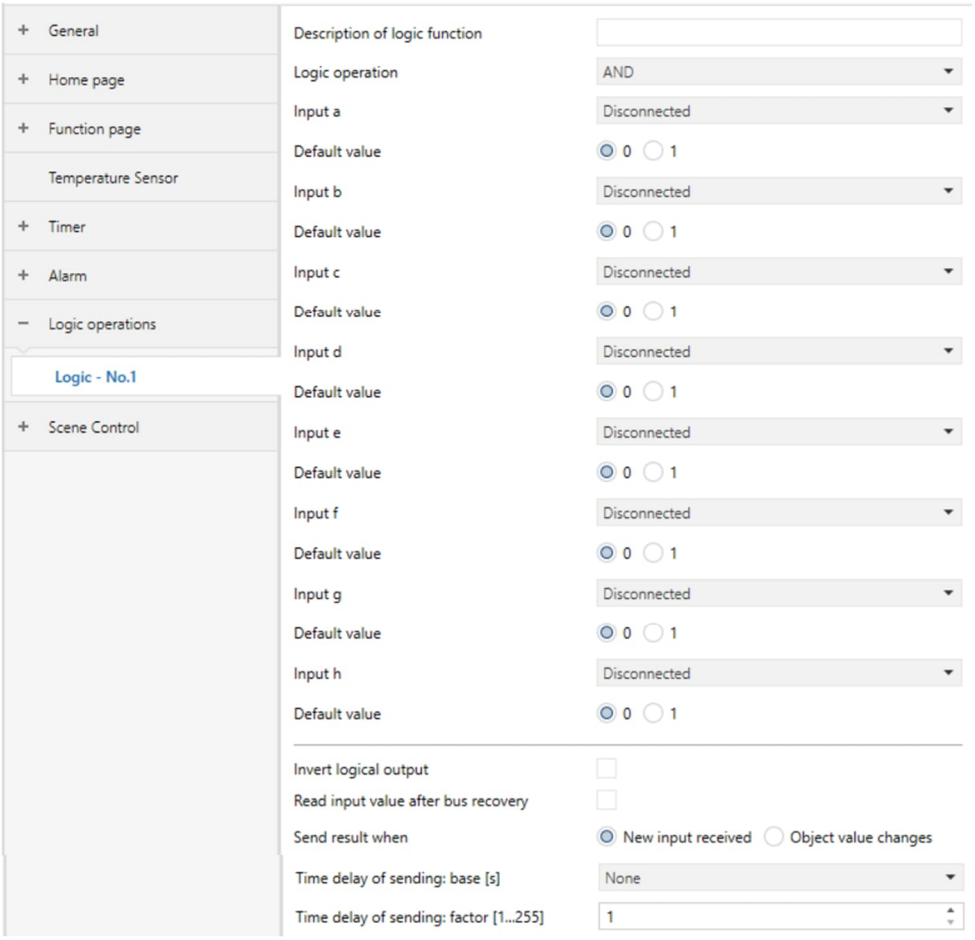
One of the following logic operations can be selected for each logic operation:

- AND, OR and XOR
- Gate forwarding, it can convert one input to another output or multiple outputs
- Threshold comparator
- Conversion between different data types
- Maximum value

Name	Description	Range
Logic - No.1...Logic - No.8	Enables or disables the logic function.	Disable (default) Enable

3.7.1 "AND/OR/XOR" parameters and communication objects

Parameters



Name	Description	Range
Description of logic function	Names the "Logic - No.x".	30byte text
Logic operation	Sets the logic operation AND/OR/XOR.	AND (default) OR XOR Gate forwarding Threshold comparator Format convert Max. value
Input a...Input h	Sets whether input x participates in the calculation. If yes, it defines which format is used for the calculation.	Disconnected (default) Normal Inverted
Default value	Sets the default value of input x.	0 (default) 1
Invert logical output	Determines whether the logic calculation result is to be inverted.	No (default) Yes
Read input value after bus recovery	Sets whether to send the read request to the logic input object after bus recovery or application download.	No (default) Yes
Send result when	Configures the condition for sending the result. **Note**: For the first logic calculation, the result is sent even if it has no change.	New input received (default) Object value changes

Name	Description	Range
Time delay of sending: base [s]	Sets the time delay for sending the logic result to bus. Time delay = Base [s] * Factor There is no time delay if option "None" is selected.	None (default) 0.1s 1s 2s 5s 10s 25s
Time delay of sending: factor [1...255]	Sets the time delay for sending the logic result to bus. Time delay = Base [s] * Factor	1...255 (default: 1)

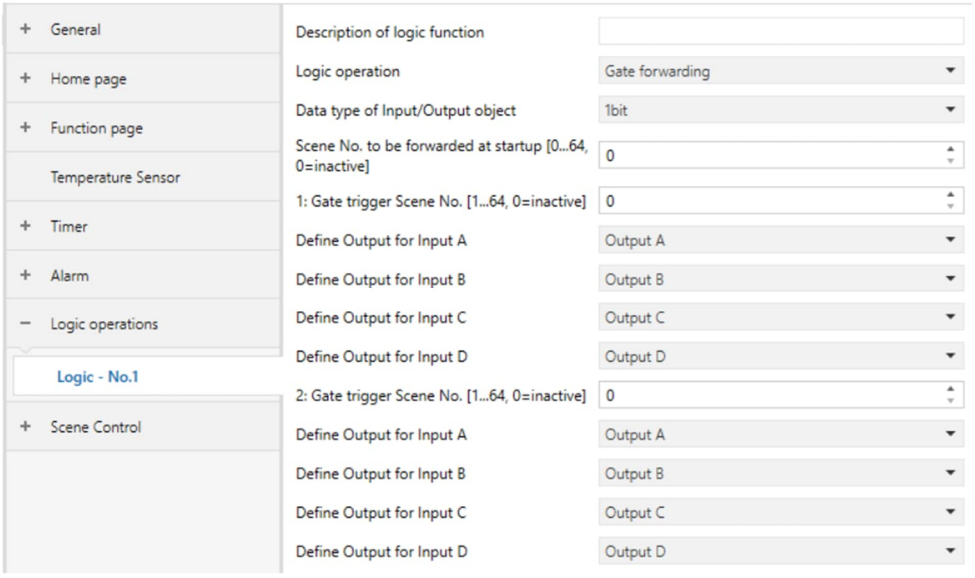
Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Input a			1 bit	C	-	W	T	U	boolean	Low
841	Logic NO.1	Input b			1 bit	C	-	W	T	U	boolean	Low
842	Logic NO.1	Input c			1 bit	C	-	W	T	U	boolean	Low
843	Logic NO.1	Input d			1 bit	C	-	W	T	U	boolean	Low
844	Logic NO.1	Input e			1 bit	C	-	W	T	U	boolean	Low
845	Logic NO.1	Input f			1 bit	C	-	W	T	U	boolean	Low
846	Logic NO.1	Input g			1 bit	C	-	W	T	U	boolean	Low
847	Logic NO.1	Input h			1 bit	C	-	W	T	U	boolean	Low
848	Logic NO.1	Logic result			1 bit	C	-	-	T	-	boolean	Low

No.	Name	Object function	Length	Flag	Data type
840...847	Logic NO.1...Logic NO.8	Input a...Input h	1 bit	CWTU	1.002 boolean
Receives the value of logical input Input a...Input h.					
848	Logic NO.1...Logic NO.8	Logic result	1bit	CT	1.002 boolean
Sends the result of logical operation.					

