User manual

K-BUS Push Button Sensor with Display, 1/2/3/4-gang,55mm_V1.9

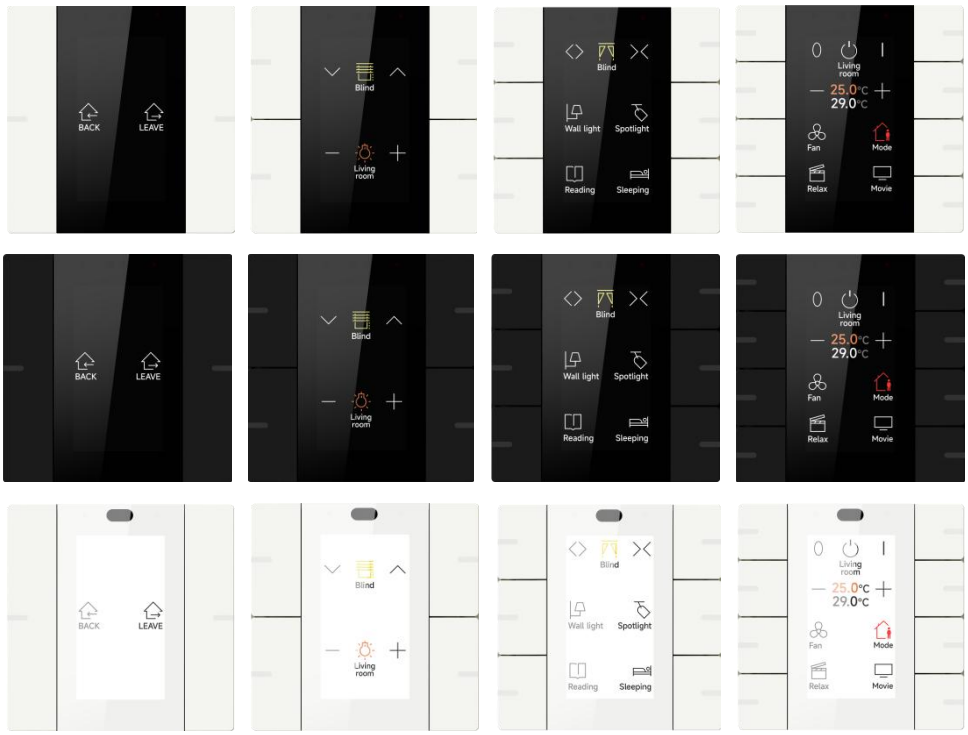
Push button module: CHPBD-06/55.1.0y, CHPBD-08/55.1.0y, CHPBD-06/55.2.00, CHPBD-08/55.2.00

Push button accessory: CHKAM-0x/55.2.0y Matt

Push button accessory: CHKAG-0x/55.2.0y Glossy

(x=2,1-gang; x=4,2-gang; x=6,3-gang; x=8,4-gang)

(y=0,White; y=1,Black)



KNX/EIB Home and Building Control System

Attentions

1.Please keep devices away from strong magnetic field, high temperature, wet environment;

2.Do not fall the device to the ground or make them get hard impact;

3.Do not use wet cloth or volatile reagent to wipe the device;

4.Do not disassemble the devices.

Contents

Chapter 1 Summary

Push Button Sensor with Display, 1/2/3/4-gang,55mm are mainly applied in building control system, connecting to the bus via KNX connection terminals and installing together with other devices on the bus to build a system. They are functionally simple and intuitive to operate. Users can plan according to their own needs to perform these functions in the system.

Push Button Sensor with Display, 1/2/3/4-gang,55mm are designed based on the European standard 55mm system as any other European KNX manufacturers.

The manual provides detailed technical information about the Push Button Sensor with Display, 1/2/3/4-gang,55mm, including installation and programming details, and explains how to use the panel in conjunction with examples in actual use.

Push Button Sensor with Display, 1/2/3/4-gang,55mm are powered via KNX bus, installing in a standard 80 or 86-box wall mounting. The physical address assignment and parameter settings can be used with the engineering tool software ETS (version ETS5.7 or above) with the .knxprod file.

The functions are summarized as followed:

- Push button sensor: select individual or rocker button, support disable function and flashing function
- Individual button support Switch, Dimming, RGB, RGBW, Colour temperature control, Value sender, Scene, Blind, Shift register, Multiple operation, Delay mode
- Rocker button only support Switch, Dimming, Scene, Blind, Setpoint adjustment
- Display the function and status of buttons,optional with icon,text,status value etc.
- Panel lock, Proximity sense, Screen saver, Alarm function
- Built-in temperature / humidity sensor
- Room temperature controller, support heating, cooling control modes, and HVAC modes, with 2-pipes or 4pipes system, Temperature logic algorithm supports 2-point and PI control, and Fan auto.control
- Support 2 external input interfaces, used as dry contact detection or NTC temperature detection

●Support 8 Scene Group functions, and 8 outputs for per Scene Group

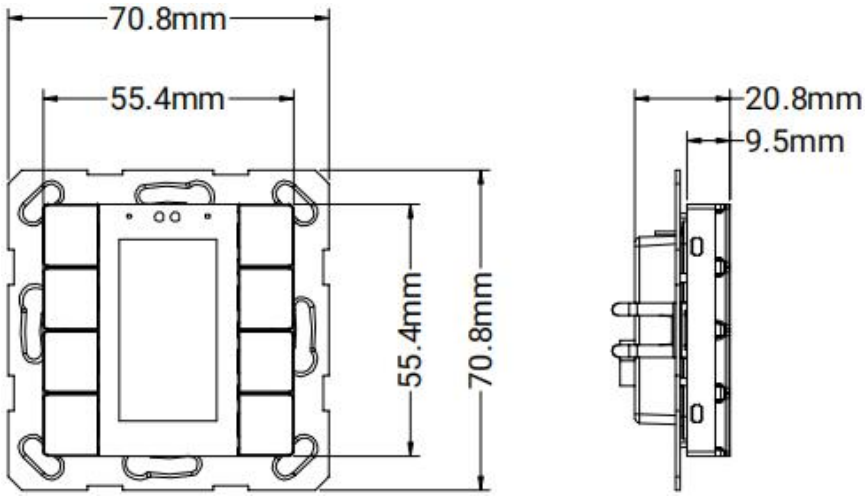
●Support 8 Logic functions, with AND, OR, XOR, Gate forwarding, Threshold comparator, Format convert, Gate function, Delay function and Staircase lighting

Chapter 2 Technical Data

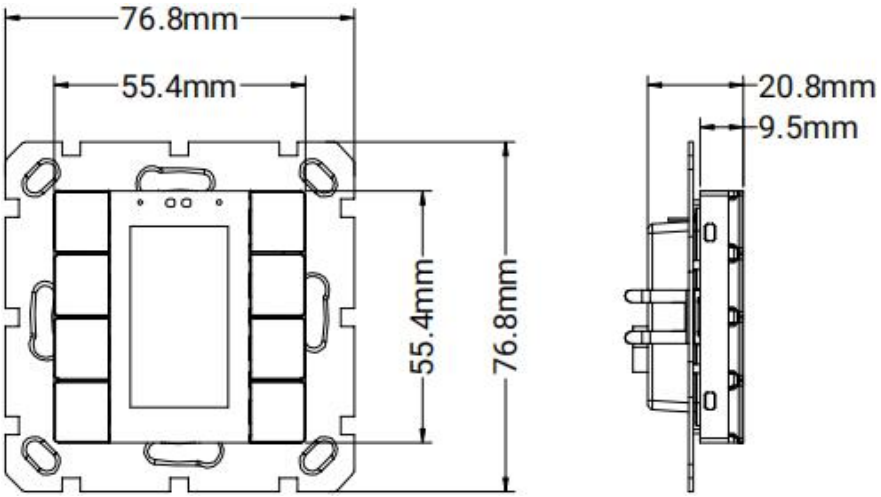
Power Supply	Bus voltage	21-30V DC, via the KNX bus
	Bus current	<23mA/24V; <18.5mA/30V
	Bus consumption	<0.55W
Input	2 external inputs, as dry contact input or 10K NTC input	
Connection	KNX	Bus connection terminal
	Input	A three-wires connection terminal, cable length <5m
Operation and display	Programming button and red LED	For assigning the physical address
	Orientation LED	Light on when screen off, to indicate device location
Proximity sensor	Normal sensitivity approximately 15cm Enhanced sensitivity approximately 30cm	
Temperature	Operation	– 5 °C ... 45 °C
	Storage	– 25 °C ... 55 °C
	Transport	– 25 °C ... 70 °C
Environment	Humidity	<93%, except dewing
Dimension	70.8 x 70.8 x 20.8 mm (80 mm wring box) 76.8 x 76.8 x 20.8 mm (86 mm wring box)	
Mounting	European 80 type wall-mounted box or 86 type wall-mounted box	
Weight	0.06kg	

Chapter 3 Dimension and Structural Diagram

3.1. Dimension Diagram

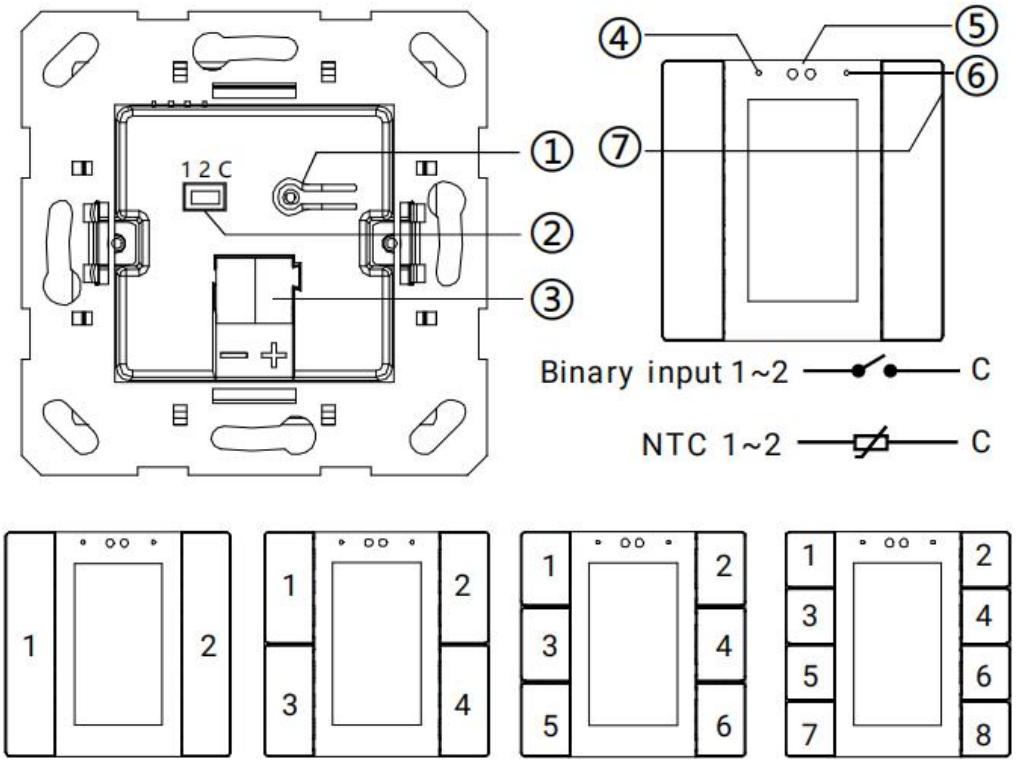


Apply to European 80 type wall-mounted box



Apply to 86 type wall-mounted box

3.2. Structural Diagram



① Programming button and LED

② Input terminals

③ KNX bus connection terminal

④ Orientation LED

⑤ Proximity sensor

⑥ Proximity sensor

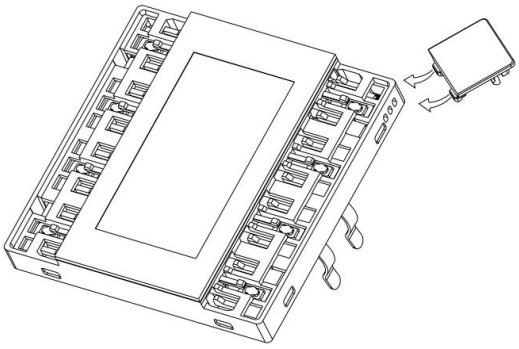
⑦ Internal temperature / humidity sensor

Reset the device to the factory configuration: press the programming button and hold for 4 seconds then release, repeat the operation for 4 times, and the interval between each operation is less than 3 seconds

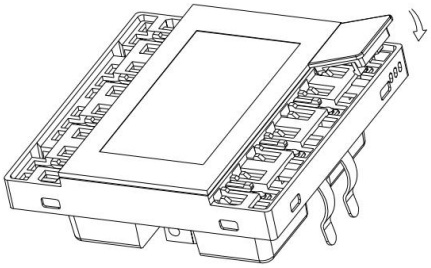
3.3. Accessory assembly instruction

The model (CHPBD-0x/55.1.0y) should be assembled with the accessory (CHKAM-0x/55.2.0y or CHKAG-0x/55.2.0y) as a complete panel unit, take **Push Button Sensor with Display, 4-gang** as an example, please follow the steps below:

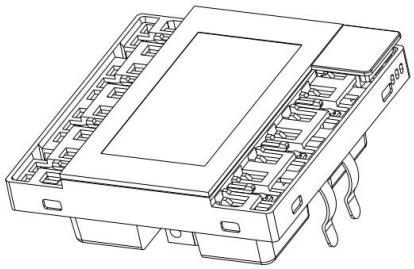
1.Take a button cover of the accessory, then clamp a side buckle of the cover into the corresponding position of the module, operation is shown in the right figure:



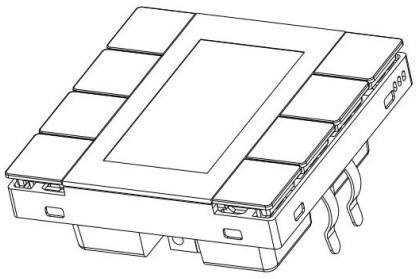
2.Clamp another side buckle of the cover into the module, so that the cover and the module can be flush, operation is shown in the right figure:



3.The assembled effect of a button cover is shown in the right figure:



4.Repeat the above steps for the assembly of the other button covers, after the completion, the effect of whole panel unit as shown in the right figure:



Chapter 4 Project Design and Programming

Application	Maximum of communication objects	Maximum number of group addresses	Maximum number of associations	Secure group addresses
Button/Display/Input/RTC controller/1.1	**349**	**500**	**500**	**500**

General function

General function includes device In operation setting, date and time update, request device status after voltage recovery, and supports to lock the whole device.

Support to set other functions, including screen brightness, screen saver, proximity sense and alarm function.

Internal temperature and humidity measurement

Internal temperature and humidity measurement value is sent to the bus: respond after read only and respond after change.

Set temperature and humidity calibration, and send alarm telegram when the preset range of threshold value for temperature alarm is exceeded.

External input interface function

Up to support 2 channels, enable/disable each channel functions. Optional dry contact detection or NTC temperature detection.

When selecting dry contact detection, only supports the basic functions, including switch, scene send strings (press/release, short/long, send after voltage recovery, disable function).

When selecting NTC temperature detection, the external temperature probe can be connected to detect the external temperature and the B value data of temperature sensing probe needs to be set.

Button function

Push button sensor can be used as individual or rocker button. You can set for each button to display on screen with the icon, text, status, etc.

When used as individual button, you can configure: Switch, Dimming, RGB switching/send value, RGBW switching/send value, Colour temperature switching/send value, Value sender, Scene control, Blind, Shift register, Multiple operation, Delay mode, RGB dimming, RGBW dimming, Colour temperature dimming and Colour temperature adjustment.

When used as rocked button, you can configure: Switch, Dimming, Scene control, Blind, Setpoint adjustment.

Room temperature controller

Support to functions, including control mode input, heating/cooling system (compatible with 2/4 pipes system), 4 operation modes (comfort, standby, economy and protection modes) and setpoint temperature, fan speed, window contact, presence detector, temperature threshold, 2 points and PI control algorithm and etc; At relative adjustment, extra optional whether to enable setpoint temperature offset value, with threshold option (-10~10°C), send the offset value to bus when enable.

Logic function

Up to support 8 channels of logic, each channel up to support 8 inputs and 1 logic result.

Logic function support functions, including AND, OR, XOR, Gate forwarding, Threshold comparator, Format convert, Delay function and Staircase lighting.

Scene group function

Up to support 8 channels of scene group forward, each group up to support 8 configurable output, datatype is optional 1bit/1byte/2byte/3byte/6byte.

Chapter 5 Parameter setting description in the ETS

5.1. KNX Secure

Push Button Sensor with Display is a KNX device that complies with the KNX secure standard. That is, you can run the device in safe way.

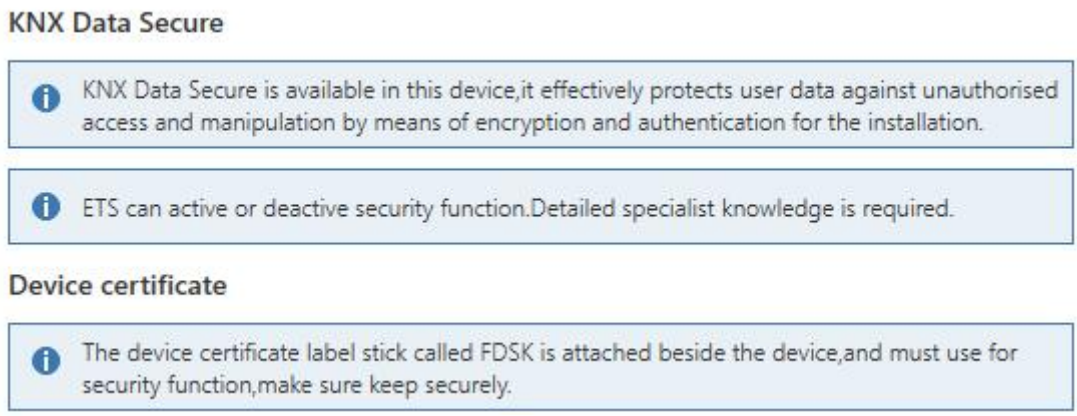


Fig.5.1 (1) "KNX Secure" parameter window

The device with KNX secure will be displayed notes on ETS, as shown as Fig.5.1(1).

If secure commissioning is actived in ETS project, the following information must be considered during device debugging:

❖It is essential to assign a project password as soon as a KNX Secure device is imported into a project. This will protect the project against unauthorized access.

The password must be kept in a safe place – access to the project is not possible without it (not even the KNX Association or device manufacturer will be able to access it)!

Without the project password, the commissioning key will not be able to be imported.

❖A commissioning key is required when commissioning a KNX Secure device (first download). This key (FDSK = Factory Default Setup Key) is included on a sticker on the side of the device, and it must be imported into the ETS prior to the first download:

✧On the first download of the device, a window pops up in the ETS to prompt the user to enter the key, as shown in Fig.5.1 (2) below.