3.7.2 "Gate forwarding" parameters and communication objects

Parameters



Name	Description	Range
Description of logic function	Names the "Logic - No.x".	30byte text

Name	Description	Range
Logic operation	Sets the logic operation Gate forwarding	AND (default) OR XOR Gate forwarding Threshold comparator Format convert Max. value
Data type of Input/Output object	Sets the object type of input/output.	1bit (default) 4bit 1byte
Scene No. to be forwarded at startup [0...64, 0=inactive]	After the device is activated, by default, it triggers the initial scene/ scenario, which is forwarded by the logical gate. This is configured with parameters.	0...64 (default: 0)
1: Gate trigger scene No. [1...64, 0=inactive]	Configures scene number triggered by gate forwarding. Up to 8 numbers of scenes can be triggered for each logic gate.	0...64 (default: 0)
Define Output for Input A Define Output for Input B Define Output for Input C Define Output for Input D	Sets the output of the input X (X=A/B/C/D) after gate forwarding. According to the options, one input can be forwarded to one or more outputs. The output value equals to the input value.	Disable Output A (default for output a) Output B (default for output b) Output C (default for output c) Output D (default for output d) Output A,B Output A,C Output A,D Output A,B,C Output A,B,D Output A,C,D Output A,B,C,D Output B,C Output B,D Output C,D Output B,C,D

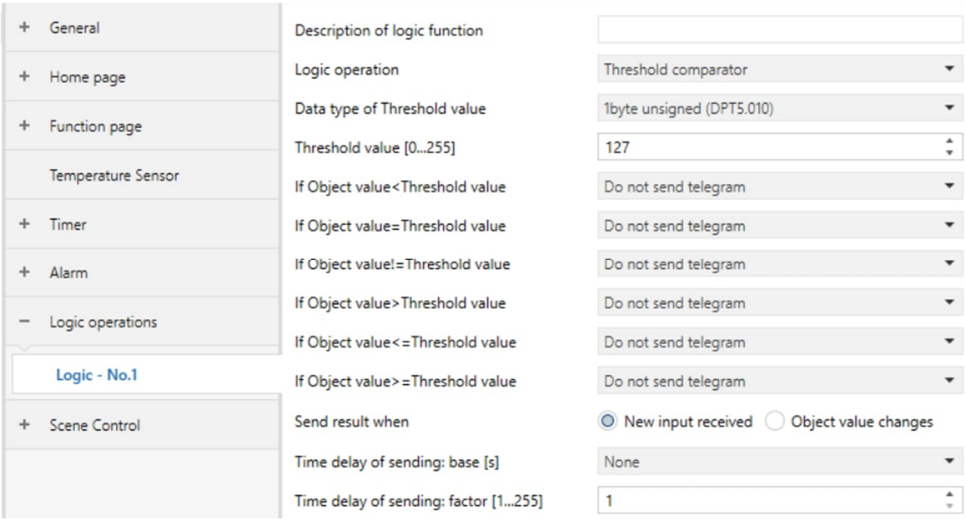
Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Gate value select			1 byte	C	-	W	-	-	scene number	Low
841	Logic NO.1	Input A			1 bit	C	-	W	-	-	switch	Low
842	Logic NO.1	Input B			1 bit	C	-	W	-	-	switch	Low
843	Logic NO.1	Input C			1 bit	C	-	W	-	-	switch	Low
844	Logic NO.1	Input D			1 bit	C	-	W	-	-	switch	Low
845	Logic NO.1	Output A			1 bit	C	-	-	T	-	switch	Low
846	Logic NO.1	Output B			1 bit	C	-	-	T	-	switch	Low
847	Logic NO.1	Output C			1 bit	C	-	-	T	-	switch	Low
848	Logic NO.1	Output D			1 bit	C	-	-	T	-	switch	Low

No.	Name	Object function	Length	Flag	Data type
840	Logic NO.1...Logic NO.8	Gate value select	1 byte	CW	17.001 scene number
Selects the scene of logical gate forwarding.					
841...844	Logic NO.1...Logic NO.8	Input A...Input D	1 bit 4 bits 1 byte	CW	1.001 switch 3.007 Dimming control 5.010 counter pulses (0...255)
Receives the value of the logic gate input Input A...Input D.					
845...848	Logic NO.1...Logic NO.8	Output A...Output D	1 bit 4 bits 1 byte	CT	1.001 switch 3.007 Dimming control 5.010 counter pulses (0...255)
The logic gate forwards the output value. The output value is the same as the input value, but one input can be forwarded to one or more outputs, set by parameters.					

3.7.3 "Threshold comparator" parameters and communication objects

Parameters



Name	Description	Range
Description of logic function	Names the "Logic - No.x".	30byte text
Logic operation	Sets the logic operation Threshold comparator.	AND (default) OR XOR Gate forwarding Threshold comparator Format convert Max. value
Data type of Threshold value	Sets the data type of the threshold value.	4bit (DPT3.007) 1byte unsigned (DPT5.010) (default) 2byte unsigned (DPT7.001) 2byte signed (DPT8.x) 2byte float (DPT9.x) 4byte unsigned (DPT12.x) External temperature (DPT 9.001) External humidity (DPT 9.007) Brightness (DPT 9.004) CO2 (DPT 9.008)
Threshold value [0...255]	Sets threshold value. The value range is determined by the data type selected.	Data type of output value = 4bit: 0...15 (default: 8) Data type of output value = 1byte unsigned: 0...255 (default: 127) Data type of output value = 2byte unsigned: 0...65535 (default: 32768) Data type of output value = 2byte signed: -32768...32767 (default: 1000) Data type of output value = 2byte float: -670760...670760 (default: 1000) Data type of output value = 4byte unsigned: 0...4294967295 (default: 65536) Data type of output value = External temperature: -20...95 °C (default: 25 °C) Data type of output value = External humidity: 0...100 % (default: 50 %) Data type of output value = Brightness: 0...65535 lux (default: 250 lux) Data type of output value = CO2: 0...4000 ppm (default: 500 ppm)