The certificate can also be read from the device using a QR scanner (recommended).

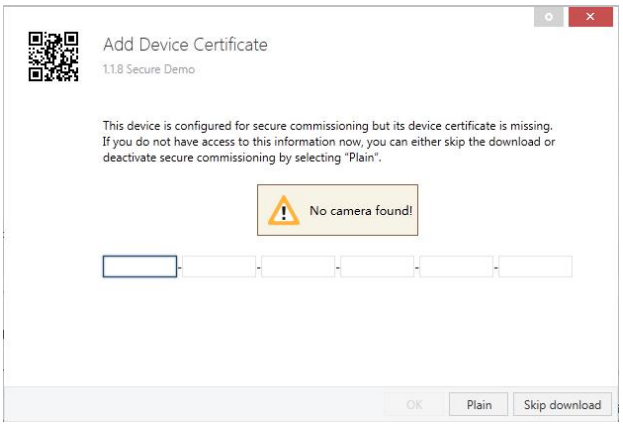


Fig.5.1(2) Add Device Certificate window

✧Alternatively, the certificates of all Secure devices can be entered in the ETS beforehand.

This is done on the “Security” tab on the project overview page, as shown in Fig.5.1(3) below.

The certificates can be also added to the selected device in the project, as shown in Fig.5.1(4).

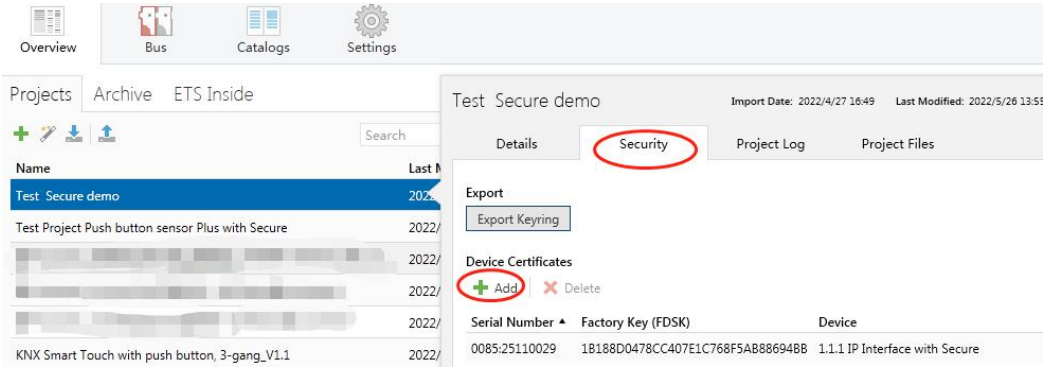


Fig.5.1(3) Add Device Certificate

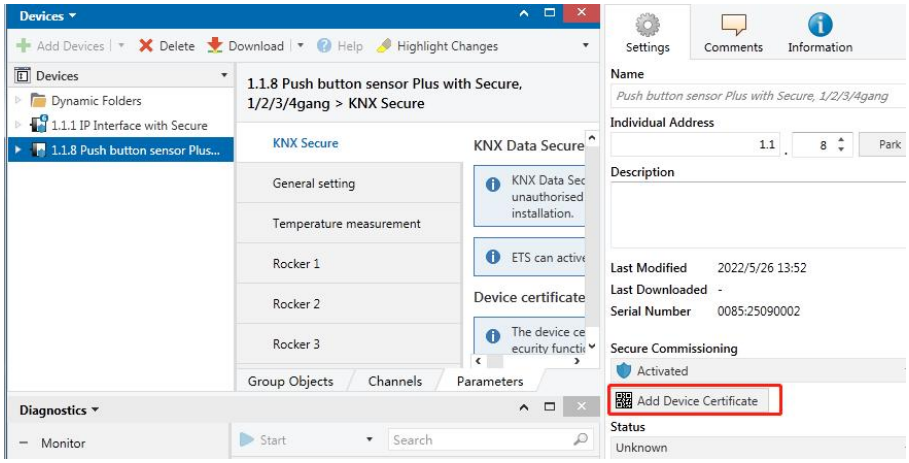


Fig.5.1(4) Add Device Certificate

✧There is a FDSK sticker on the device, which is used for viewing FDSK number.

Without the FDSK, it will no longer be possible to operate the device in KNX Secure mode after a reset.

The FDSK is required only for initial commissioning. After entering the initial FDSK, the ETS will assign a new key, as shown in Fig.5.1(5) below.

The FDSK will be required again only if the device was reset to its factory settings (e.g. If the device is to be used in a different ETS project).

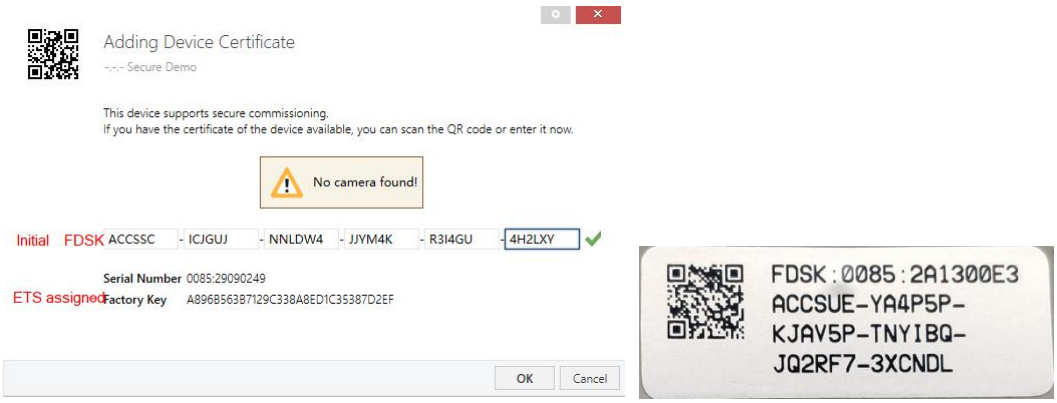


Fig.5.1(5)

Example:

If this application in the project needs to be tried with another device, it is no longer the original device. When the application is downloaded to a new device, the following prompt will appear on the left of Fig.5.1(6), click yes, the Add Device Certificate window will appear, then enter the initial FDSK of the new device, and you need to reset the device to the factory settings (it is not required if the device is still factory default; If it has been used, it will be required to reset, otherwise the following error message will appear on the right of Fig.5.1(6)), and then the device can be successfully downloaded again.

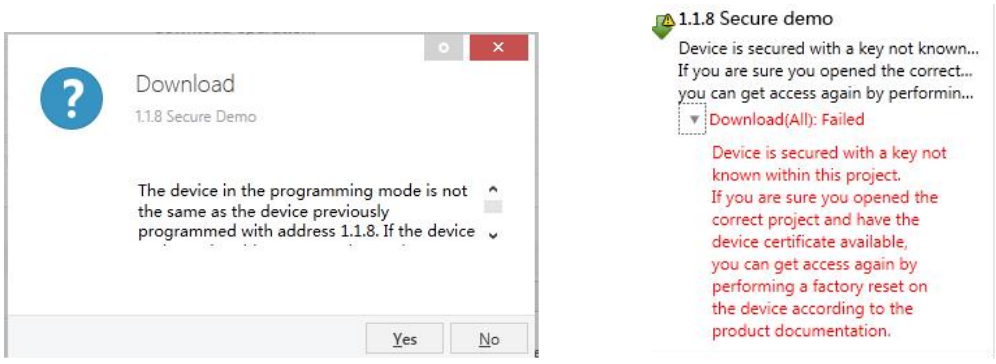


Fig.5.1(6) Example

Whether the device is replaced in the same project, or the device is replaced in a different project, the processing is similar: **Reset the device to the factory settings, then reassign the FDSK.**

After the device is downloaded successfully, the label Add Device Certificate turns gray, indicating that the key for this device has been assigned successfully, as shown in Fig.5.1(7) below.

Fig.5.1(7)

ETS generates and manages keys:

Keys and passwords can be exported as needed to the use of security keys outside of the associated ETS projects. As shown in Fig.5.1(8) below, the file extension is .knxkeys.

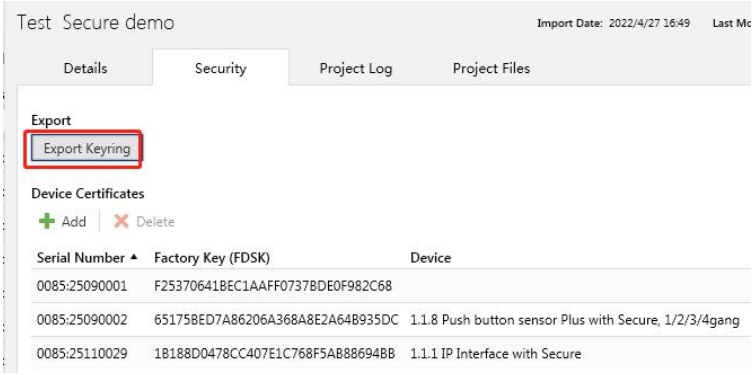


Fig.5.1(8)

Note: Any USB interface used for programming a KNX Secure device must support “long frames”. Otherwise ETS will report a download failure information, as shown below.

5.2. Parameter window “General”

5.2.1 Parameter window “General setting”

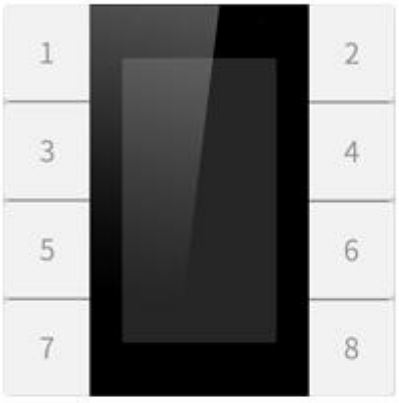
Send delay after voltage recovery [0..15] 0 s

Send cycle of In operation telegram [1..240,0=inactive] 0 s

Long operation for button after [5..250] 5 *0.1s

Device type 2-gang 4-gang

Device preview



Allow to enter programming mode via combine operation

Combine operation definition is any one of left side and any one of right side press simultaneously and the duration>5s

Screen display setting

Note:The codepage option in the property of project must select the Unicode(UTF-8)

The encode data of telegram for 14byte object from bus UTF-8 ISO8859-1

UI theme is Dark style Light style

Extension function

Screen saver

Night mode

Proximity function

Alarm function

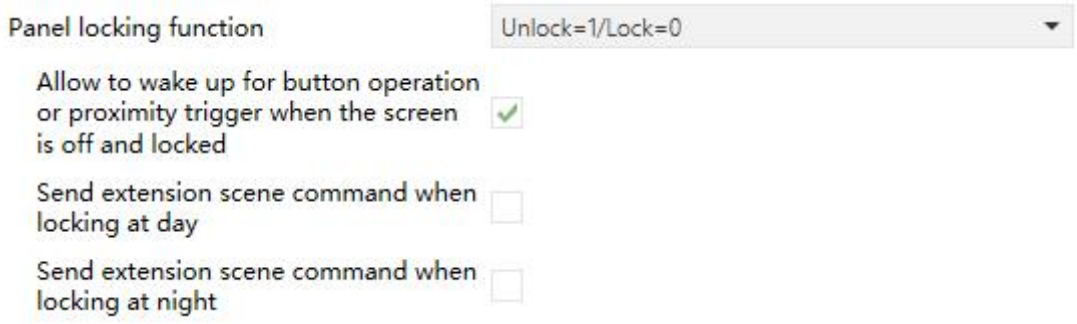


Fig.5.2.1 “General setting” parameter window

Parameter "Send delay after voltage recovery [0..15]"

This parameter is for setting the delay time to send to bus after the device voltage recovery.

Options: **0..15 s**

The setting dose not contain the device initialization time, and bus telegrams received during delay time will be recorded.

Parameter "Send cycle of "In operation" telegram [1..240,0=inactive]"

This parameter is for setting the time interval when cyclically send telegrams through the bus to indicate this device in normal operation. When set to “0”, the object “In operation” will not send a telegram. If the setting is not “0”, the object “In operation” will send a telegram according to the setting period time with logic “1” to the bus. Options: **0...240 s,0= inactive**

As to reduce the bus load as much as possible, the maximum time interval should be selected according to actual application requirement.

Parameter "Long operation for button after [5...250]"

This parameter is for setting the valid time of long operation for button. Options: **5..250 *0.1s**

Parameter "Device type"

This parameter is for setting the device type, which is displayed according to specific deice.

Push button module of 3-gang can be used for both Push Button Sensor with Display, 1-gang and Push Button Sensor with Display, 3-gang, options:

1-gang

3-gang

Push button module of 4-gang can be used for both Push Button Sensor with Display, 2-gang and Push Button Sensor with Display, 4-gang, options:

2-gang

4-gang

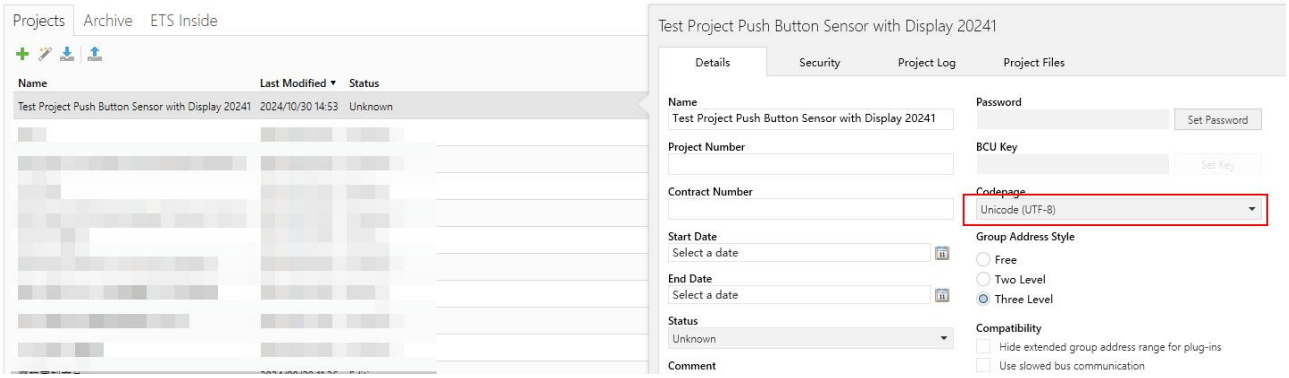
Parameter "Allow to enter programming mode via combine operation"

This parameter is for setting whether allow to enter programming mode via combine operation. When enabled, if any one of left side and any one of right side press simultaneously and the duration>5s, enter programming mode. When no ETS download, this function is enabled by default.

Screen display setting

Note:The codepage option in the property of project must select the Unicode(UTF-8)

UTF-8 setting as shown as follow:



Note: Arabic and Hebrew are not yet supported for display on the device.

Parameter "The encode data of telegram for 14byte object from bus"

This parameter is for setting the encode data of telegram for 14byte object from bus. Options:

UTF-8

ISO8859-1

Parameter "UI theme is"

This parameter is for setting the UI theme. Options:

Dark style

Light style

Dark style is close to dark gray, light style is close to white.

Extension function

Parameter "Screen saver"

Setting interface of screen saver will be visible when the parameter enabled.

Parameter "Night mode"

Setting interface of night mode will be visible when the parameter enabled.

Parameter "Proximity function"

Setting interface of proximity function will be visible when the parameter enabled.

Parameter "Alarm function"

Setting interface of alarm function will be visible when the parameter enabled.

Parameter "Panel locking function"

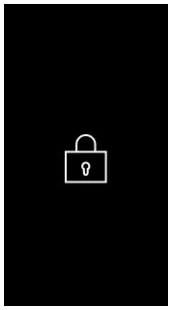
This parameter is for setting whether to enable panel locking function. Options:

Disable

Unlock=1/Lock=0

Unlock=0/Lock=1

After receiving the telegram of panel lock, the screen switches to the lock interface, as shown in the right figure:



After receiving the unlock signal, it automatically returns to the normal function interface, or enters the screen saver interface after a delay.

Parameter "Allow to wake up for button operation or proximity trigger when the screen is off and locked"

This parameter is for setting whether allow to wake up for button operation or proximity trigger when the screen is off and locked.

Parameter "Send extension scene command when locking"

Parameter "Send extension scene command when locking at day"

Parameter "Send extension scene command when locking at night"

These parameter are for setting whether to enable send extension scene command when locking, you can set the scene number and scene object when enabled. If night mode is enabled, the scene numbers at day/night can be configured independently.

When the panel is locking, operate any buttons to send the scene number.

——Parameter "Scene NO."

This parameter is visible when previous parameter is enabled. Set the sending scene number, corresponding telegram is 0~63. Options:

Scene NO.1

Scene NO.2

Scene NO.3

...

Scene NO.64

5.2.2 Parameter window “Brightness setting”

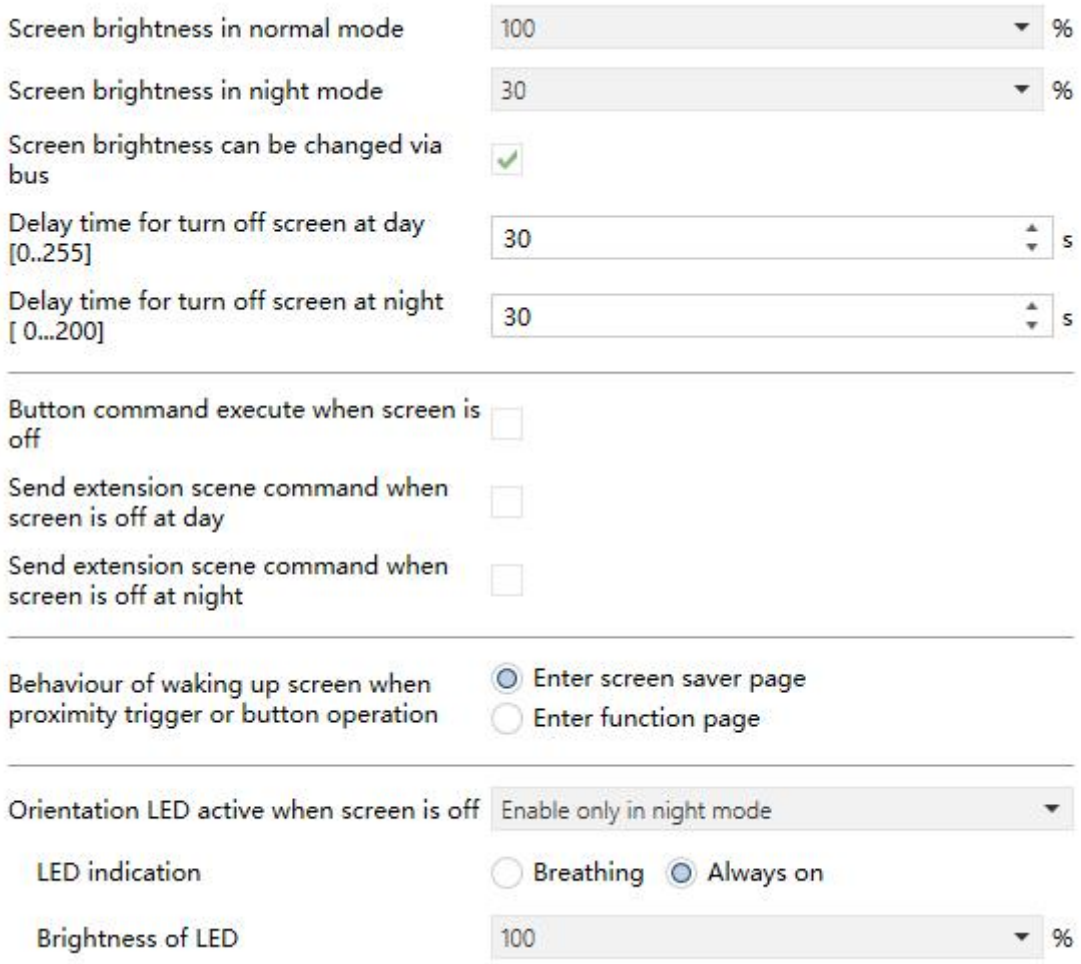


Fig5.2.2 “Brightness setting” parameter window

Parameter “Screen brightness in normal mode”

This parameter is for setting the screen brightness level when normal or day mode (some one proximity/operation). Options:

10%

20%

...

90%

100%

User can change brightness via object “Screen brightness”. Voltage failure or exit day mode, the new brightness value will also be stored.

Parameter "Screen brightness in night mode"

This parameter is visible when night mode is enabled. Set the the screen brightness level when night mode (some one proximity/operation). Options:

10%

20%

...

90%

100%

Unchanged

User can change brightness via object "Screen brightness". Voltage failure or exit night mode, the new brightness value will also be stored.

When "Unchanged" is selected, the brightness remains at the brightness of day mode, user can only change the brightness temporarily via the object. Voltage failure or exit night mode, the new brightness value will be not stored.

Parameter "Screen brightness can be changed via bus"

This parameter is for setting whether the screen brightness can be changed via bus.

If enabled, the object "Screen brightness" is visible. It is only used to change the brightness of current status. E.g. if it is currently day mode, only the brightness settings in day mode are updated.

Brightness of screen saver can not be changed via the object.

Parameter "Delay time for turn off screen[0...255]"

Parameter "Delay time for turn off screen[0...255] at day"

Parameter "Delay time for turn off screen[0...200] at night"

This parameter is for setting the delay time that off screen after no operation or enter screen saver.

When night mode is disabled, options: **0..255 s**

When night mode is enabled, options at day: **0..255 s**; options at night: **0..200 s**

When the value is 0, there is a object "Screen on/off" for controlling on/off screen via bus.

Parameter "Button command execute when screen is off"

This parameter is for setting whether the button command is executed when screen is off.

Parameter "Send extension scene command when screen is off"

Parameter "Send extension scene command when screen is off at day"

Parameter "Send extension scene command when screen is off at night"

These parameter are for setting whether to enable send extension scene command when screen is off, you can set the scene number and scene object when enabled. If night mode is enabled, the scene numbers at day/night can be configured independently.

When the screen is off, operate any buttons to send the scene number.

——Parameter "Scene NO."

This parameter is visible when previous parameter is enabled. Set the sending scene number, corresponding telegram is 0~63. Options:

Scene NO.1

Scene NO.2

Scene NO.3

...

Scene NO.64

Parameter "Wake up screen when proximity trigger or button operation after turn off via bus"

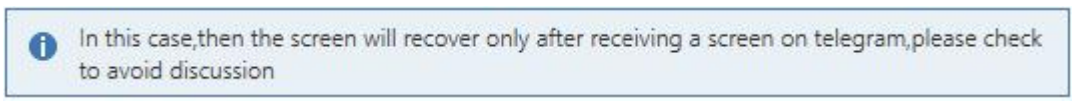
This parameter is visible when delay time for turn off is set to 0. Set whether to wake up screen when proximity trigger or button operation after turn off via bus.

——Parameter "Delay time for automatically turn off screen again[0...255]"

This parameter is visible when previous parameter is enabled. Set the delay time for automatically turn off screen again. When the value is 0, there is a object "Screen on/off" for controlling on/off screen via bus.

Options: **0..255 s**

Display following information when previous parameter is disabled:



Parameter "Behaviour of waking up screen when proximity trigger or button operation"

This parameter is for setting the behaviour of waking up screen when proximity trigger or button operation. Options:

Enter screen saver page

Enter function page

When the function of screen saver is disabled, "Enter screen saver page" is not visible.

Parameter "Orientation LED active when screen is off"

This parameter is for setting the orientation LED status when screen is off, which is used to indicate the location of device. Options:

Disable

Enable only in night mode

Enable always

Enable via bus

When night mode is disabled, "Enable only in night mode" is not visible.

——Parameter "LED indication"

This parameter is visible when "Disable" is not selected. Set the way of LED indication. Options:

Breathing

Always on

——Parameter "Brightness of LED"

This parameter is visible when "Enable only in night mode" or "Enable always" is selected. Set the brightness of orientation LED. Options:

10%

20%

...

90%

100%

5.2.3 Parameter window “Screen saver setting”

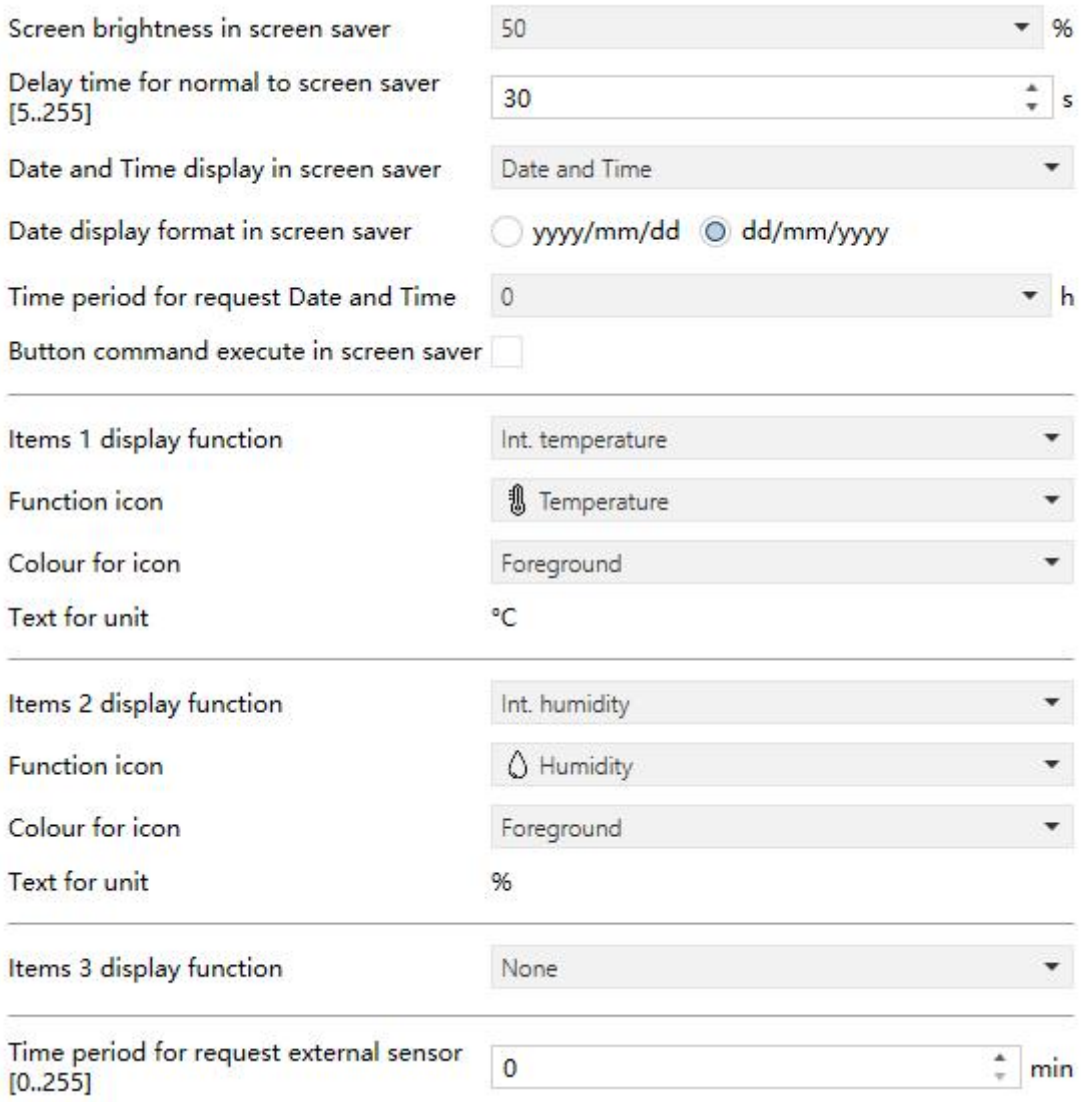


Fig.5.2.2 “Screen saver setting” parameter window

Parameter "Screen brightness in screen saver"

This parameter is for setting screen brightness level in screen saver. Options:

20%

30%

40%

50%

Parameter "Delay time for normal to screen saver [5..255]"

This parameter is for setting the delay time for normal mode to screen saver. Options: **5..255 s**

Parameter "Date and Time display in screen saver"

This parameter is for setting whether to display the time or date in screen saver. If disabled, nothing will be displayed. Options:

Disable

Only Date

Only Time

Date and Time

Note: this feature is only supported from firmware version V1.1.0 and higher, including the following two setting parameters after enabled.

Parameter "Date display format in screen saver"

This parameter is visible when "Only Date" or "Date and Time" is selected. Set the date display format in screen saver. Options:

yyyy/mm/dd

dd/mm/yyyy

Parameter "Time period for request Date and Time"

This parameter is visible when "Disable" is not selected. Set the time period for request Date and Time. If it is 0, it is not set and no request will be sent. Options:

0 h

1 h

2 h

...

96 h

168 h

Parameter "Button command execute in screen saver"

This parameter is for setting whether the button command is executed in screen saver.

Parameter "Items x display function" (x=1~4)

This parameter is for setting the item that is displayed in screen saver, up to 4 items.

Options:

None	**1byte unsigned value**
Int. temperature	**2byte unsigned value**
Int. humidity	**2byte float value**
Ext. temperature	**4byte unsigned value**
Ext. humidity	**4byte float value**
1bit value	**14byte string**
1byte percent value	

Parameters as follow are not visible when “None” is selected. There is no the option “None” for item 1.

Parameter "Function icon"

This parameter is for setting the icon for air quality information using. Options:

Light on

Light off

...

Power meter

The icons corresponding to the options are described in the appendix, please refer to chapter 7.

Parameter "Colour for icon"

This parameter is for setting the icon colour for air quality information using. Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

Parameter "Status text for 1-ON"

Parameter "Status text for 0-OFF"

These parameters are visible when 1bit is selected. Set the text to display when telegram 0 and 1.

Parameter "Text for unit"

This parameter is for setting the text for unit. When temperature or humidity, read only °C or %; while 1byte/2byte/4byte is selected, the unit is customizable.

Parameter "Decimal place"

This parameter is visible when 2byte float value or 4byte float value is selected. Set the decimal place for float value. Options:

0

1

Note: temperature and humidity have 1 decimal place by default.

Parameter "Time period for request external sensor [0..255]"

This parameter is for setting the time period for device to send a control value read request to external sensor after bus recovery or finish programming. Not send when value is 0.

Options: **0..255 min**

5.2.4 Parameter window “Night mode setting”

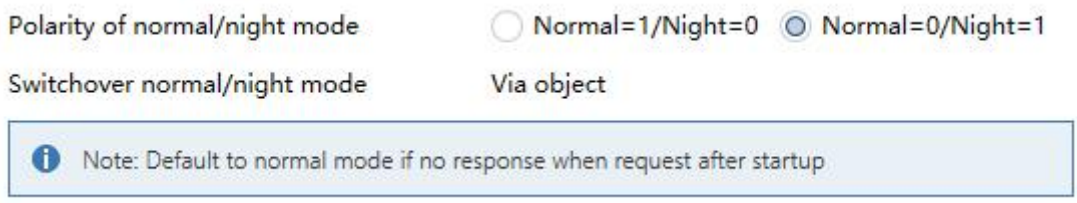


Fig.5.2.4 “Night mode setting” parameter window

Parameter "Polarity of normal/night mode"

This parameter for setting object value of normal/night mode. Options:

Normal=1/Night=0

Normal=0/Night=1

Parameter "Switchover normal/night mode"

This parameter for setting the switchover way of normal/night status, send status telegrams via object “Night mode” when status change. Read only the option **Via object**

Note: default to normal mode if no response when request after startup. That is, screen backlight and LED status indication are according to normal (day) mode to display.

5.2.5 Parameter window “Proximity setting”

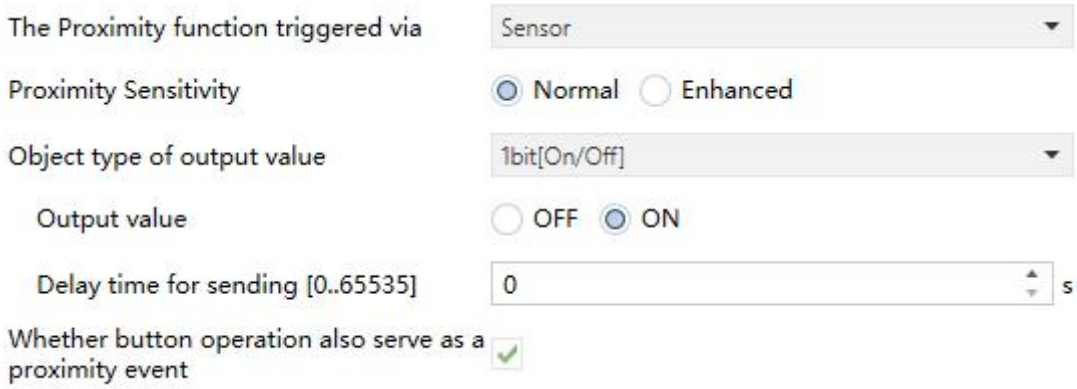


Fig.5.2.5 “Proximity setting” parameter window

Parameter "The Proximity function triggered via"

This parameter is for setting the trigger way of proximity function. Options:

Sensor

Proximity object

Sensor or Proximity object

When “Sensor or Proximity object” is selected, not send output value when proximity triggered via object.

Parameters as follow are visible when “Sensor” or “Sensor or Proximity object” is selected.

Parameter "Sensor sensitivity"

This parameter is for setting the sensor sensitivity. Options:

Normal

Enhanced

Normal is approximately 15cm, enhanced is approximately 30cm.

Parameter "Object type of output value"

This parameter is for setting the object type of output value sent to the bus when proximity is triggered. Options:

No reaction

1bit[On/Off]

1byte[scene control]

1byte[0..255]

1byte[0..100%]

2byte[0..65535]

These two parameters are not visible when “No reaction” is selected.

——Parameter “Output value”

This parameter is for setting the output value sent to the bus when proximity approaching/leaving, the range of value is determined by the data type.

——Parameter “Delay time for sending [0..65535]”

This parameter is for setting the delay time for sending telegram. Options: **0..65535 s**

Parameter "Whether button operation also serve as a proximity event"

This parameter is for setting whether button operation also serve as a proximity event.

If disabled, button operation only for waking up the screen or executing the button function, but not to send proximity telegram, and only it is sent when the proximity sensor is triggered.

If enabled, the proximity telegram is sent via triggering the proximity sensor, operating button can also.

5.2.6 Parameter window “Alarm setting”

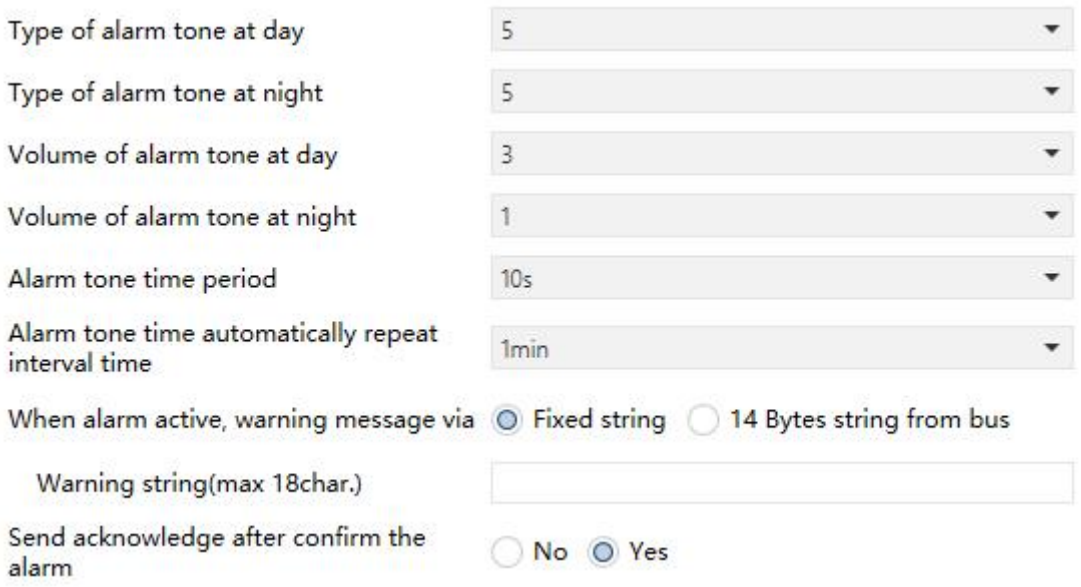


Fig.5.2.6 “Alarm setting” parameter window

Parameter “Type of alarm tone”

Parameter “Type of alarm tone at day”

Parameter “Type of alarm tone at night”

These parameters are for setting the type of alarm tone. Options: **1/2/3/4/5**

If night mode is enabled, the type alarm tone at day/night can be configured independently.

Parameter “Volume of alarm tone”

Parameter “Volume of alarm tone at day”

Parameter “Volume of alarm tone at night”

These parameters are for setting the volume of alarm tone. Options: **1/2/3**. When set to 3, the volume is maximum

If night mode is enabled, the volume tone at day/night can be configured independently.

Parameter “Alarm tone time period”

This parameter is for setting the time period of alarm tone. When receive the alarm telegram, play alarm tone immediately, if currently playing and it will not be interrupted and will not be re-timed. If receive the cancel alarm telegram when playing, it will be interrupted immediately. Options:

Disable

10s

20s

...

25min

30min

Disable: disable the alarm tone playing function;

Other options: the playing period of alarm tone.

Parameter "Alarm tone time automatically repeat interval time"

This parameter is visible when previous parameter is enabled. Set the interval at which alarm tone time automatically repeat, and the timing is only related to when the last play ended. Options:

Disable

10s

20s

...

25min

30min

Disable: disable the alarm tone repeat function;

Other options: when a playing period complete, it will automatically play again after a delay of the setting time.