Name	Description	Range
If Object value<Threshold value If Object value=Threshold value If Object value!=Threshold value If Object value>Threshold value If Object value<=Threshold value If Object value>=Threshold value	Set the send value at different scenarios between object value and threshold value. In the event of conflicts between commands, the value sent is the one that fulfills the last scenario. E.g.: if the parameters are set as follows: ● "If Object value=Threshold value" is set to "Send value 0"; ● "If Object value<=Threshold value" is set to "Send value 1" ● when the object value = threshold value, then the logic result sends "1"	Do not send telegram (default) Send value '0' Send value '1'
Send result when	Sets the trigger for sending the logic result. **Note**: For the first logic calculation, the result is sent even if it has not changed.	New input received (default) Object value changes
Time delay of sending: base [s]	Sets the time delay for sending the logic result to bus. Time delay = Base [s] * Factor There is no delay for "None".	None (default) 0.1s 1s 2s 5s 10s 25s
Time delay of sending: factor [1...255]	Sets the time delay for sending the logic result to bus. Time delay = Base [s] * Factor	1...255 (default: 1)

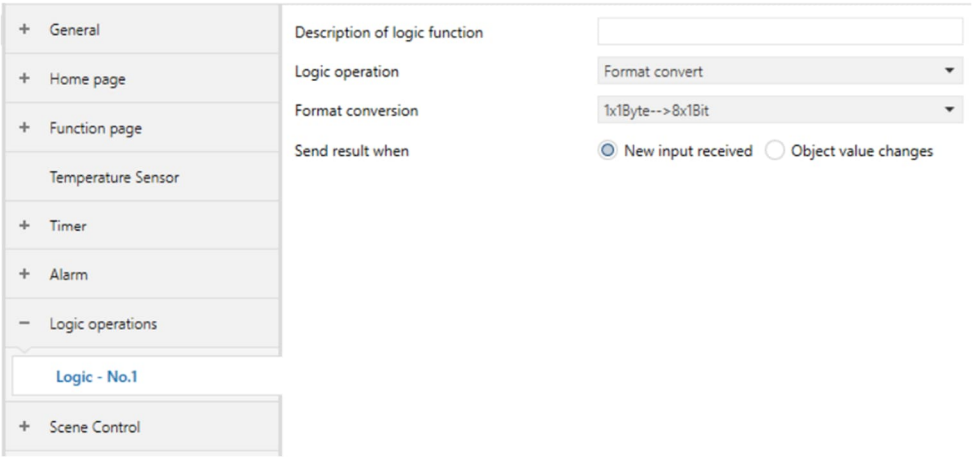
Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Threshold value input			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
848	Logic NO.1	Logic result			1 bit	C	-	-	T	-	boolean	Low

No.	Name	Object function	Length	Flag	Data type
840	Logic NO.1...Logic NO.8	Threshold value input	4 bits 1 byte 2 bytes 4 bytes	CWU	3.007 dimming 5.010 counter pulses 7.001 pulses 12.001 counter pulses 8.x signed value 9.x float value 9.001 temperature 9.007 humidity 9.004 lux 9.008 parts/million (ppm)
The communication object is used as the input value for threshold comparator.					
848	Logic NO.1...Logic NO.8	Logic result	1bit	CT	1.002 boolean
Sends the result of logical operation. In other words, the value that is sent after object "Threshold value input" (object 840) is compared with the set threshold value of the device.					

3.7.4 "Format convert" parameters and communication objects

Parameters

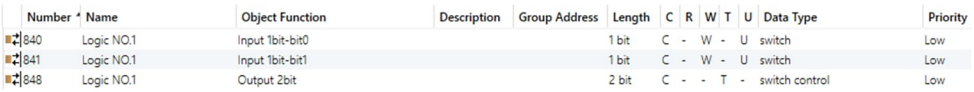


Name	Description	Range
Description of logic function	Names the "Logic - No.x".	30byte text
Logic operation	Sets the logic operation Format conversion.	AND (default) OR XOR Gate forwarding Threshold comparator Format convert Max. value
Format conversion	Selects the format conversion.	2x1Bit-->1x2Bit 8x1Bit-->1x1Byte 1x1Byte-->1x2Byte 2x1Byte-->1x2Byte 2x2Byte-->1x4Byte 1x1Byte-->8x1Bit (default) 1x2Byte-->2x1Byte 1x4Byte-->2x2Byte 1x3Byte-->3x1Byte 3x1Byte-->1x3Byte
Send result when	Sets the trigger for sending the logic result. **Note**: For the first logic calculation, the result is sent even if it has not changed.	New input received (default) Object value changes

Communication objects

2×1Bit-->1×2Bit

"2x1bit --> 1x2bit" function: Converts two 1bit values to one 2bit value, such as Input bit1=1, bit0=0--> Output 2bit=2



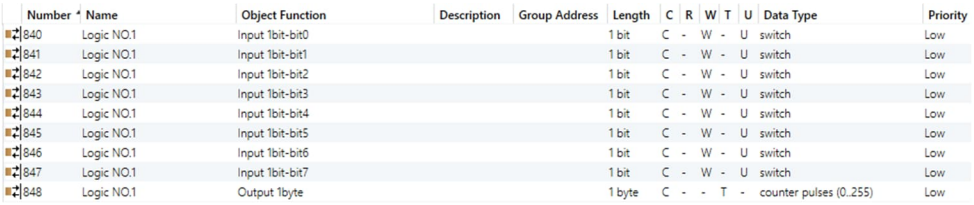
Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Input 1bit-bit0			1 bit	C	-	W	-	U	switch	Low
841	Logic NO.1	Input 1bit-bit1			1 bit	C	-	W	-	U	switch	Low
848	Logic NO.1	Output 2bit			2 bit	C	-	-	T	-	switch control	Low

No.	Name	Object function	Length	Flag	Data type
840 841	Logic NO.1...Logic NO.8	Input 1bit-bit0 Input 1bit-bit1	1 bit	CWU	1.001 switch
Provides the input value for conversion.					

No.	Name	Object function	Length	Flag	Data type
848	Logic NO.1...Logic NO.8	Output 2bit	2 bits	CT	2.001 switch control
Sends the converted value output.					

8×1Bit-->1×1Byte

"8x1bit --> 1x1-byte" function: Converts eight 1bit values to one 1-byte value, such as Input bit2=1, bit1=1, bit0=1, other bits are 0--> Output 1-byte=7



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Input 1bit-bit0			1 bit	C	-	W	-	U	switch	Low
841	Logic NO.1	Input 1bit-bit1			1 bit	C	-	W	-	U	switch	Low
842	Logic NO.1	Input 1bit-bit2			1 bit	C	-	W	-	U	switch	Low
843	Logic NO.1	Input 1bit-bit3			1 bit	C	-	W	-	U	switch	Low
844	Logic NO.1	Input 1bit-bit4			1 bit	C	-	W	-	U	switch	Low
845	Logic NO.1	Input 1bit-bit5			1 bit	C	-	W	-	U	switch	Low
846	Logic NO.1	Input 1bit-bit6			1 bit	C	-	W	-	U	switch	Low
847	Logic NO.1	Input 1bit-bit7			1 bit	C	-	W	-	U	switch	Low
848	Logic NO.1	Output 1byte			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

No.	Name	Object function	Length	Flag	Data type
840...847	Logic NO.1...Logic NO.8	Input 1bit-bit0...Input 1bit-bit7	1 bit	CWU	1.001 switch
Provides input value for conversion.					
848	Logic NO.1...Logic NO.8	Output 1byte	1 byte	CT	5.010 counter pulses (0...255)
Sends the converted value output.					