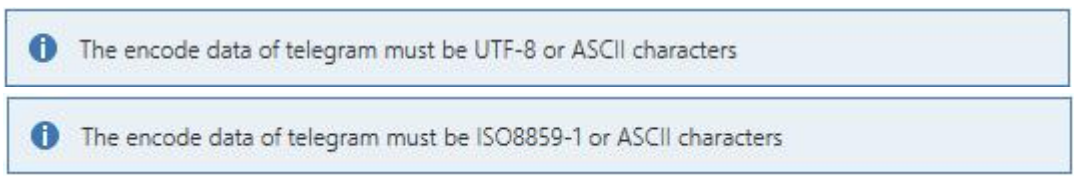
Parameter "When alarm active, warning message via"

When alarm activated, this parameter is for setting input type of warning message, either by displaying a fixed string entered by ETS on the screen or by receiving a 14byte string from the bus. Options:

Fixed string

14 Bytes string from bus

When it is selected "14 Bytes string from bus", display the information according to the encode data:



After receiving the alarm telegram, the screen switches to the alarm interface, as shown in the right figure:

After user has operated any button (confirmed the alarm) or receiving the telegram of cancel alarm, it automatically returns to the normal function interface, or enters the screen saver interface after a delay.

Parameter "Warning string(max 18char.)"

This parameter is visible when previous parameter is selected “Fixed string”. Set the indicate text when alarm activated.

Parameter "Send acknowledge after confirm the alarm"

This parameter is for setting whether to send a 1bit acknowledge telegram, the action that only needs to be processed when the user clicks on the screen to acknowledge the warning message.

5.2.7 Parameter window “Advanced setting”

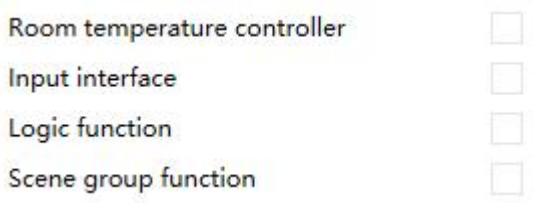


Fig.5.2.7 “Advanced setting” parameter window

Parameter "Room temperature controller"

Setting page of Room temperature controller interface is visible after this parameter enabled.

Parameter "Input interface"

Setting page of input interface is visible after this parameter enabled.

Parameter "Logic function"

Setting page of logic function is visible after this parameter enabled.

Parameter "Scene group function"

Setting page of scene group function is visible after this parameter enabled.

5.3. Parameter window “Internal sensor measurement”

These parameter pages as follow are used for setting the calibration value, sending condition and error report of internal sensor, if other functions select to use internal sensor, refer to the settings here.

5.3.1 Parameter window “Temperature sensor”

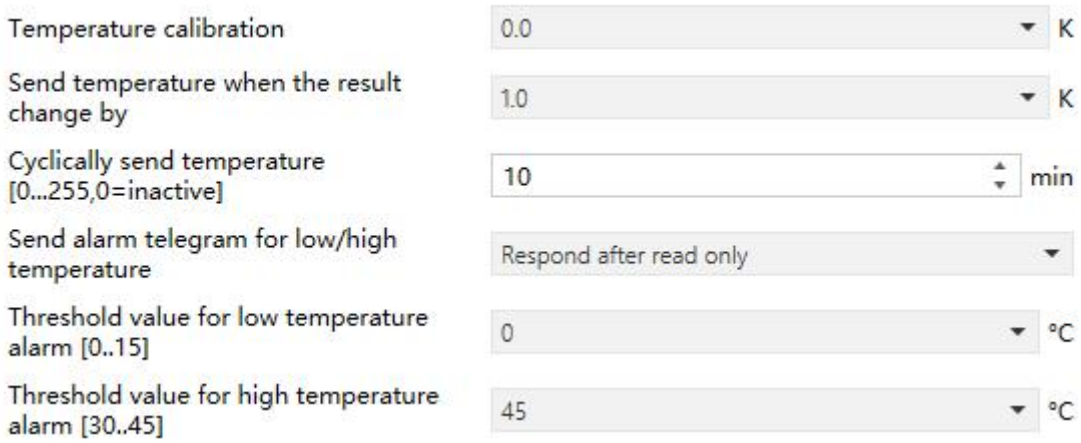


Fig.5.3.1 “Temperature sensor” parameter window

Parameter “Temperature calibration”

This parameter is for setting the temperature calibration value of the internal sensor, that is, to calibrate the measured value of internal sensor to make it closer to the current ambient temperature.

Options:

-5.0K

...

0.0K

...

5.0K

Note: after the device is powered on, the stability time of internal sensor detection will take 30 minutes, therefore, the detected temperature value in the early stage of device work may be inaccurate.

Parameter “Send temperature when the result change by”

This parameter is for setting when temperature turns to a certain value, whether to enable to send the current temperature value to the bus. Not send when disable.

Options:

Disable

0.1K

0.2K

0.3K

0.5K

1.0K

...

10.0K

Parameter "Cyclically send temperature [0...255,0=inactive]"

Setting the time for cyclically sending the temperature detection value to the bus.

Options: **0..255 min**

This period is independent and starts time counting after programming completion or reset. Transmission change has no affect on this period.

Parameter "Send alarm telegram for low/high temperature"

This parameter is for setting condition of sending telegram when low/high temperature alarm. Options:

No respond

Respond after read only

Respond after change

Respond after read only: only when the device receives a read alarm from other bus device or bus will the object “Low temperature alarm”/“ High temperature alarm” send the alarm status to the bus;

Respond after change: the object “Low temperature alarm”/“High temperature alarm” will immediately send the telegram to the bus to report the alarm value when the alarm status has changed.

These two parameters as follow are visible when “Respond after read only” or “Respond after change” are selected.

——Parameter “Threshold value for low temperature alarm [0..15]”

This parameter is for setting the threshold value for low temperature alarm. When the temperature lower than low threshold, low temperature alarm object will send telegram. Options:

0°C

1°C

...

15°C

——Parameter "Threshold value for high temperature alarm [30..45]"

This parameter is for setting the threshold value for high temperature alarm. When the temperature higher than high threshold, high temperature alarm object will send telegram. Options:

30°C

31°C

...

45°C

5.3.2 Parameter window "Humidity sensor"

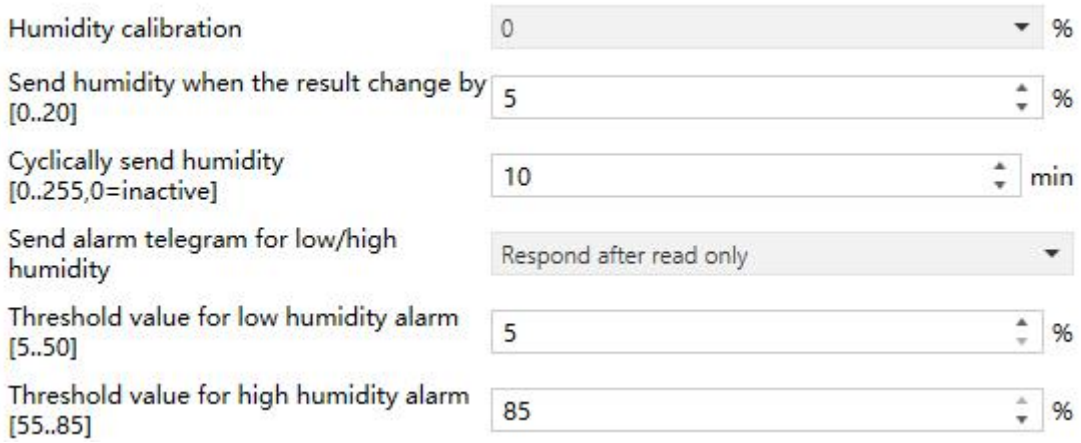


Fig.5.3.2 "Humidity sensor" parameter window

Parameter "Humidity calibration"

This parameter is for setting the humidity calibration value of the internal sensor, that is, to calibrate the measured value of internal sensor to make it closer to the current ambient humidity.

Options: **-20% / -15% / -10% / -5% / -3% / -1% / 0% / 1% / 3% / 5% / 10% / 15% / 20%**

Parameter "Send humidity when the result change by [0..20]"

This parameter is for setting when humidity turns to a certain value, whether to enable to send the current humidity value to the bus. Not send when value is 0. Options: **0..20 %**

Parameter "Cyclically send humidity [0..255,0=inactive]"

Setting the time for cyclically sending the humidity detection value to the bus. Options: **0..255 min**

This period is independent and starts time counting after programming completion or reset. Transmission change has no affect on this period.

Parameter "Send alarm telegram for low/high humidity"

This parameter is for setting condition of sending telegram when low/high humidity alarm. Options:

No respond

Respond after read only

Respond after change

Respond after read only: only when the device receives a read alarm from other bus device or bus will the object " Low humidity alarm"/" High humidity alarm" send the alarm status to the bus;

Respond after change: the object "Low humidity alarm"/"High humidity alarm" will immediately send the telegram to the bus to report the alarm value when the alarm status has changed.

These two parameters as follow are visible when "Respond after read only" or "Respond after change" are selected.

——Parameter "Threshold value for low humidity alarm [5..20]"

This parameter is for setting the threshold value for low humidity alarm. When the humidity lower than low threshold, low humidity alarm object will send telegram. Options: **5..20 %**

——Parameter "Threshold value for high humidity alarm [55..85]"

This parameter is for setting the threshold value for high humidity alarm. When the humidity higher than high threshold, high humidity alarm object will send telegram. Options: **55..85 %**

5.4. Parameter window “Input”

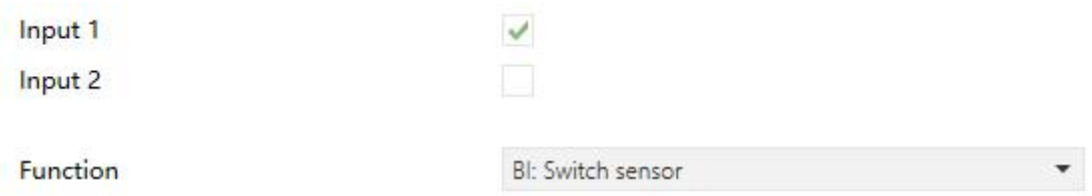


Fig.5.4 “Input” parameter window

Parameter "Input x" (x=1, 2)

Function page of input interface is visible after this parameter enabled.

Parameter "Function"

This parameter is for setting the function of external input interface. Support temperature detection and dry contact input (BI), setting page will be visible when select corresponding chosen. Also can be disable this channel function. Options:

Disable

Temperature probe(NTC 10K)

BI: Switch sensor

BI: Scene control

BI: Send String(14bytes)

When select Temperature probe(NTC 10K), can detect external temperature, which needs set B value of temperature probe.

When select dry contact input (BI), only supports the basic functions, including switch, scene send strings (press/release, short/long, send after voltage recovery, disable function).

Chapters as follow explain the functions of external input interface separately.

5.4.1 Temperature probe

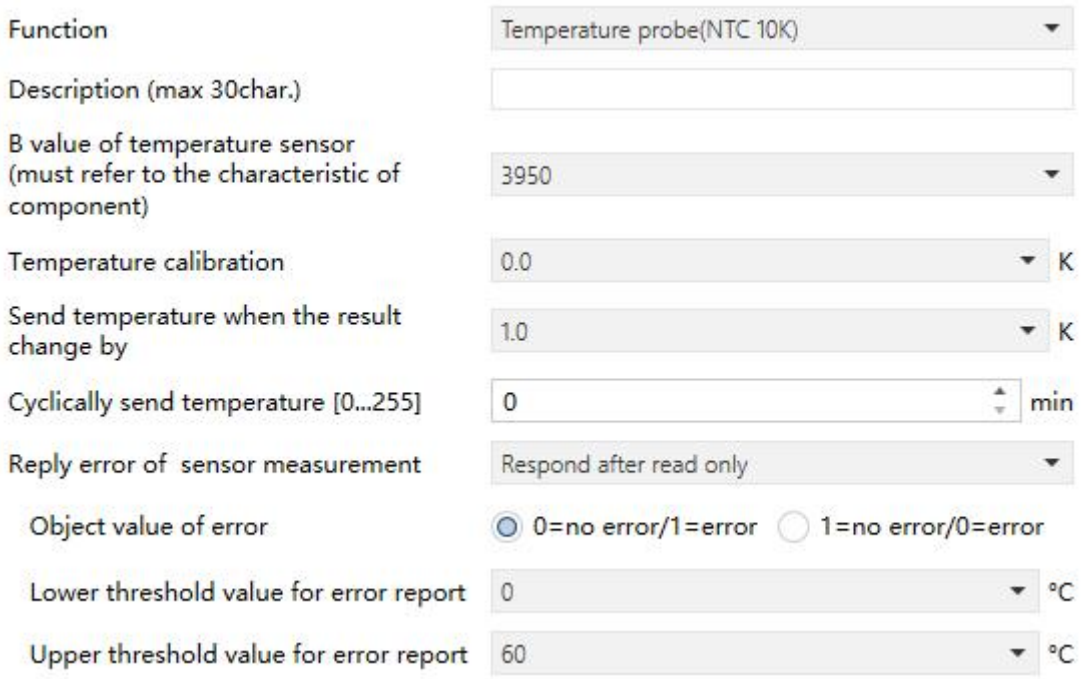


Fig.5.4.1 Parameter setting of temperature probe

Parameter "Description (max 30char.)"

This parameter is for setting the name description of temperature probe.

Parameter "B value of temperature sensor(must refer to the characteristic of component)"

This parameter is for setting the B value of temperature sensor. Options:

3275

3380

...

4200

Note: This value must refer to the characteristic of component, available from the instruction manual. If selected B value is different from used sensor, it will effect detection result directly.

Parameter "Temperature calibration"

This parameter is for setting the temperature calibration value of the temperature sensor, that is, to calibrate the measured value of sensor to make it closer to the current ambient temperature.

Options:

-5.0K

...

0.0K

...

5.0K

Parameter "Send temperature when the result change by"

This parameter is for setting when temperature turns to a certain value, whether to enable to send the current temperature value to the bus. Not send when disable. Options:

Disable

0.1K

0.2K

0.3K

0.5K

1.0K

...

10.0K

Parameter "Cyclically send temperature [0...255,0=inactive]"

Setting the time for cyclically sending the temperature detection value to the bus. Not send when value is 0.

Options: **0..255 min**

Parameter "Reply error of sensor measurement"

This parameter for setting the condition of sending error status report when temperature exceeds the valid detection. options:

No respond

Respond after read only

Respond after change

Respond after read only: only when the device receives a read error from other bus device or bus will the object " Temperature error report, Sensor" send the error status to the bus;

Respond after change: the object " Temperature error report, Sensor" will immediately send the telegram to the bus to report the error value when the error status has changed.

These three parameters as follow are visible when "Respond after read only" or "Respond after change" are selected.

——Parameter "Object value of error"

This parameter for defining object value of error. Options:

0=no error/1=error

1=no error/0=error

0=no error/1=error: the object value for which sensor no error occurs is 0, and the object value for which sensor error occurs is 1;

1=no error/0=error: it has the opposite meaning.

——Parameter "Upper threshold value for error report"

This parameter is for setting the upper threshold value for temperature error. When the temperature higher than the threshold, temperature error object will send telegram.

Options: **40°C / 45°C / 50°C / 55°C / 60°C / 70°C**

——Parameter "Lower threshold value for error report"

This parameter is for setting the lower threshold value for temperature error. When the temperature lower than the threshold, temperature error object will send telegram.