1×1Byte-->1×2Byte

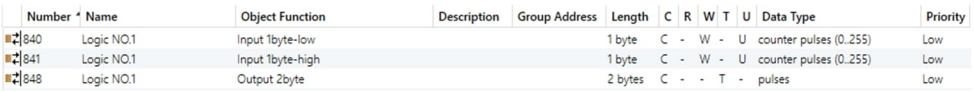
"1x1-byte --> 1x2-byte" function: Converts one 1-byte value to a 2-byte value, such as Input 1-byte=125--> Output 2-byte=125.Although the value remains the same, the data type of the value is different.

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Input 1byte			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
848	Logic NO.1	Output 2byte			2 bytes	C	-	-	T	-	pulses	Low

No.	Name	Object function	Length	Flag	Data type
840	Logic NO.1...Logic NO.8	Input 1byte	1 byte	CWU	5.010 counter pulses (0...255)
Provides input value for conversion.					
848	Logic NO.1...Logic NO.8	Output 2byte	2 bytes	CT	7.001 pulses
Sends the converted value output.					

2×1Byte-->1×2Byte

"2x1-byte --> 1x2-byte" function: Converts two 1-byte values to one 2-byte value, such as Input 1-byte-low = 255 ($FF), Input 1-byte-high = 100 ($64) --> Output 2-byte = 25855 ($64 FF)

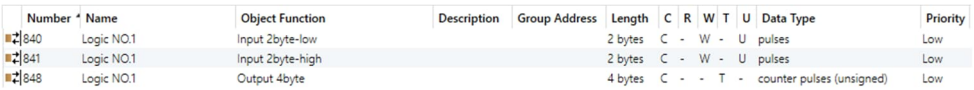


Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Input 1byte-low			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
841	Logic NO.1	Input 1byte-high			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
848	Logic NO.1	Output 2byte			2 bytes	C	-	-	T	-	pulses	Low

No.	Name	Object function	Length	Flag	Data type
840 841	Logic NO.1...Logic NO.8	Input 1byte-low Input 1byte-high	1 byte	CWU	5.010 counter pulses (0...255)
Provides input value for conversion.					
848	Logic NO.1...Logic NO.8	Output 2byte	2 bytes	CT	7.001 pulses
Sends the converted value output.					

2×2Byte-->1×4Byte

"2x2-byte --> 1x4-byte" function: Converts two 2-byte values to one 4-byte value, such as Input 2-byte-low = 65530 ($FF FA), Input 2-byte-high = 32768 ($80 00)--> Output 4-byte = 2147549178 ($80 00 FF FA)

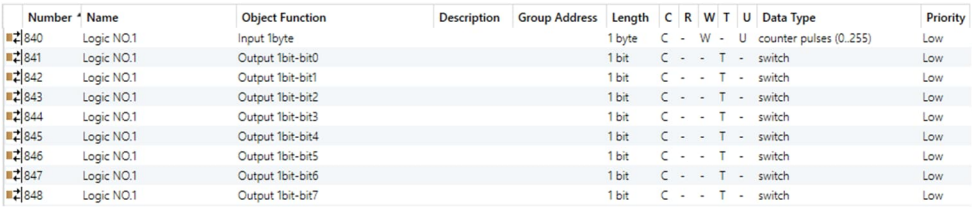


Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Input 2byte-low			2 bytes	C	-	W	-	U	pulses	Low
841	Logic NO.1	Input 2byte-high			2 bytes	C	-	W	-	U	pulses	Low
848	Logic NO.1	Output 4byte			4 bytes	C	-	-	T	-	counter pulses (unsigned)	Low

No.	Name	Object function	Length	Flag	Data type
840 841	Logic NO.1...Logic NO.8	Input 2byte-low Input 2byte-high	2 bytes	CWU	7.001 pulses
Provides input value for conversion.					
848	Logic NO.1...Logic NO.8	Output 4byte	4 bytes	CT	12.001 counter pulses
Sends the converted value output.					

1×1Byte-->8×1Bit

"1x1-byte --> 8x1bit" function: Converts one 1-byte value to eight 1but values, such as Input 1-byte=200 --> Output bit0=0, bit1=0, bit2=0, bit3=1, bit4=0, bit5=0, bit6=1, bit7=1

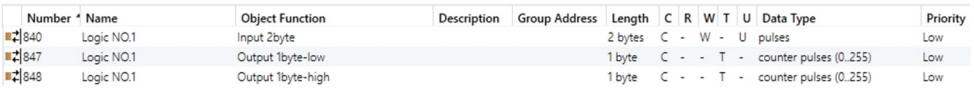


Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Input 1byte			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
841	Logic NO.1	Output 1bit-bit0			1 bit	C	-	-	T	-	switch	Low
842	Logic NO.1	Output 1bit-bit1			1 bit	C	-	-	T	-	switch	Low
843	Logic NO.1	Output 1bit-bit2			1 bit	C	-	-	T	-	switch	Low
844	Logic NO.1	Output 1bit-bit3			1 bit	C	-	-	T	-	switch	Low
845	Logic NO.1	Output 1bit-bit4			1 bit	C	-	-	T	-	switch	Low
846	Logic NO.1	Output 1bit-bit5			1 bit	C	-	-	T	-	switch	Low
847	Logic NO.1	Output 1bit-bit6			1 bit	C	-	-	T	-	switch	Low
848	Logic NO.1	Output 1bit-bit7			1 bit	C	-	-	T	-	switch	Low

No.	Name	Object function	Length	Flag	Data type
840	Logic NO.1...Logic NO.8	Input 1byte	1 byte	CWU	5.010 counter pulses (0...255)
Provides input value for conversion.					
841...848	Logic NO.1...Logic NO.8	Output 1bit-bit0...Output 1bit-bit7	1 bit	CT	1.001 switch
Sends the converted value output.					

1×2Byte-->2×1Byte

"1x2-byte --> 2x1-byte" function: Converts one 2-byte value to two 1-byte values, such as Input 2-byte = 55500 ($D8 CC) --> Output 1-byte-low = 204 ($CC), Output 1-byte-high =216 ($D8)

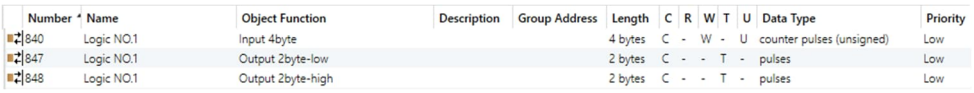


Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Input 2byte			2 bytes	C	-	W	-	U	pulses	Low
847	Logic NO.1	Output 1byte-low			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
848	Logic NO.1	Output 1byte-high			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

No.	Name	Object function	Length	Flag	Data type
840	Logic NO.1...Logic NO.8	Input 2byte	2 bytes	CWU	7.001 pulses
Provides input value for conversion.					
847 848	Logic NO.1...Logic NO.8	Output 1byte-low Output 1byte-high	1 byte	CT	5.010 counter pulses (0...255)
Sends the converted value output.					

1×4Byte-->2×2Byte

"1x4-byte --> 2x2-byte" function: Converts one 4-byte value to two 2-byte values, such as Input 4-byte = 78009500 ($04 A6 54 9C) --> Output 2-byte-low = 21660 ($54 9C), Output 2-byte-high =1190 ($04 A6)

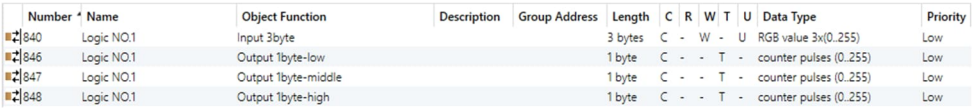


Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Input 4byte			4 bytes	C	-	W	-	U	counter pulses (unsigned)	Low
847	Logic NO.1	Output 2byte-low			2 bytes	C	-	-	T	-	pulses	Low
848	Logic NO.1	Output 2byte-high			2 bytes	C	-	-	T	-	pulses	Low

No.	Name	Object function	Length	Flag	Data type
840	Logic NO.1...Logic NO.8	Input 4byte	4 bytes	CWU	12.001 counter pulses
Provides input value for conversion.					
847 848	Logic NO.1...Logic NO.8	Output 2byte-low Output 2byte-high	2 bytes	CT	7.001 pulses
Sends the converted value output.					

1×3Byte-->3×1Byte

"1x3-byte --> 3x1-byte" function: Converts one 3-byte value to three 1-byte values, such as Input 3-byte = $78 64 C8--> Output 1-byte-low = 200 ($C8), Output 1-byte-middle = 100 ($64), Output 1-byte-high =120 ($78)



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Input 3byte			3 bytes	C	-	W	-	U	RGB value 3x(0..255)	Low
846	Logic NO.1	Output 1byte-low			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
847	Logic NO.1	Output 1byte-middle			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
848	Logic NO.1	Output 1byte-high			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

No.	Name	Object function	Length	Flag	Data type
840	Logic NO.1...Logic NO.8	Input 3byte	3 bytes	CWU	232.600 RGB value 3 x (0...255)
Provides input value for conversion.					
846 847 848	Logic NO.1...Logic NO.8	Output 1byte-low Output 1byte-middle Output 1byte-high	1 byte	CT	5.010 counter pulses (0...255)
Sends the converted value output.					

3×1Byte-->1×3Byte

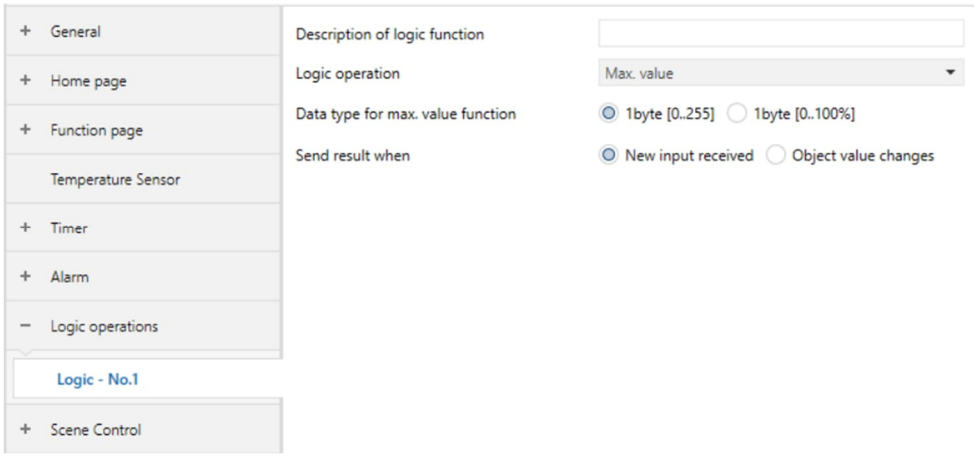
"3x1-byte --> 1x3-byte" function: Converts three 1-byte values to one 3-byte value, such as Input 1-byte-low = 150 ($96), Input 1-byte-middle = 100 ($64), Input 1-byte-high = 50 ($32) --> Output 3-byte = $32 64 96

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Input 1byte-low			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
841	Logic NO.1	Input 1byte-middle			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
842	Logic NO.1	Input 1byte-high			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
848	Logic NO.1	Output 3byte			3 bytes	C	-	-	T	-	RGB value 3x(0..255)	Low

No.	Name	Object function	Length	Flag	Data type
840 841 842	Logic NO.1...Logic NO.8	Input 1byte-low Input 1byte-middle Input 1byte-high	1 byte	CWU	5.010 counter pulses (0...255)
Provides input value for conversion.					
848	Logic NO.1...Logic NO.8	Output 3byte	3 bytes	CT	232.600 RGB value 3 x (0...255)
Sends the converted value output.					

3.7.5 "Max. value" parameters and communication objects

"Max. value" receives max. 3 1-byte unsigned integers or data as a percentage and compares the received values to output the maximum one to bus.



Name	Description	Range
Description of logic function	Names the "Logic - No.x".	30byte text
Logic operation	Sets the logic operation Max. value.	AND (default) OR XOR Gate forwarding Threshold comparator Format convert Max. value
Data type for max. value function	Sets the data type for maximum value function.	1byte [0...255] (default) 1byte [0...100%]
Send result when	Configures the condition of sending the result. **Note**: For the first logic calculation, the result is sent even if it has not changed.	New input received (default) Object value changes

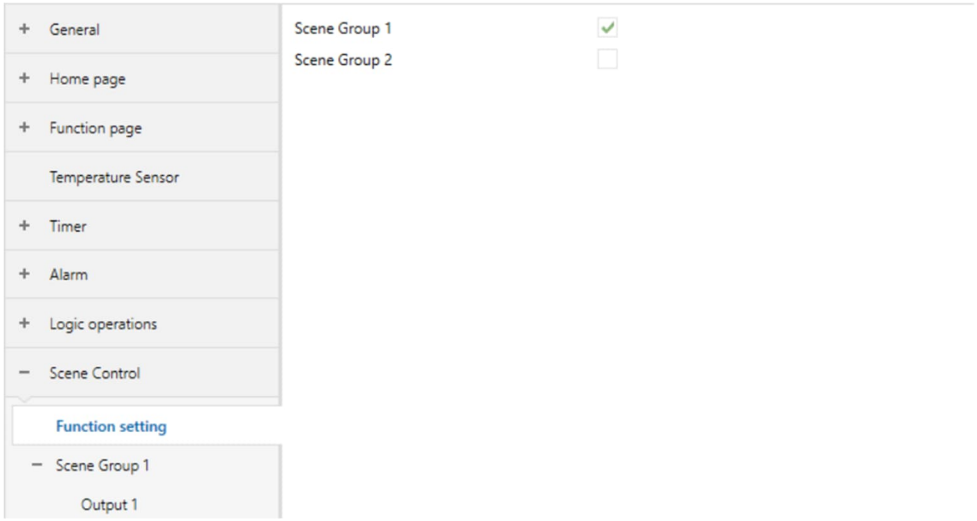
Communication objects

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
840	Logic NO.1	Value 1			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
841	Logic NO.1	Value 2			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
842	Logic NO.1	Value 3			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
848	Logic NO.1	Max. value			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