Options: **10°C / 5°C / 0°C / -5°C / -10°C / -20°C**

5.4.2 Binary input

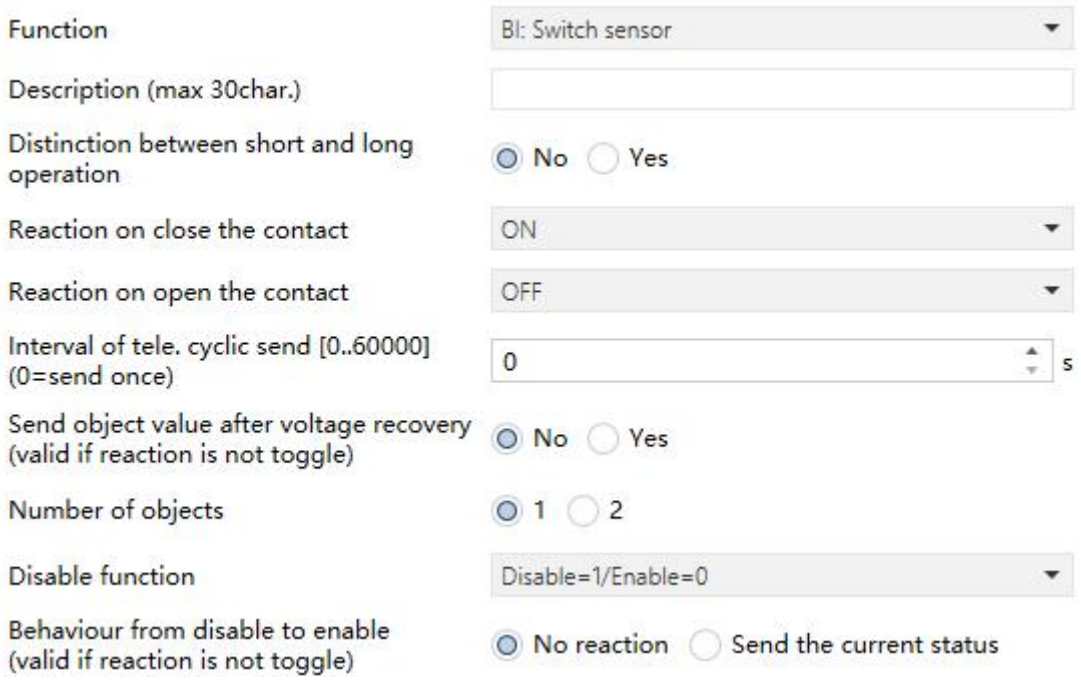


Fig.5.4.2(1) Parameter setting of switch sensor

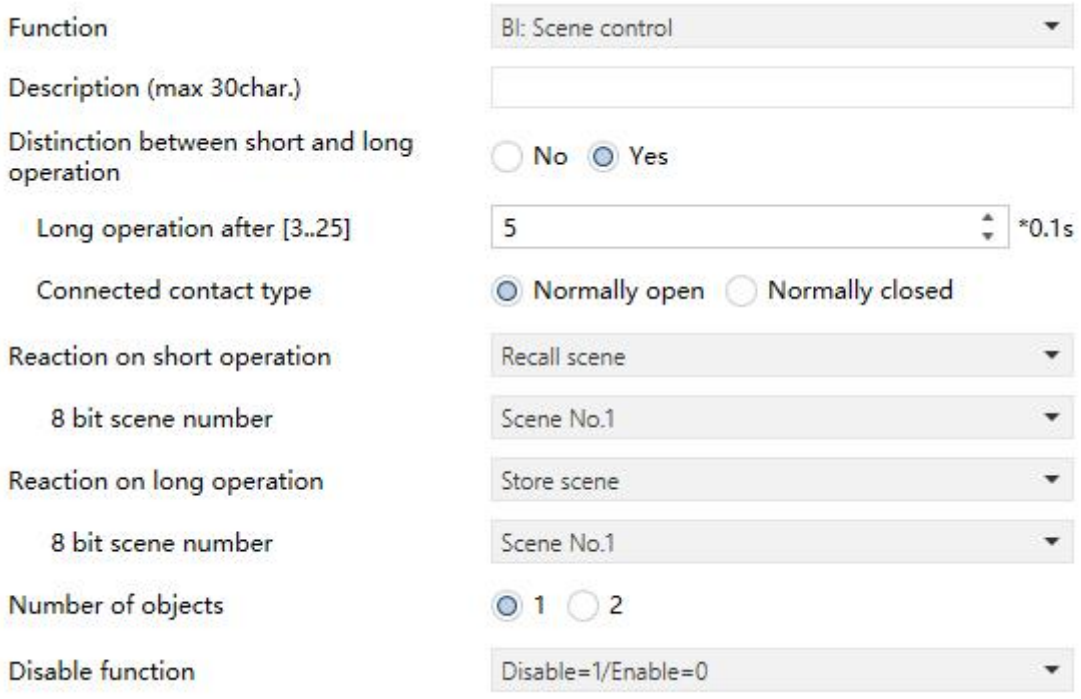


Fig.5.4.2(2) Parameter setting of scene control

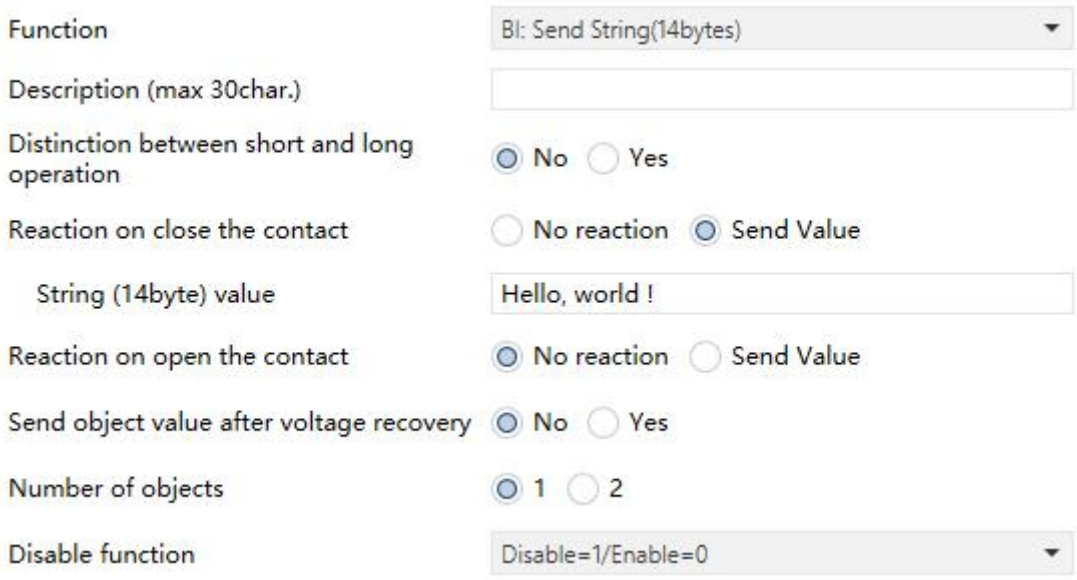


Fig.5.4.2(3) Parameter setting of sending sting

Parameter "Description (max 30char.)"

This parameter is for setting the name description for binary input function.

Parameter "Distinction between short and long operation"

This parameter is for setting whether to distinction between short and long operation. Options:

No

Yes

——Parameter "Long operation after [3..25]"

This parameter is visible when distinction between short and long operation. Set the effective time of long operation. When button operation out of the setting time, it is a long operation, otherwise it is a short operation.

Options: **3..25 *0.1s**

——Parameter "Connected contact type"

This parameter is visible when distinction between short and long operation. Set the connected contact type.

Options:

Normally open

Normally closed

When function is selected "BI: Switch sensor", the following parameters are visible, for setting switch sensor.

——Parameter "Reaction on short/long operation"

This parameter is visible when distinction between short and long operation, performing the action according to the settings of the short and long operations. Set the switch value to send when button operation. Options:

No reaction

OFF

ON

TOGGLE

No action: No telegrams have been sent.

ON: Send the on telegram.

OFF: Send the off telegram.

TOGGLE: Each operation will switch between on and off.

——Parameter "Reaction on close/open the contact"

This parameter is visible when no distinction between short and long operation. Judge the close and open operations, and perform the actions according to the settings. Set the switch value to send when button operation. Options:

No reaction

OFF

ON

TOGGLE

——Parameter "Interval of tele. cyclic send [0..60000] (0=send once)"

This parameter is visible when no distinction between short and long operation. Set the interval of telegram cyclic send. Options: **0..60000 s, 0 is only send once**

——Parameter "Send object value after voltage recovery (valid if reaction is not toggle)"

This parameter is visible when no distinction between short and long operation. This parameter is valid if not select "TOGGLE" or "No reaction", set whether to send object value after voltage recovery. Options:

No

Yes

When function is selected "BI: Scene control", the following parameters are visible, for setting scene control.

——Parameter "Reaction on short/long operation"

This parameter is visible when distinction between short and long operation, performing the action according to the settings of the short and long operations. Set the scene command to send when button operation. Options:

No reaction

Recall scene

Store scene

——Parameter "Reaction on close/open the contact"

This parameter is visible when no distinction between short and long operation. Judge the close and open operations, and send or storage scenes according to the settings. Set the scene command to send when button operation. Options:

No reaction

Recall scene

Store scene

——Parameter "8 bit scene number"

This parameter is visible when "Recall scene" or "Store scene" is selected. Set the scene number, range: **Scene NO.1~64, corresponding telegram is 0~63**

When function is selected "BI: Send String(14bytes)", the following parameters are visible, for setting string sending.

——Parameter "Reaction on short/long operation"

This parameter is visible when distinction between short and long operation, performing the action according to the settings of the short and long operations.Options:

No reaction

Send Value

——Parameter "Reaction on close/open the contact"

This parameter is visible when no distinction between short and long operation. Judge the close and open operations, and send strings according to the settings. Options:

No reaction

Send Value

——Parameter "String (14byte) value"

This parameter is visible when "Send Value" is selected. Input the strings to send.

——Parameter "Send object value after voltage recovery"

This parameter is visible when no distinction between short and long operation. Set whether to send object value after voltage recovery. Options:

No

Yes

Parameter "Number of objects"

This parameter is visible when the parameters "Reaction on short/close operation" or "Reaction on long/open operation" are not selected "No reaction". Set whether to use a common object or two separate objects when open/close and long/short operations. Options:

1

2

Parameter "Disable function"

This parameter is visible when binary input functions are selected. Set trigger value to disable/enable contacts. Options:

Disable

Disable=1/Enable=0

Disable=0/Enable=1

5.5. Parameter window ”Room temperature controller”

This parameter window is visible when “Room temperature controller” is enabled in parameter window “Advanced function”.

Fig.5.5 “Room temperature controller” parameter window

Parameter” RTC x”(x=1，2)

Function page of RTC is visible after this parameter enabled.

5.5.1 Parameter window "RTC x"(x=1,2)

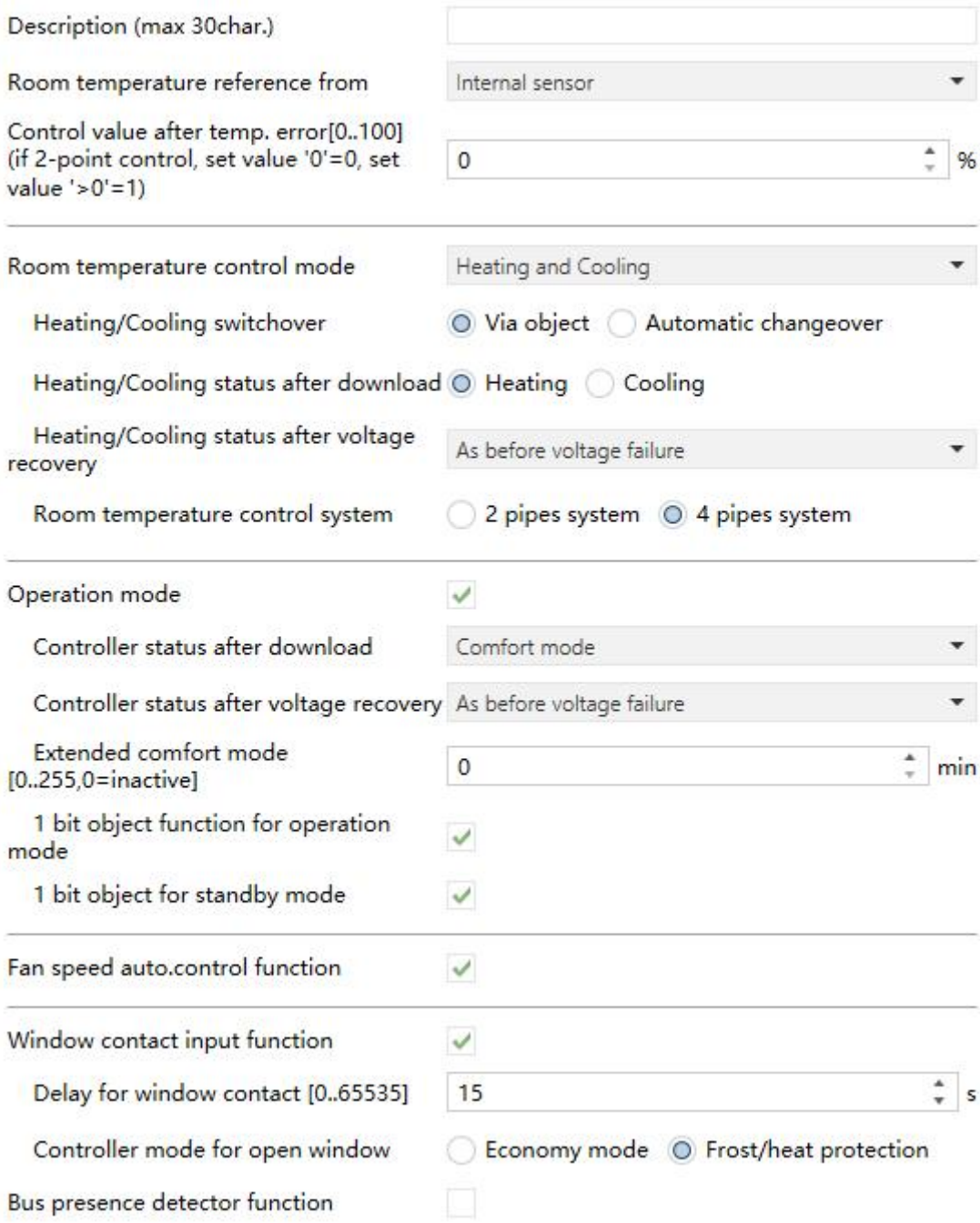


Fig.5.5.1 "RTC"(x=1~2) parameter window

Parameter"Description (max 30char.)"

This parameter is for setting the name description for RTC, up to input 30 characters.

Parameter"Room temperature reference from"

This parameter is for setting the resource of the RTC function temperature reference.

Options:

Internal sensor

External sensor

Internal and External sensor combination

When selecting the reference internal sensor, the temperature is determined by the setting of the “Internal sensor measurement” in the parameter interface, more details refer to chapter 5.3.

Parameters as follow are visible when “Internal sensor combine with External sensor” is selected.

——Parameter“Combination ratio”

This parameter is for setting the internal sensor and the external sensor to measure the specific gravity of the temperature. Options:

10% Internal to 90% External

20% Internal to 80% External

...

90% Internal to 10% External

For example, if the option is “40% internal to 60% external”, then the internal sensor accounts for 40%, the external sensor accounts for 60%, and the control temperature = (internal sensor's temperature × 40%) + (external sensor's temperature × 60%), the RTC function of the device will control and display the temperature according to the calculated temperature.

When two sensors are combined for detection, when one sensor is in error, the temperature value detected by the other sensor is used.

——Parameter“Period for request external sensor [0...255,0=inactive]”

This parameter is for setting the time period for read request external temperature sensor.

Options: **0..255 min**

——Parameter“Send temperature when the result change by [0...10]”

This parameter is for setting when temperature turns to a certain value, whether to enable to send the current temperature value to the bus. Not send when disable.

Options:

Disable

0.5K

1.0K

...

10K

——Parameter"Cyclically send temperature [0...255,0=inactive]"

Setting the time for cyclically sending the temperature detection value to the bus. Not send when value is 0. Options: **0..255 min**

Parameter"Control value after temp. error [0..100](if 2-point control, set value '0'=0, set value '>0'=1) "

This parameter is for setting the control value when temperature error occur. Options: **0..100 %**

If PI control, the parameter value is 40%, as well as the control value. When set to invert, the control value is invert to 60%.

If 2-Point control, then the parameter value is 0, as well as the control value; if the parameter value is more than 0, then the control value will be 1. When set to invert, the control value is invert.

For additional heating and cooling control, when the temperature sensor is error, the control value is 0 or 0%. When set to invert, the control value is 1 or 100%.

Parameter"Room temperature control mode "

This parameter is for setting room temperature control mode. Options:

Heating

Cooling

Heating and Cooling

Parameters as follow are visible when "Heating and Cooling" is selected

——Parameter"Heating/Cooling switchover"

This parameter is for setting the switchover way of Heating/Cooling. Options:

Via object

Automatic changeover

——Parameter“Heating/Cooling status after download”

This parameter is for setting the heating/cooling control mode of device when power on RTC after download. Options:

Heating

Cooling

——Parameter“Heating/Cooling status after voltage recovery”

This parameter is for setting the heating/cooling control mode of device when power on RTC after voltage recovery. Options:

Heating

Cooling

As before voltage failure

As before voltage failure：When the device is reset after power on, the control mode will recover as before voltage failure. If it is the first time the device is used or a newly enabled device function, the control mode after the device is started is in an uncertain state, and it needs to be manually selected at this time.

——Parameter“ Room temperature control system”

This parameter is for setting the type of RTC control system, that is, pipe types of fan coil water inlet/outlet. Options:

2 pipes system

4 pipes system

2 pipes system: Shares an inlet and outlet pipe for heating and cooling, that is, both hot and cold water are controlled by a valve.

4 pipes system: Has its own inlet and outlet pipes for heating and cooling, and two valves are needed to control the entry and exit of hot water and cold water respectively.

Parameter"Operation mode "

This parameter is for setting whether to enable RTC operation mode.

Parameters as follow are visible when operation mode disabled.

——Parameter" Initial setpoint temperature"

This parameter is for setting the initial value of setpoint temperature. Options:

10.0°C

10.5°C

...

35.0°C

——Parameter"Min. setpoint temperature [5..37] "

——Parameter"Max. setpoint temperature [5..37] "

These parameters are for setting limit the adjustable range of the setpoint temperature, the minimum value should be less than the maximum value. If the setpoint temperature beyond the limited range, the will output the limited temperature. Options:

5°C

6°C

37°C

Parameters as follow are visible when "Heating/Cooling switchover" and "Automatic changeover" is selected.

——Parameter" Upper dead zone"

——Parameter" Lower dead zone"

These parameters are for setting the dead zone range of auto switchover heating/cooling.

Options:

0.5K

1.0K

...

10.0K

Under heating control, when the actual temperature(T) > or = the setpoint temperature + the upper dead zone, then mode heating switch to cooling;

Under cooling control, when the actual temperature(T) < or = the setpoint temperature + the upper dead zone, then mode cooling switch to heating.

Parameters as follow are visible when operation mode enabled.

——Parameter"Controller status after download"

This parameter is for setting the operation mode when power on RTC after download. Options:

Standby mode

Comfort mode

Economy mode

——Parameter"Controller status after voltage recovery "

This parameter is for setting the operation mode when power on RTC after voltage recovery. Options:

Comfort mode

Standby mode

Economy mode

Frost/heat protection

As before voltage failure

——Parameter"Extended comfort mode [0..255,0=inactive] "

This parameter is for setting the extended time of comfort mode. When value >0, activate the extended, and 1 bit object "Extended comfort mode" is visible. Options: **0..255 min**

When object receives telegram 1, comfort mode activation. If receive telegram 1 again during the delay time, the time is re-timing. And comfort mode will return to previous operation mode once finish the timing. Exit the comfort mode when a new operation mode in delay time.

If change the operation mode, exit the timing, but switch the heating/cooling will not.

——Parameter"1 bit object function for operation mode"

This parameter is for setting whether to enable 1 bit objects of operation mode are visible. Corresponding mode activation when objects send telegram 1; Perform standby mode when object values of comfort, economy, protection received from the bus are 0.

——Parameter"1 bit object for standby mode"

This parameter is visible when previous parameter enabled. Set whether to enable 1 bit object of standby mode is visible.

Parameter"Fan speed auto control function"

This parameter is for setting whether to enable fan auto control interface is visible.

Parameter"Window contact input function"

This parameter is visible when RTC operation mode enabled. Set whether to link to window contact status.

Parameters as follow are visible when"Window contact input function" enabled.

——Parameter"Delay for window contact [0..65535]"

This parameter is visible when RTC operation mode and window contact input function are enabled. Set the delay time to window contact detection. That is, when the window is open within the set value, the window is not open. If the time is out of the set value, the window is open. Options: **0..65535 s**

——Parameter"Controller mode for open window"

This parameter is visible when RTC operation mode and window contact input function are enabled. If window status is open, perform corresponding operation according to configuration. (For the operation mode, the Switch and Setpoint temperature, as well as Heating/Cooling mode are recorded in the background if a control telegram is received, and performed after the window is closed. If no logging is received, return to the mode before the window was opened.)