No.	Name	Object function	Length	Flag	Data type
840...842	Logic NO.1...Logic NO.8	Value 1...Value 3	1 byte	CWU	5.010 counter pulses 5.001 percentage value
Receives Value 1...Value 3.					
848	Logic NO.1...Logic NO.8	Max. value	1 byte	CT	5.010 counter pulses 5.001 percentage value
Sends the result of logical operation.					

3.8 "Scene control"

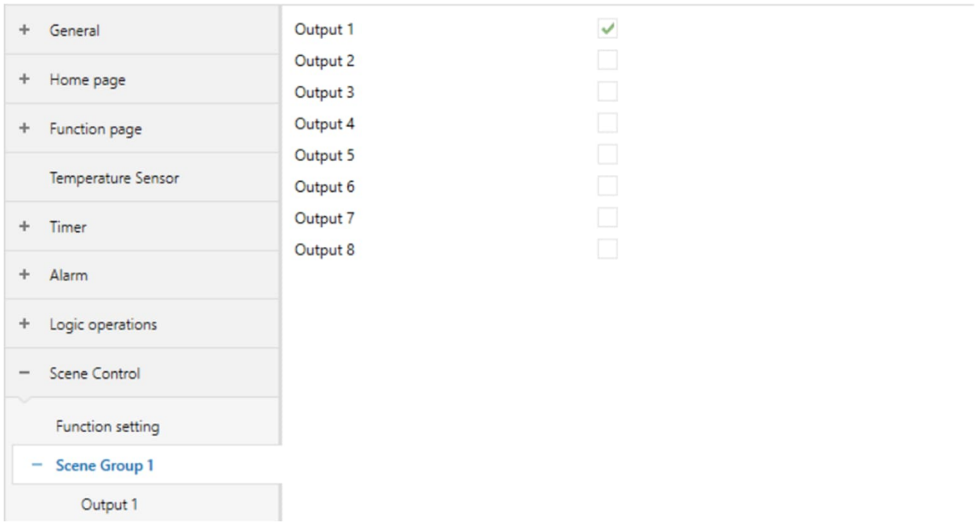
3.8.1 "Function setting" parameters



Name	Description	Range
Scene Group 1...Scene Group 8	If Scene Group x is enabled, a separate page with scene options is displayed. You can set the scene group function used for each specific scene.	Enable Disable

3.8.2 "Scene group" parameters and communication objects

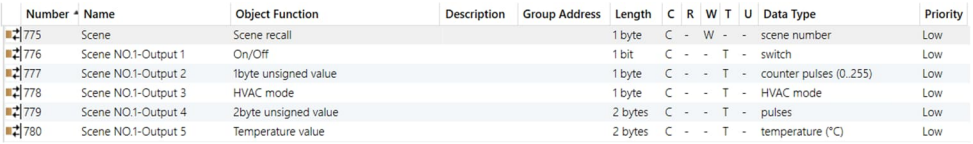
Parameters



Parameter setting "Scene Group x" defines and processes scene tasks. A group opening can trigger the sending of several telegrams on the bus, open various functions and, concurrently perform various settings. A total of 8 scene groups can be configured and up to 8 outputs can be trigger for each group. They are all configurable. Via object 775, the outputs in scene group can be triggered by other devices on the bus.

Name	Description	Range
Output 1...Output 8	If Output x is enabled, a separate page output options is displayed. You can set the output function that is used for each specific output.	Enable Disable

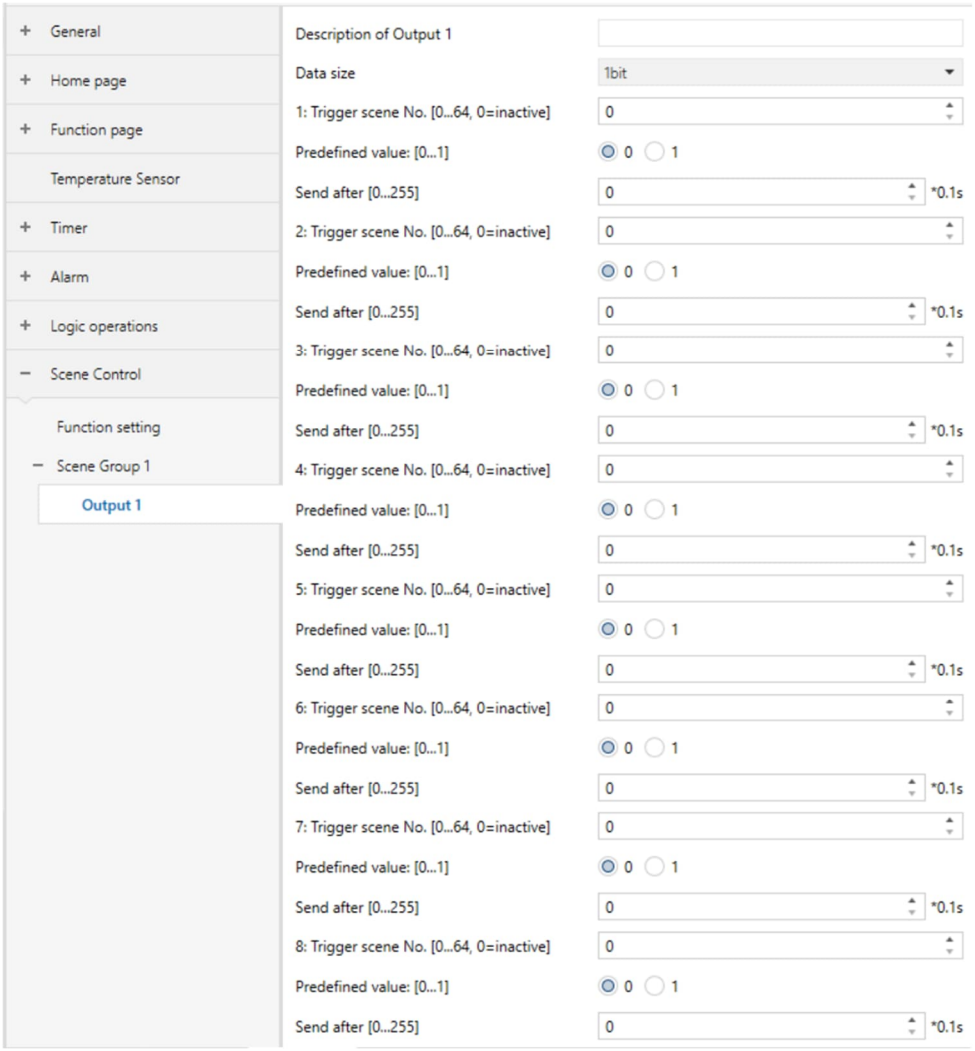
Communication objects



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
775	Scene	Scene recall			1 byte	C	-	W	-	-	scene number	Low
776	Scene NO.1-Output 1	On/Off			1 bit	C	-	-	T	-	switch	Low
777	Scene NO.1-Output 2	1byte unsigned value			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
778	Scene NO.1-Output 3	HVAC mode			1 byte	C	-	-	T	-	HVAC mode	Low
779	Scene NO.1-Output 4	2byte unsigned value			2 bytes	C	-	-	T	-	pulses	Low
780	Scene NO.1-Output 5	Temperature value			2 bytes	C	-	-	T	-	temperature (°C)	Low

No.	Name	Object function	Length	Flag	Data type
775	Scene	Scene recall	1 byte	CW	17.001 scene number
Triggers each output in the scene group to send a specific value to the bus by recalling the scene number. Telegram value: 0…63					
776...780	Scene NO.1-Output 1...Scene NO.1-Output 8	On/Off 1byte unsigned value HVAC mode 2byte unsigned value Temperature value	On/Off 1byte unsigned value HVAC mode 2byte unsigned value Temperature value	CT	1.001 switch 5.010 counter pulses 20.102 HVAC mode 7.001 pulses 9.001 temperature
When a scene is recalled, the communication object sends the corresponding output value of the scene to the bus. If the output is not set to this scene, it is not sent. A total of 8 scene groups can be set, with 8 outputs per group.					

3.8.2.1 "Output 1" parameters



Name	Description	Range
Description of Output 1	Names the "Output x". **Note**: ● Maximum 30 characters displayed	30byte text
Data size	Defines the object type of Output y of Scene Group x. x: the number of Scene Group, x=1...8 y: the number of Output, y=1…8	1bit (default) 1byte 2byte
Data type	Displayed if data size is set to 1byte.	1byte unsigned value (default) HVAC mode
Data type	Displayed if data size is set to 2byte.	2byte unsigned value (default) Temperature value
1: Trigger scene No. [0...64, 0=inactive]	Defines the scene number triggered; up to 8 triggered scenes can be configured for each output.	0...64
Predefined value Parameter name is based on the selected data type.	Determines the output value. The value range is based on the data type of output y.	Data type of Output 1 = 1bit: 0 / 1 (default: 0) Data type of Output 1 = 1byte unsigned value: 0...255 (default: 127) Data type of Output 1 = 1byte HVAC mode: Comfort mode (default), Standby mode, Economy mode, Protection mode Data type of Output 1 = 2byte unsigned value: 0...65535 (default: 32767) Data type of Output 1 = 2byte Temperature value: 0...45 °C (default: 25 °C)
Send after [0...255]	Sets the time delay for sending the output value to bus.	0...255*0.1 s (default: 0)

4 Icons

4.1 Functional page icons

4.1.1 Icon list for function page

Replacement ID	ETS options	Icon	Replacement ID	ETS options	Icon
0	Light		2	Ceiling light	
3	Downlight		4	Wall light	
5	Spotlight		6	Chandelier	
7	General scene		8	Curtain	
9	Shading		10	On	
11	Off		12	Occupied 1	
13	Unoccupied 1		14	Occupied 2	
15	Unoccupied 2		16	Welcome	

Replacement ID	ETS options	Icon	Replacement ID	ETS options	Icon
17	Visiting		18	Dinner	
19	Party		20	Meeting	
21	Sleeping		22	Reading	
23	Media		24	Cleaning	
25	TV		26	Audio	
27	Socket (CHN)		28	Socket (EU)	
29	Fan		30	Door lock	
31	Door access		32	Power supply	
33	Window 1		34	Window 2	
35	Alarm		36	Timer	

Replacement ID	ETS options	Icon	Replacement ID	ETS options	Icon
37	Projector		38	Multimedia	
39	Electric heating		40	Air conditioner 1	
41	Air fresh		42	Setting	
43	Power		44	Unlock	
44	Lock		45	Unmute	
45	Mute		46	Day	
46	Night		47	Auto	
47	Manual		48	Floor light	
49	Eco		50	Doorbell	
51	Do not Disturb		52	Make up Room	

Replacement ID	ETS options	Icon	Replacement ID	ETS options	Icon
53	Room Pressure		54	Supply Airflow	
55	Exhaust Airflow		56	Humidity	
57	PM10		58	PM2.5	
59	VOC		60	CO2	
61	Send Value		62	Temperature	

4.1.2 Replace icons

Insert Micro SD card with the following content:

1. Create a folder named "Functionicon" under the root directory in Micro SD card.
2. Put icon files in folder with the same name as the one to be replaced.
   – All icons must be named as per the naming conventions below;
   – If no new icons are added, use default.
3. Picture size must be 80*80 px with resolution 0.4420*0.4420 px/mm and png as the suffix.

Naming rule

	icon	_0	_a	.png
Title of icon files (Fixed)				
Replacing ID No.	0, 2...62: Function page icons For icon list, see Icon list for function page [→ 137]			
Icon status	a. Off status - dark screen style b. Off status - light screen style c. On status (only the icon is on) d. On status (both the background and icon are on)			
Format of icon files (Fixed)				

Example: The following 4 icons are defaults for lighting On/Off status and their ID=0.

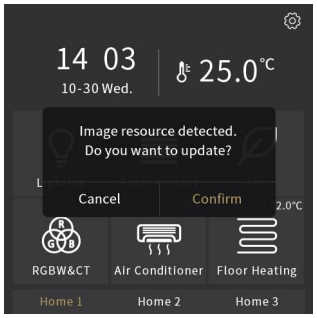
icon_0_a.png

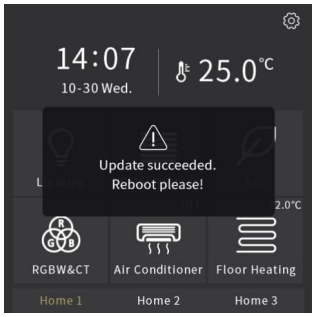

icon_0_b.png

icon_0_c.png


icon_0_d.png

To replace them, name the new icons in folder "Functionicon" the same as original icons.
Insert Micro SD card to upload the customized icons:





Insert Micro SD card to delete the customized icons:

1. Create a folder named "Functionicon" under the root directory in Micro SD card;
2. Do not put any icon files with correct name in folder

Note

- Supports only SDHC cards and FAT32 format.
- Supports Micro SD cards up to a max. capacity of 16 GB.
- When reading data from the root directory in Micro SD card, the device recognizes file/folder names in the following order (high to low):
  *.fwp (file name) > Functionicon (folder name) > Pageicon (folder name) > picture (folder name) > background (folder name)
  For example, if the root directory contains a file named "*.fwp" and a folder named "Functionicon", the device only performs the firmware upgrade. It does not replace the function icons with the new ones stored in the folder "Functionicon". If users want to perform the latter operation, delete the "*.fwp" file first.