Options:

Economy mode

Frost/heat protection

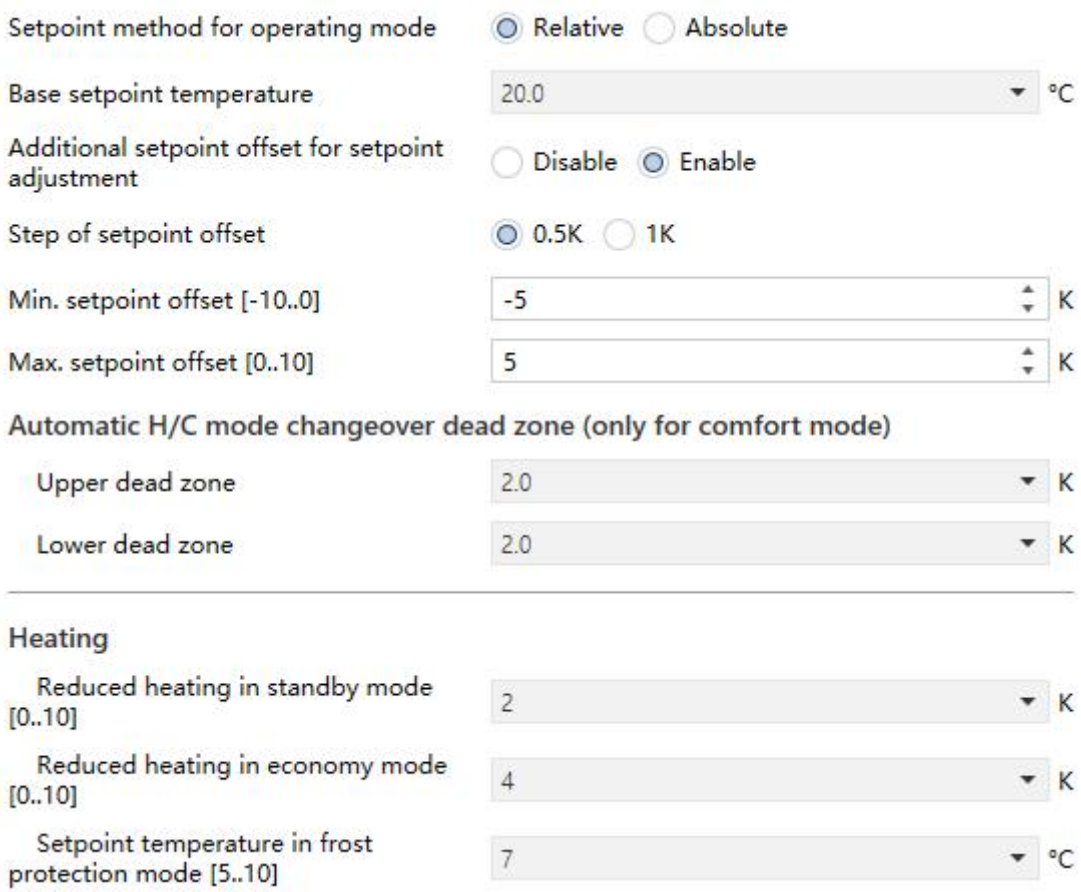
Parameter"Bus presence detector function"

This parameter is visible when RTC operation mode enabled. Set whether to link to bus presence detector status.

If presence is detected, enter the comfort mode and recovery original mode after leaving. If there is a telegram/manual to adjust the mode, it will not recovery the previous mode after leaving. (If receive presence status cyclically, no comfort mode re-triggered, and only can be after leaving.)

5.5.2 Parameter window "Setpoint"

This parameter window is displayed according to the control mode.



Relative(1)

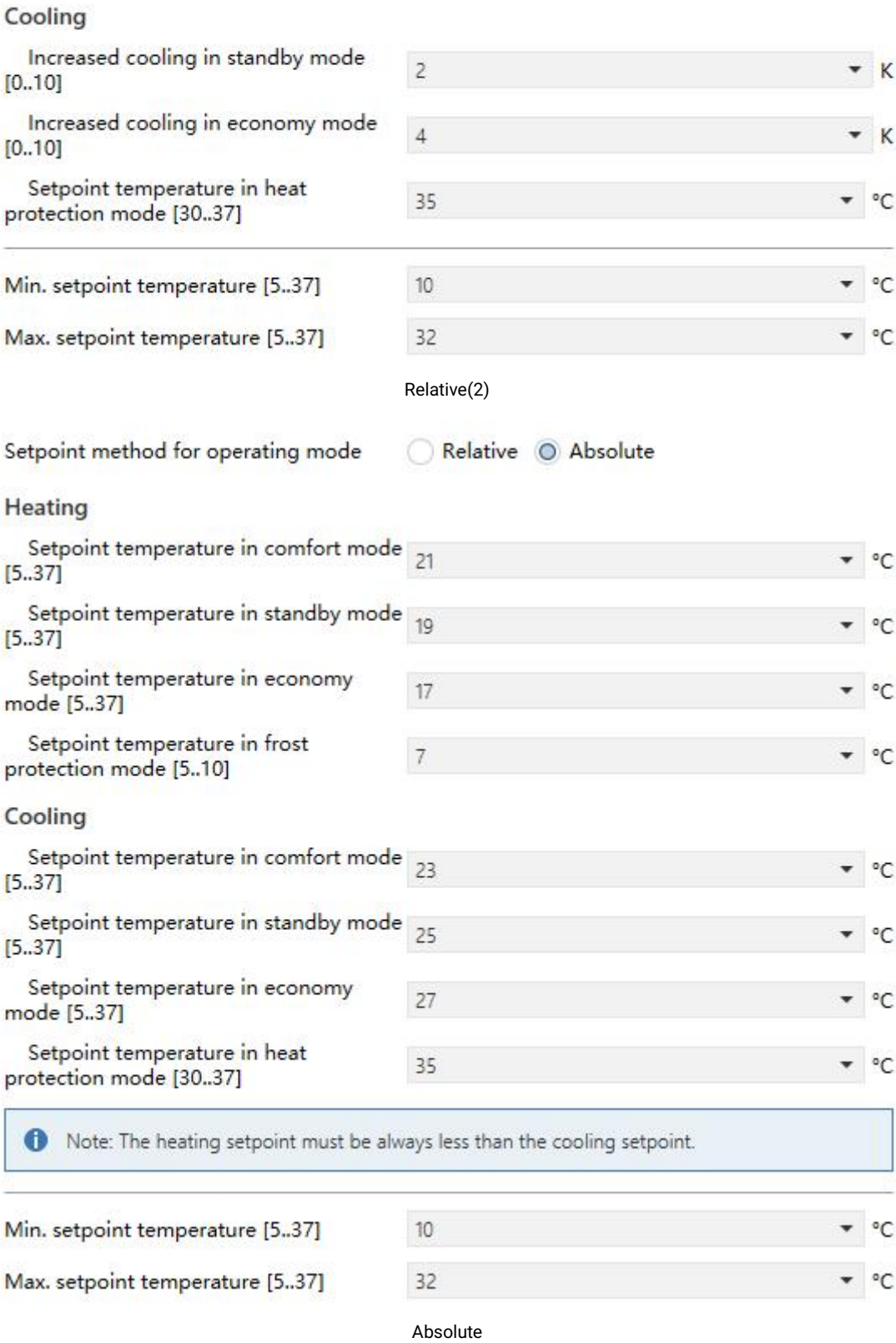


Fig.5.5.2”Setpoint” parameter window

Parameter"Setpoint method for operating mode "

This parameter is for setting the setpoint method for operating mode. Options:

Relative

Absolute

Relative: Relative adjustment, the setting temperature of economy mode and standby mode will refer to the defined temperature setpoint.

Absolute: Absolute adjustment, each mode has its independent temperature setpoint.

5.5.2.1 Relative

Parameters as follow are visible when the setpoint temperature adopts the relative adjustment method.

Parameter"Base setpoint temperature "

This parameter is for setting the basic setpoint temperature, form witch the initial setpoint temperature of the room comfort mode is obtained. Options:

10.0°C

10.5°C

...

35.0°C

The setpoint value will be modified through object “Base setpoint adjustment”, then the new value will be stored after the device power off.

Current basic setpoint temperature = modified basic setpoint temperature +/- accumulated offset(if existence)

When adjusting the setpoint temperature of current operation mode, the setpoint value will be changed with it, but the relative temperature of each mode is unchanged. Relative temperature of standby, economy and comfort mode is set by the parameters as follows.

Parameter"Additional setpoint offset for setpoint adjustment "

This parameter is for setting whether to enable additional setpoint offset function for setpoint adjustment, mainly used to adjust setpoint temperature by 1 bit object. Options:

Disable

Enable

Increase/decrease offset by 1 bit object "Setpoint offset", adjust the setpoint temperature indirectly, and send offset value to the bus by 2 byte object "Float offset value". Also reset the offset value by 1 bit object "Setpoint offset reset", modified the offset value by 2 byte object "Float offset value". Save the offset value when control mode and operation mode changed.

Parameters as follow are visible when"Additional setpoint offset for setpoint adjustment" enabled.

——Parameter"Step of setpoint offset"

This parameter is for setting step value of setpoint offset increased/decreased when receiving telegrams. Telegram 1- increase, telegram 0- decrease. Accumulated offset can be saved when power off. Options:

0.5K

1K

Setpoint temperature of current mode = base temperature + fix offset of mode + accumulated additional offset

Note: Fix offset of mode is the offset of standby and economy modes compared to comfort mode, which is decided by the follow parameters of heating/cooling. Accumulated additional offset is adjusted by 1bit object "Setpoint offset", or directly modified the offset value by 2 byte object "Float offset value".

——Parameter"Min. setpoint offset [-10..0]"

This parameter is for setting the maximum offset allowed when negative offset (setpoint temperature is decreased). Options: **-10..0 K**

——Parameter"Max. setpoint offset [0..10]"

This parameter is for setting the maximum offset allowed when forward offset (setpoint temperature is increased). Options: **0..10 K**

Automatic H/C mode changeover dead zone (only for comfort mode)

Parameter"Upper dead zone"

Parameter"Lower dead zone"

These two parameters are visible when control mode "Heating and Cooling" is selected, and "Automatic changeover" is selected. Setting the dead zone range of auto switchover heating/cooling. Options:

0.5K

1.0K

...

10K

Under heating control, when the actual temperature(T) > or = the setpoint temperature + the upper dead zone, then mode heating switch to cooling;

Under cooling control, when the actual temperature(T) < or = the setpoint temperature + the upper dead zone, then mode cooling switch to heating.

Parameter"Reduced heating in standby mode [0...10]"

Parameter"Increased cooling in standby mode [0...10]"

These two parameters are for setting the setpoint of standby mode. Options:

0K

1K

...

10K

Heating：The setpoint of standby mode is the temperature setpoint minus the reference value.

Cooling：The setpoint of standby mode is the temperature setpoint plus the reference value.

Parameter"Reduced heating in economy mode [0...10]"

Parameter"Increased cooling in economy mode [0...10]"

These two parameters are for setting the setpoint of economy mode. Options:

0K

1K

...

10K

Heating: The setpoint of economy mode is the temperature setpoint minus the reference value;

Cooling: The setpoint of economy mode is the temperature setpoint plus the reference value.

Parameter"Setpoint temperature in frost protection mode [5...10]"

This parameter is for setting the setpoint of frost protection mode. Options:

5°C

6°C

...

10°C

Under the frost protection mode, when room temperature reduce to the setpoint, the controller will trigger a control telegram so that related heating controller will output heating control to prevent the temperature from being too low.

Parameter"Setpoint temperature in heat protection mode [30...37]"

This parameter is for setting the setpoint of heat protection mode. Options:

30°C

31°C

...

37°C

Under the heat protection mode, when room temperature raise to the setpoint, the controller will trigger a control telegram so that related cooling controller will output cooling control to prevent the temperature from being too high.

5.5.2.2 Absolute

Parameters as follow are visible when the setpoint temperature adopts the absolute adjustment method.

Parameter" Setpoint temperature in comfort [5...37]"

Parameter"Setpoint temperature in standby mode [5...37]"

Parameter"Setpoint temperature in economy mode [5...37]"

These parameters are for setting the setpoint temperature in comfort, standby and economy mode when heating or cooling. Options:

5°C

6°C

...

37°C

Parameter"Setpoint temperature in frost protection mode [5...10] "

This parameter is for setting the setpoint temperature in frost protection mode when heating. Options:

5°C

6°C

...

10°C

Parameter"Setpoint temperature in heat protection mode [30...37] "

This parameter is for setting the setpoint temperature in heat protection mode when cooling. Options:

30°C

31°C

...

37°C

For absolute adjustment mode, "Heating and Cooling" and "Automatic changeover" are selected, the note is visible. The heating setpoint value must be less than or equal to the cooling

of the same operation mode, if not, it can not be configured on ETS. It is also applied to "Via object"

1.When the ambient temperature is higher than the setpoint temperature of current mode, it is changed to cooling mode; When the ambient temperature is lower than the setpoint temperature of current mode, it is changed to heating mode.

2.In the same operation mode, the setpoint temperature difference between cooling and heating remains constant, whether it is written from the bus or adjusted on the panel. That is, when adjust the setpoint temperature, it need to update cooling and heating setpoint temperature of current operation mode at the same time.

3.For the abnormal configuration where the heating setpoint value is greater than the cooling, it is depend on the setpoint temperature and ambient temperature to adjust heating/cooling mode, that is, change to cooling when ambient temperature is higher than the setpoint temperature in the current operation mode of cooling, while change to heating when ambient temperature is lower than the setpoint temperature in the current operation mode of cooling.

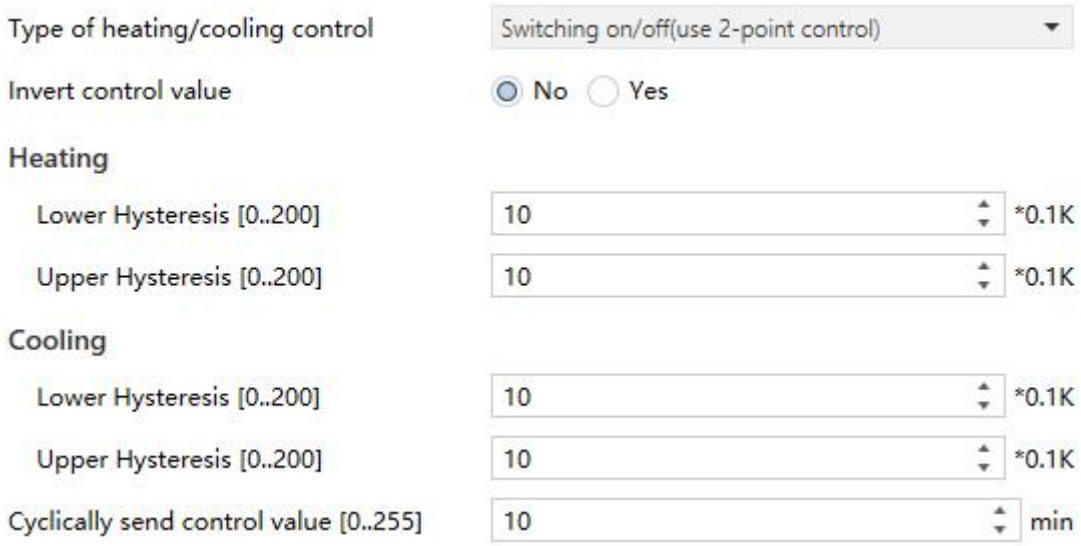
4.When receiving setpoint temperature from bus, it is still necessary to limit the value according to the high and low thresholds, that is heating and cooling temperature neither can not be lower than the min., or can not be higher than the max..

Points 2 and 4 also apply to "Via object".

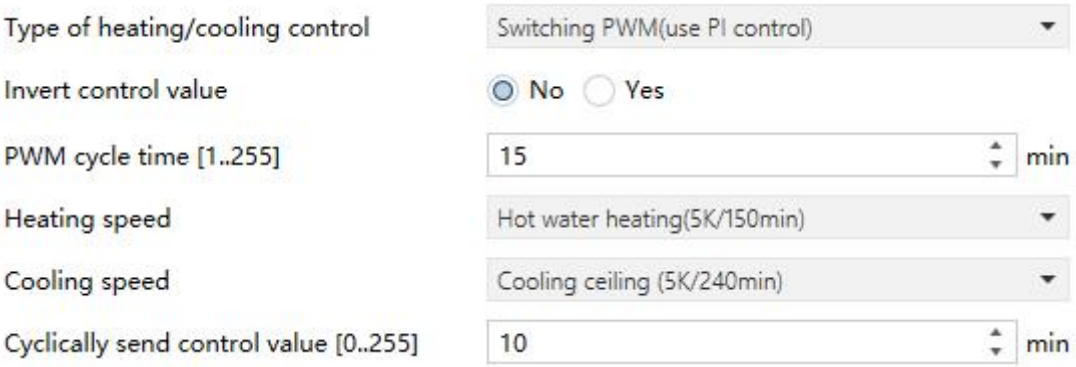
Note: for relative/absolute adjustment, in protection mode, the setpoint temperature is only configured via ETS. When the received setpoint value from bus is different from the ETS configuration, the value is not updated and returned to the current setpoint temperature, to update synchronously to other devices on the bus.

5.5.3 Parameter window "Heating/Cooling control"

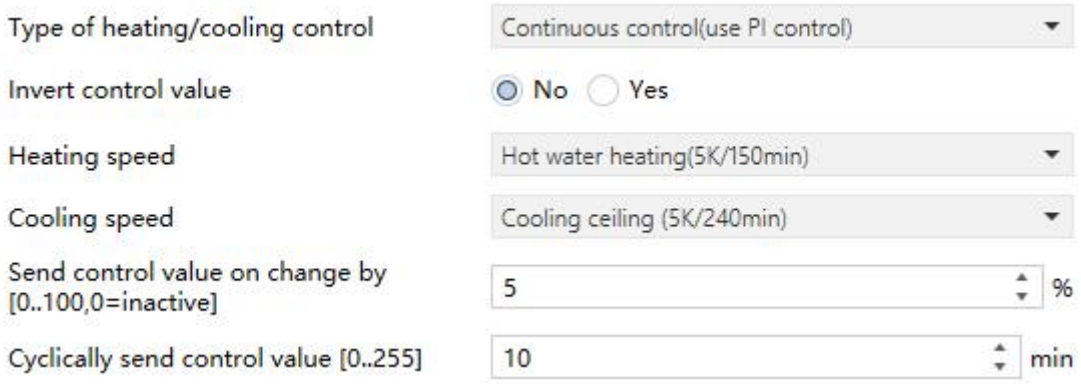
This parameter window is displayed according to the control mode.



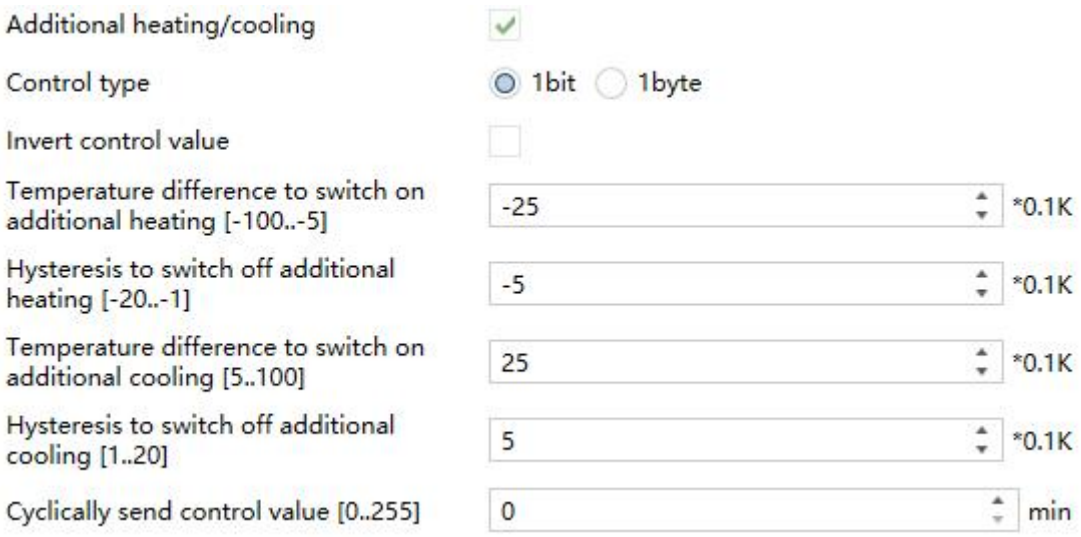
Switching on/off(use 2-point control)



Switching PWM(use PI control)



Continuous control(use PI control)



Additional heating/cooling

Fig.5.5.3(1) "Heating/Cooling control" parameter window

Parameters of this window display according to control mode and control system(2 pipe or 4pipe).