- The device picture storage size is approximate 4 MB. The message "Invalid image, please check!" is displayed once the total size of the valid pictures on the Micro SD card is greater than 3.8 MB.

- The recommended SD cards are listed in the following table:

Brand	Model	Capacity, rate *
SanDisk	Ultra	16 GB A1 C10 HC
KIOXIA	EXCERIA	16 GB U1 HC
SanDisk	-	8 GB C4 HC
Netac	Pro	16 GB A1 V10 HC U1

* When using an SD card, and in the event of issues, we recommend using a card with lower capacity to repeat related actions.

4.2 Homepage icons

4.2.1 Icon list for homepage

Replacement ID	ETS options	Icon	Replacement ID	ETS options	Icon
90	Multifunction		91	Lighting	
92	Scenario		94	Shading	
96	Air conditioner		99	Floor heating	
101	Water heating		102	Audio	
103	Air quality		104	RGB	
105	Ventilation 1		106	Ventilation 2	
107	Power meter		108	Energy display	
109	Heating		110	Cooling	
111	Heating/Cooling		112	Temperature	

Replacement ID	ETS options	Icon	Replacement ID	ETS options	Icon
113	AV system		114	Security	
115	Bedroom		117	Living room 1	
118	Living room 2		119	Dinner room	
121	Study room		122	Gym	
123	Basement		124	Office	
125	Meeting room		126	Exhibition hall	
127	Training room		128	Warehouse	
129	Building		130	Recreation	
131	Reception				

4.2.2 Replace icons

Insert Micro SD card with the following content:

1. Create a folder named "Pageicon" under the root directory in Micro SD card.
2. Put icon files in folder with the identical name of the one to be replaced.
   – All icons must be named as per the naming conventions below;
   – If no new icons are added, use default.
3. Picture size must be 80*80 px with resolution 0.4420*0.4420 px/mm and png as the suffix.

Naming rule in "Pageicon" folder

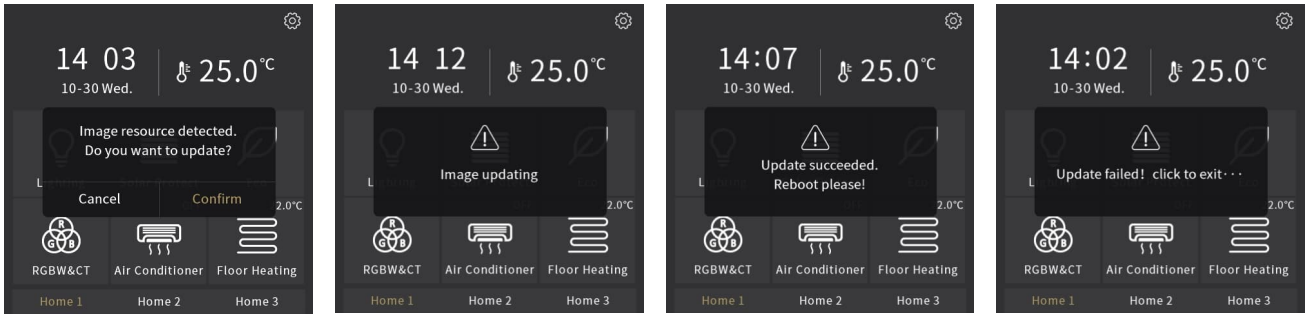
	icon	_90	_a	.png
Title of icon files (Fixed)				
Replacing ID No.	90...92, 94, 96, 99, 101...115, 117...119, 121...131: Homepage icons For icon list, see Icon list for homepage [→ 143]			
Icon status	a. Off status b. On status (both the background and icon are on)			
Format of icon files (Fixed)				

Example: The following 2 icons are default for Multi-function and their ID=90.

icon_90_a.png

icon_90_b.png

To replace them, name the new icons in folder "Pageicon" the same as original icons.
Insert Micro SD card to upload the customized icons:



Insert Micro SD card to delete the customized icons:

1. Create a folder named "Pageicon" under the root directory in Micro SD card;
2. Do not put any icon files with correct name in folder

Note

- Supports only SDHC cards and FAT32 format.
- Supports Micro SD cards up to a max. capacity of 16 GB.
- When reading data from the root directory in Micro SD card, the device recognizes file/folder names in the following order (high to low):
  *.fwp (file name) > Functionicon (folder name) > Pageicon (folder name) > picture (folder name) > background (folder name)
  For example, if the root directory contains a file named "*.fwp" and a folder named "Functionicon", the device only performs the firmware upgrade. It does not replace the function icons with the new ones stored in the folder "Functionicon". If users want to perform the latter operation, delete the "*.fwp" file first.
- The device picture storage size is approximate 4 MB. The message "Invalid image, please check!" is displayed once the total size of the valid pictures on the Micro SD card is greater than 3.8 MB.

- The recommended SD cards are listed in the following table:

Brand	Model	Capacity, rate *
SanDisk	Ultra	16 GB A1 C10 HC
KIOXIA	EXCERIA	16 GB U1 HC
SanDisk	-	8 GB C4 HC
Netac	Pro	16 GB A1 V10 HC U1

* When using an SD card, and in the event of issues, we recommend using a card with lower capacity to repeat related actions.

5 Appendix

5.1 Cyber security disclaimer

Siemens provides a portfolio of products, solutions, systems and services that includes security functions that support the secure operation of plants, systems, machines and networks. In the field of Building Technologies, this includes building automation and control, fire safety, security management as well as physical security systems.
In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art security concept. Siemens' portfolio only forms one element of such a concept.

You are responsible for preventing unauthorized access to your plants, systems, machines and networks which should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place. Additionally, Siemens' guidance on appropriate security measures should be taken into account. For additional information, please contact your Siemens sales representative or visit:

https://www.siemens.com/global/en/products/automation/topic-areas/industrial-cybersecurity.html

Siemens' portfolio undergoes continuous development to make it more secure. Siemens strongly recommends that updates are applied as soon as they are available and that the latest versions are used. Use of versions that are no longer supported, and failure to apply the latest updates may increase your exposure to cyber threats. Siemens strongly recommends to comply with security advisories on the latest security threats, patches and other related measures, published, among others, here:

https://www.siemens.com/cert/ => 'Siemens Security Advisories'

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