Parameter"Type of heating/cooling control"

This parameter is visible when selecting "Heating and Cooling & 2-pipe" option,setting the type of heating/cooling control. Different control types are suitable for controlling different temperature controllers. Options:

Switching on/off(use 2-point control)

Switching PWM(use PI control)

Continuous control(use PI control)

Parameter"Invert control value"

This parameter is for setting whether to invert control value or normal sending control value, so that the control value will be suitable for the valve type. Options:

No

Yes

Yes: Sending the control value to the bus through objects after inverting the control value.

Two parameters as follow are suitable for 2 point control:

Parameter"Lower Hysteresis [0...200]"

Parameter"Upper Hysteresis [0...200]"

These two parameters are for setting the lower/upper hysteresis temperature in HVAC heating or cooling. Options: **0..200 *0.1K**

Under heating control,

When the actual temperature(T) > the setting temperature + the upper hysteresis temperature, then will stop heating;

When the actual temperature(T) < the setting temperature - the lower hysteresis temperature, then will start heating.

For example, the lower hysteresis temperature is 1K, the upper hysteresis temperature is 2K, the setting temperature is 22℃, if T is higher than 24℃, then it will stop heating; if T is lower than 24℃,then it will start heating; if T is between 21~24℃, then it will maintain the previous status.

Under the cooling control,

When the actual temperature (T) < the setting temperature -the lower hysteresis temperature, then will stop cooling;

When the actual temperature (T) > the setting temperature +the upper hysteresis temperature, then will start cooling.

For example, the lower hysteresis temperature is 1K, the upper hysteresis temperature is 2K, the setting temperature is 26℃, if T is lower than 25℃, then it will stop cooling; if T is lower than 28℃, then it will start cooling; if T is between 28~25℃, then it will maintain the previous status.

2-point control mode is a very simple control mode. When adopting this control mode, it is necessary to set the upper hysteresis temperature and the lower hysteresis temperature through parameters. When setting the hysteresis temperature, the following effects need to be considered

1. When hysteresis interval is small, the temperature range will be small, however, frequent sending of control value will bring large load to the bus;

2. When hysteresis interval is large, the switch switching frequency will be low, but it is easy to cause uncomfortable temperature change.

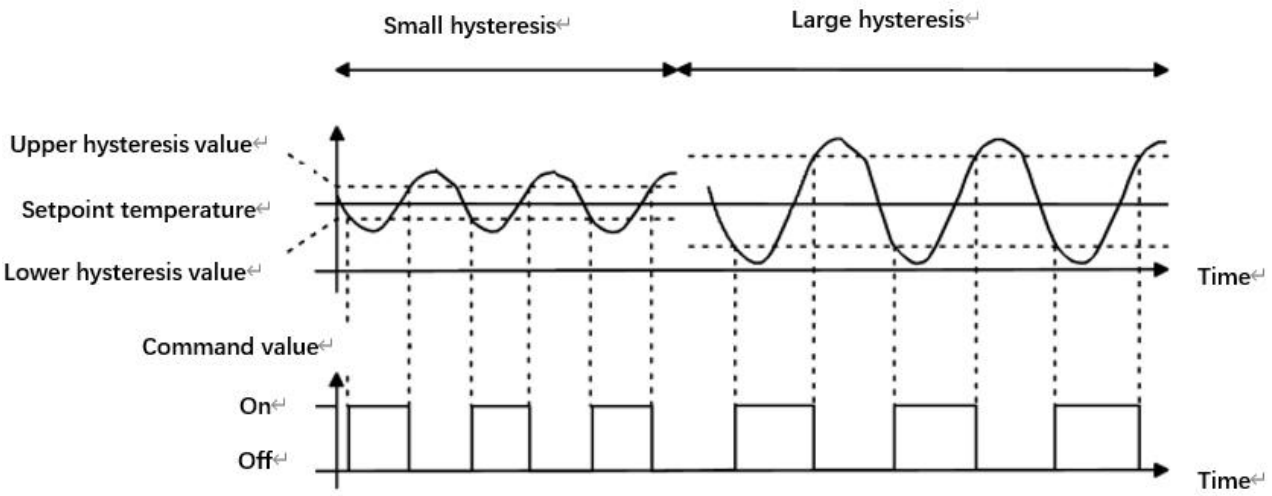


Fig5.5.3.(2) Effects of hysteresis on control value switch action(heating) under2-point control mode

Parameters as follow are suitable for PWN control:

Parameter"PWM cycle time [1...255]"

This parameter is only visible when the control type is “Switching PWM(use PI control)”. Set the period of the control object cycle to send the switch value, the object sends the switch value according to the duty cycle of the control value. For example, if the set period is 10 min and the control value is 80%, then the object will send an open telegram for 8 min. If the control value is changed, the time duty ratio of the on/ off telegram of the object will also change, but the period is still the time of parameter setting.

Options: **1..255 min**

The PI values of “Switching PWM (use PI control)” and “Continuous control (use PI control)” are the same, only different in control objects, the control object of “Continuous control” output PI value(1byte) directly, while the control value of “Switching PWM” output a “on/off” telegram according to the duty cycle of the control value.

Parameters as follow are suitable for PI control:

Parameter"Heating speed"

Parameter "Cooling speed"

These two parameters are for setting the responding speed of heating or cooling controller. Different responding speeds are suitable for different environments.

Options:

Hot water heating (5K/150min)

Underfloor heating (5K/240 min)

Electrical heating (4K/100min)

Split unit (4K/90min)

Fan coil unit (4K/90min)

User defined

Options

Cooling ceiling (5K/240min)

Split unit (4K/90min)

Fan coil unit(4K/90min)

User defined

——Parameter"Proportional range [10..100]"

——Parameter"Reset time [0..255]"

These two parameters are visible when "User defined" is selected. Set the PI value of PI controller.

Options: **10..100*0.1K (P value)**

Options: **0..255min (I value)**

Parameter"Send control value on change by [0...100,0=inactive]"

This parameter is visible when control type is "Continuous control (use PI control)", for setting the changing value of the control value to be sent to the bus. Options: **0..100 %, 0=inactive**

In PI control mode, the predefined control parameters of each PI controller in heating or cooling system are recommended as follows:

(1)Heating

Heating type	P value	I value(integration time)	Recommended PI control type	Recommended PWM period
Hot water Heating	5K	150min	Continuous/PWM	15min
Underfloor heating	5K	240min	PWM	15-20min
Electrical heating	4K	100min	PWM	10-15min
Split unit	4K	90min	PWM	10-15min
Fan coil unit	4K	90min	Continuous	--

(2)Cooling

Cooling type	P value	I value(integration time)	Recommended PI control type	Recommended PWM period
Cooling ceiling	5K	240min	PWM	15-20mIn
Split unit	4K	90min	PWM	10-15min
Fan coil unit	4K	90min	Continuous	--

(3)User defined

When the parameter“Heating/Cooling speed” is set to “User defined”, the parameter value of P (scale factor) and I (integration time) can be set through the parameter. When adjusting the parameters, refer to the fixed PI value mentioned in the above table. Even if the control parameters are adjusted slightly, the control behavior will be significantly different.

In addition, the integration time should be set properly. If the integration time is too long, the adjustment will be slow, and the oscillation will not be obvious; if the integration time is too small, the adjustment will be fast, but the oscillation will occur. 0 means the integral term is not used.

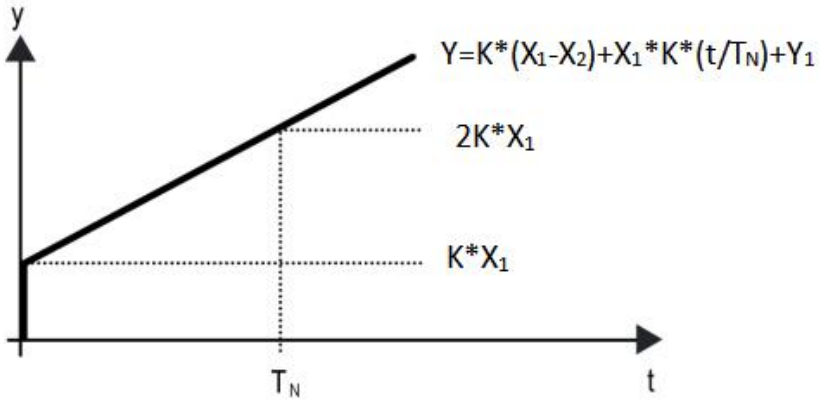


Fig.5.5.3 (3) control value of PI control mode

Y: control value

Y1: last control value

X1: temperature deviation = set temperature - actual temperature

X2: last temperature deviation = set temperature - actual temperature

T_N: integration time

K: scale factor (the scale factor is not zero)

PI control algorithm: $Y = K * (X1-X2) + X1 * K * t / T_N + Y1$

When the integration time is set to zero, the PI control algorithm is: Y = K (X1-X2) + Y2

Setting and influence of user-defined parameters:

Parameter setting	Effect
K: If the scale range is too small	Quick adjustment, and overshoot will occur
K: If the scale range is too small	Slow adjustment, but no overshoot
T_N: If the integration time is too short	Quick adjustment, but there will be oscillation
T_N: If the integration time is too long	Slow adjustment, no obvious oscillation

Parameter"Cyclically send control value [0...255]"

This parameter is for setting the period for cyclically sending the control value to the bus.

Options: **0..255 min**

Parameter"Additional heating"

This parameter is for setting whether to enable additional heating.

Parameter as follow are visible when "Additional heating" is enable.

——Parameter"Control type"

This parameter is for setting the control type for the additional heating.Options:

1bit

1byte

——Parameter"Invert control value"

This parameter is for setting whether to invert control value or normal sending control value, so that the control value will be suitable for the valve type.

When enabled, sending the control value to the bus through objects after inverting the control value.

For additional heating valve:

——Parameter"Temperature difference to switch on additional heating [-100..-5]"

This parameter is for setting the temperature difference to switch on additional heating valve. When the actual temperature (T) < (Setpoint temperature + Temperature difference), start heating.

. Options: **-100...-5 *0.1K**

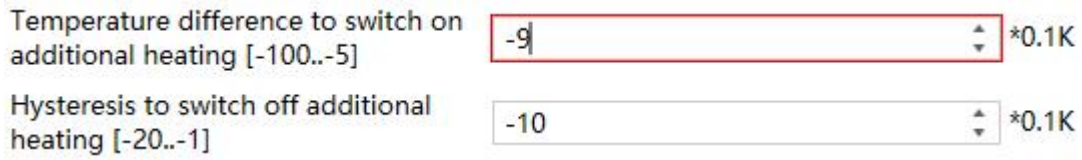
——Parameter"Hysteresis to switch off additional heating [-20..-1]"

This parameter is for setting the hysteresis to switch off additional heating.

When the actual temperature (T) > (Setpoint temperature + Temperature difference - Hysteresis), then will stop heating.

Options: **-20⋯ -1 *0.1K**

Note: |Hysteresis| < |Temperature difference|, if not meet the condition, they can not be configured in ETS, and display red box warning, as shown as follow:



For additional cooling valve:

——Parameter"Temperature difference to switch on additional cooling [5..100]"

This parameter is for setting the temperature difference to switch on additional cooling valve. When the actual temperature (T) > (Setpoint temperature + Temperature difference), start cooling.

Options: **5...100 *0.1K**

——Parameter"Hysteresis to switch off additional cooling [1..20]"

This parameter is for setting the hysteresis to switch off additional cooling.

When the actual temperature (T) < (Setpoint temperature + Temperature difference - Hysteresis), then will stop cooling.

Options: **1...20 *0.1K**

Note: |Hysteresis| < |Temperature difference|, if not meet the condition, they can not be configured in ETS, and display red box warning, as shown as follow:

——Parameter"Cyclically send control value [0..255]"

This parameter is for setting the period for cyclically sending the control value to the bus.

Options: **0..255 min**

5.5.4 Parameter window ”Fan auto.control”

This parameter window is visible when fan speed auto.control function is enabled.

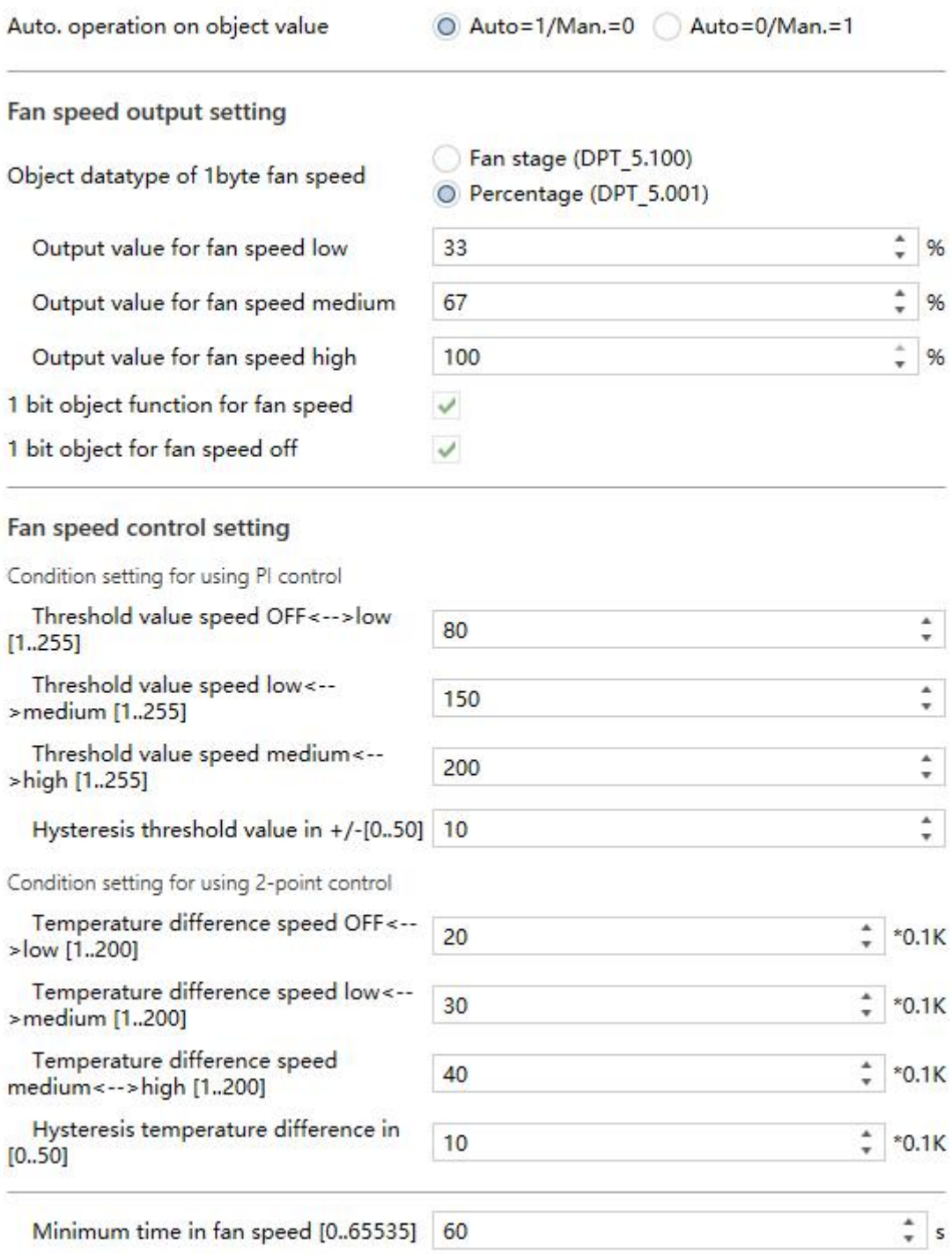


Fig.5.5.4”Fan” parameter window

Parameter"Auto. operation on object value"

This parameter is for setting the telegram value to activate automatic operation. Options:

Auto=1/Man.=0

Auto=0/Man.=1

Auto=1/Man.=0: When the object "Fan automatic operation" receives the telegram value "1", activate the automatic operation, when receive "0", exit the automatic operation.

Auto=0/Man.=1: When the object "Fan automatic operation" receives the telegram value "0", activate the automatic operation, when receive "1", exit the automatic operation.

After power-on, automatic operation is not activated by default.

Fan speed output setting

Parameter"Object datatype of 1byte fan speed"

This parameter is for setting the object datatype of 1 byte fan speed. Options:

Percentage (DPT_5.001)

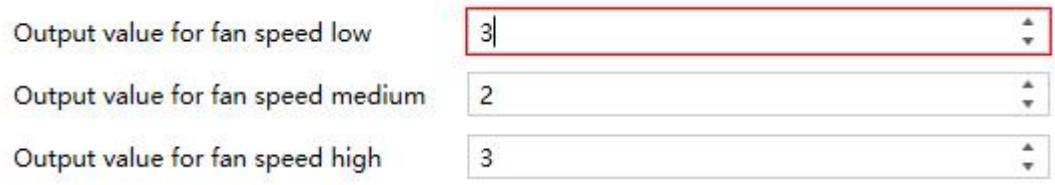
Fan stage (DPT_5.100)

——Parameter"Output value for fan speed low/medium/high"

These three parameters are for setting the value sent for each fan speed switchover. Fan speed off when value is 0.

Options according to fan object datatype:**1..255 /1..100%**

Note: the out value and status value must meet the condition low<medium<high, if not, they can not be configured on ETS, and display red box warning, as shown as follow:



Parameter"1 bit object function for fan speed"

This parameter is for setting whether to enable 1 bit object function for fan speed. 1 bit control objects of each fan speed are visible when enabled.

——Parameter"1 bit object for fan speed off "

This parameter is visible when previous parameter is enabled. Set whether to enable 1 bit object of fan speed off .

Fan speed control setting

Condition setting for using PI control

Under PI control, control value is PI operated within program, controller will power on/off fan or switch fan speed according to the threshold range of the control values.

Parameter"Threshold value speed OFF<-->low [1..255]"

Define threshold value for off-fan and low-level fan speeds, options: **1..255**

If the control value is greater than or equal to this setting threshold value, low-level fan speed will start running; if the control value is less than this setting threshold value, the fan will be turned off.

Parameter"Threshold value speed low<-->medium [1..255]"

Define the threshold value for switching the fan speed to medium fan speed, if the control value is greater than or equal to this setting threshold, the medium fan speed will start running. Options: **1..255**

Parameter"Threshold value speed medium<-->high [1..255]"

Define the threshold for switching the fan speed to high fan speed, if the control value is greater than or equal to this setting threshold, the high fan speed will start running. Options: **1..255**

Tip: The controller evaluates the threshold in ascending order.

First check →OFF <->low fan speed threshold →low fan speed <->medium fan speed →medium fan speed <->high fan speed.

The correctness of functional execution is guaranteed only in this case:

The threshold of OFF <-> low fan speed is lower than that of low fan speed <-> medium fan speed, and the threshold of low fan speed <-> medium fan speed is lower than that of medium fan speed <-> high fan speed.

Parameter"Hysteresis threshold value in +/-[0..50]"

This parameter is for setting the hysteresis value of the threshold value, which can avoid the unnecessary action of the fan when the control value fluctuates near the threshold. Options: **0..50**

If value is 0, no hysteresis. Fan switch to speed once control value greater than threshold value;

Suppose that hysteresis value is 10 and the threshold is 50, then the upper limit threshold 60 (Threshold value+Hysteresis value) and the lower limit threshold 40 (Threshold value-Hysteresis value). When the control value is between 40 ~60, fan action will not be caused, and the previous status will still be maintained. Only less than 40 or greater than or equal to 60 will change the running status of the fan.

Condition setting for using 2-point control

Under 2-point control, controller will decide the fan power on/off or fan speed according to the temperature difference between the actual temperature and setpoint temperature.

Cooling: Temperature difference = actual temperature - setpoint temperature;

Heating: Temperature difference = setpoint temperature - actual temperature.

Parameter'Temperature difference speed OFF<-->low[1..200]'

This parameter is for setting the temperature difference between off-fan and low-level fan speeds.

Options: **1..200 *0.1K**

If the temperature difference is greater than or equal to this setting temperature difference, low-level fan speed will start running; if less than this setting temperature difference, the fan will be turned off.

Parameter'Temperature difference speed low<-->medium [1..200]'

Define the temperature difference for switching the fan speed to medium fan speed, if the control value is greater than or equal to this setting temperature difference, the medium fan speed will start running.

Options: **1..200 *0.1K**

Parameter'Temperature difference speed medium<-->high [1..200]'

Define the temperature difference for switching the fan speed to high fan speed, if the control value is greater than or equal to this setting temperature difference, the high fan speed will start running. Options: **1..200 *0.1K**

Parameter"Hysteresis temperature difference in [0..50]"

This parameter is for setting the hysteresis value of the temperature difference, which can avoid the unnecessary action of the fan when the control value fluctuates near the temperature difference. Options: **0..50 *0.1K**

If value is 0, no hysteresis. Fan switch to speed once control value greater than temperature difference;

Suppose that hysteresis value is 0.5℃ and the temperature difference is 1℃, then the upper limit temperature difference 1.5℃ (Temperature difference+Hysteresis value) and the lower limit temperature difference 0.5℃ (Temperature difference-Hysteresis value). When the control value is between 0.5℃~1.5℃, fan action will not be caused, and the previous status will still be maintained. Only less than 0.5℃ or greater than or equal to 1.5℃ will change the running status of the fan.

Parameter"Minimum time in fan speed [0..65535]"

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 you need to switch to another fan speed, you need to wait for this period of time before switching.

If the current fan speed has been running long enough, the fan speed can be changed quickly.

Options: **0..65535 s**

0: there is no minimum running time.

Note: The residence time for this parameter setting is only enabled in Auto mode.

5.6. Parameter window “Button”

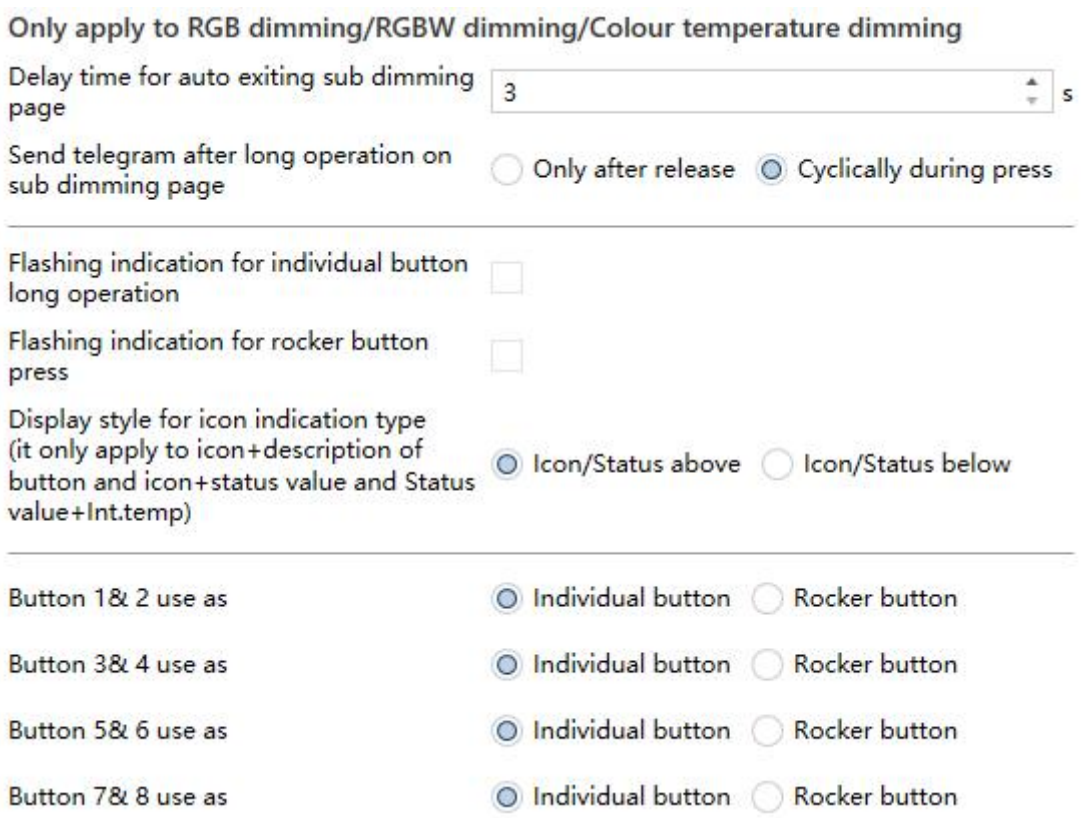


Fig.5.6 “Button” parameter window

Only apply to RGB dimming/RGBW dimming/Colour temperature dimming

Parameter "Delay time for auto exiting sub dimming page"

This parameter is for setting the delay time for auto exiting sub dimming page, only apply to RGB dimming, RGBW dimming, Colour temperature dimming. Telegrams are sent immediately, such as brightness, colour temperature, specific definition is according to the UI. Options: **3..10s**

Note: RGB dimming is only applied to Push Button Sensor with Display, 3/4-gang; RGBW dimming is only applied to Push Button Sensor with Display, 4-gang; while Colour temperature dimming is only applied to Push Button Sensor with Display, 2/3/4-gang.

Parameter "Send telegram after long operation on sub dimming page"

This parameter is for setting the operation concept of send telegram after long operation on sub dimming page, it is only applied to RGB dimming/RGBW dimming/Colour temperature dimming.

Options:

Only after release

Cyclically during press

Only after release: when long operation on sub dimming page, the value of the function operating will change according to the preset step value, but the last value will be sent to the bus only when the button is released.

Cyclically during press: when long operation on sub dimming page, the value of the function operating will change according to the preset step value, and will be sent to the bus, and the cycle is 0.5s.

Parameter "Flashing indication for individual button long operation"

When individual button is selected, the parameter is for setting whether remind user if long operation.

When enabled, if long operation, flashing twice then recover to normal indication, the flashing effect is 1s on and 1s off.

Parameter "Flashing indication for rocker button press"

When rocker button is selected, the parameter is for setting whether remind user if button is pressed.

When enabled, if button is pressed, flashing twice then recover to normal indication, the flashing effect is 1s on and 1s off.

Parameter "Display style for icon indication type(it only apply to icon+description of button and icon+status value and status value+Int.temp)"

This parameter is for setting display style for icon indication type. Options:

Icon/Status above

Icon/Status below

Icon/Status above: when "icon+description of button" or "icon+status value" is set, icon displays above description or status value; while "status value+Int.temp" is set, the status value displays above initial temperature value.

Icon/Status below: when "icon+description of button" or "icon+status value" is set, icon displays below description or status value; while "status value+Int.temp" is set, the status value displays below initial temperature value.

Note: this feature is only supported from firmware version V1.1.0 and higher.

Parameter "Button y& z use as" (y=1/3/5/7; z=2/4/6/8)

This parameter is displayed according to the number of page. Set the work way of push button sensor. Options:

Individual button

Rocker button

Parameter "Function of Channel"

This parameter is for setting the function of button. Option is displayed by the work way.

When individual button is selected, set the function of individual button. The detail configuration of individual button please refer to chapter 5.6.1 and chapter 5.6.2.

Options:

Disable	**Blind**
Switch	**Shift register**
Dimming	**Multiple operation**
RGB switching/send value	**Delay mode**
RGBW switching/send value	**RGB dimming**
Colour temperature switching/send value	**RGBW dimming**
Value sender	**Colour temperature dimming**
Scene control	**Colour temperature adjustment**

Note: RGB dimming is only applied to Push Button Sensor with Display, 3/4-gang; RGBW dimming is only applied to Push Button Sensor with Display, 4-gang; while Colour temperature dimming is only applied to Push Button Sensor with Display, 2/3/4-gang.

When rocker button is selected, set the function of rocker button. The detail configuration of rocker button please refer to chapter 5.6.3 and chapter 5.6.4. Options:

Disable	**Scene control**
Switch	**Blind**
Dimming	**Setpoint adjustment**

5.6.1 Individual button

5.6.1.1 Switch function

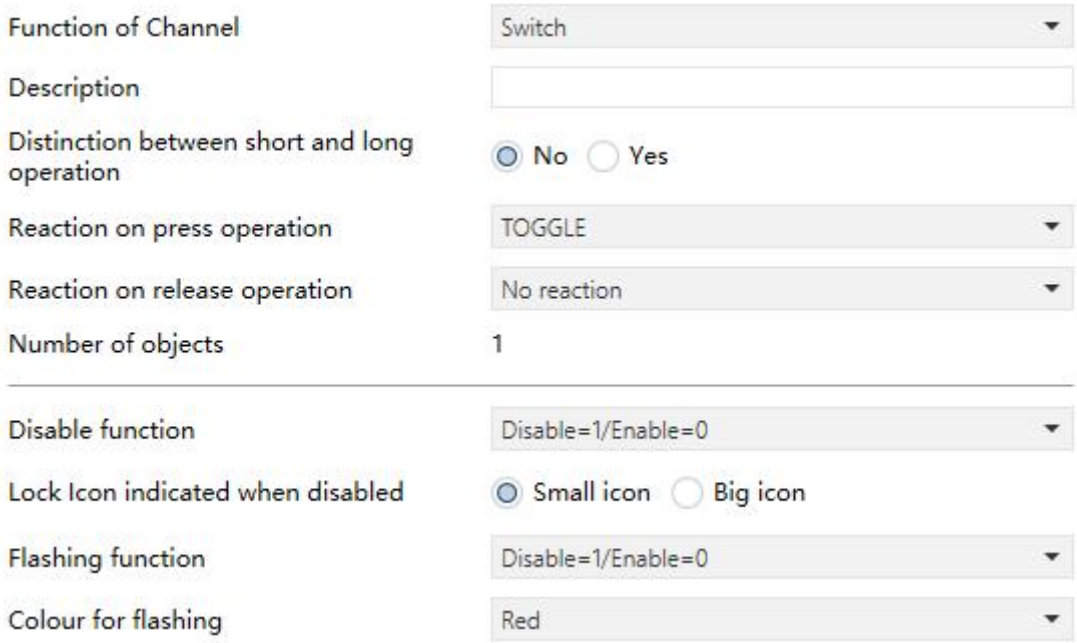


Fig.5.6.1.1 Parameter setting of switch function

Parameter "Description"

This parameter is for setting the description of individual button, up to input 12 characters.

Parameter "Distinction between short and long operation"

This parameter is for setting whether to distinction the contact operation between short and long operation. Options:

No

Yes

When select "Yes", the operation reaches a certain time to determine whether the operation is a long or short operation before the contact performs the setting action.

Parameter "Reaction on short/press operation"

Parameter "Reaction on long/release operation"

These parameters are for setting the performed actions when press/release the contact or long/short operation. The object value is updated when the input is determined.

Options:

No reaction

OFF

ON

TOGGLE

No action: no telegrams have been sent.

ON: send the on telegram.

OFF: send the off telegram.

TOGGLE: each operation will switch between on and off. For example, if the last telegram was sent (or received) for on, then the next operation will trigger a telegram for off. When the switch is operated again, it will send a telegram for on etc., So the switch will always remember the previous state and covert to opposite value during next operation.When the device is powered on for the first time or restarted after downloading, the default value for ”Switch” is 0, meaning the first operation is ON.

Parameter "Number of objects"

This parameter is visible when the parameters “Reaction on short/press operation” or “Reaction on long/release operation” are not selected “No reaction”. Set the number of objects when short/long or press/release operation:

1

2

Parameter "Disable function"

This parameter is for setting trigger value to disable/enable contacts. Options:

Disable

Disable=1/Enable=0

Disable=0/Enable=1

Parameter "Lock Icon indicated when disabled"

This parameter is visible when previous parameter is selected “Disable=1/Enable=0” or “Disable=0/Enable=1”. Set the icon size when the button is in disable status. Options:

Small icon

Big icon

Big icon is the lock icon replaces the original icon, e.g.  ; while small icon is the two icons coexist and the lock icon is a small icon in right corner, e.g.  .

Parameter "Flashing function"

This parameter is for setting whether to enable flashing function. Options:

Disable

Disable=1/Enable=0

Disable=0/Enable=1

Parameter "Colour for flashing"

This parameter is visible when previous parameter is selected "Disable=1/Enable=0" or "Disable=0/Enable=1". Set the colour for flashing. Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

Note: flashing function is only used for "Switch", "Dimming" and "Blind".

Function display priority: Lock function >Flashing function > Normal status indication.

If flashing function and lock function are both triggered at the same time, it will interrupt flashing first and the flashing can be resumed only after it is unlocked, cancel flashing then return to the normal status indication.

When enabled flashing function, there will be different flashing effects when pressing buttons depending on the configured indication type: continuous flashing (1s on and 1s off) when icon or

description is selected; only icon flashing when "Icon + description" is selected; while the other selection is to flash icon or description or status value, which is according to configuration.

Repeat parameters will not be illustrated below; the usage is similar.

5.6.1.2 Dimming function

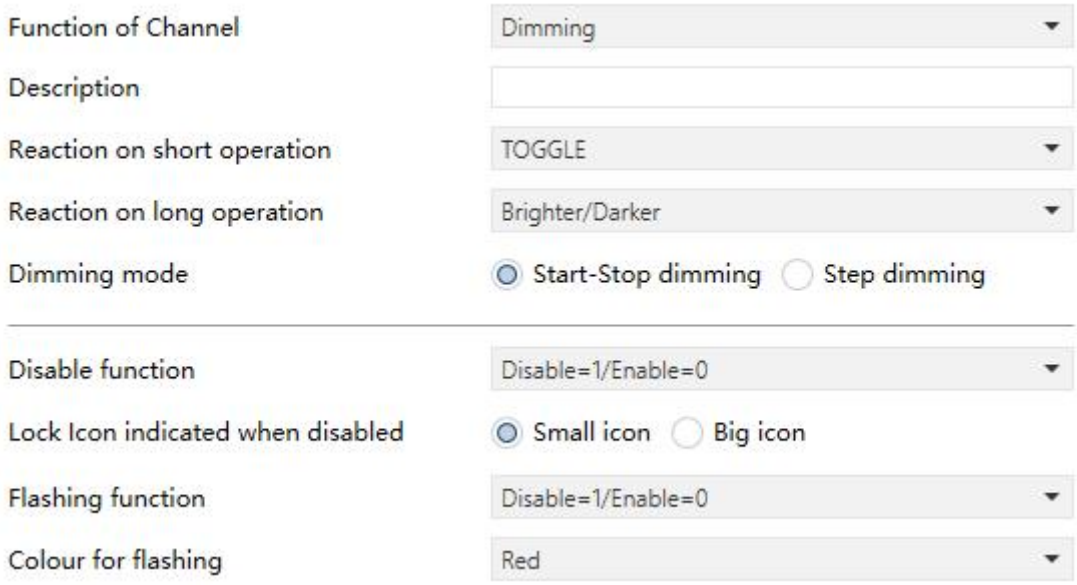


Fig.5.6.1.2 Parameter setting of dimming function

Parameter "Reaction on short operation"

This parameter is for setting the the switch value to send when short operation. Options:

No reaction

OFF

ON

TOGGLE

No action: no telegrams have been sent.

ON: send the on telegram.

OFF: send the off telegram.

TOGGLE: each operation will switch between on and off. When the device is powered on for the first time or restarted after downloading, the default value for "Switch" is 0, meaning the first operation is ON.

Parameter "Reaction on long operation"

This parameter is for setting the the relative dimming value to send when long operation, with dimming brighter or darker; when release the contact stop dimming. Options:

No reaction

Brighter

Darker

Brighter/Darker

No action: no telegrams have been sent.

Brighter: the dimming up value will be sent.

Darker: the dimming down value will be sent.

Brighter/Darker: dimming up and down will be sent alternately. When the device is powered on for the first time or restarted after downloading, the default value for "Dimming" is 0, meaning the first operation is dim up the brightness.

Note: in "TOGGLE" mode of this parameter setting, the value sent will be linked. For example, if the last value is switching on status, then it will be dimmed down in next dimming operation; if the last value is switching off, then it will be dimmed up in next dimming operation.

Parameter "Dimming mode"

This parameter is visible when previous parameter is not "No reaction". Set the way of relative dimming. Options:

Start-Stop dimming

Step dimming

Start-stop dimming: the dimming mode will be start-stop, a dimming up or down telegram will be sent when the dimming starts, and a stop telegram will be sent when dimming ends. Here the dimming telegram will not be sent cyclically.

Steps dimming: the dimming mode will be a step one and the dimming telegram will be sent cyclically. When dimming ends, a stop dimming telegram will be sent immediately.

——Parameter " Step size"

This parameter is visible when the dimming way is selected "Step dimming". Set a cyclically

sending dimming telegram which changes the brightness percentage. Options:

100%

50%

...

1.56%

——Parameter " Interval of tele. cyclic send [0..25,0=send once]"

This parameter is visible when the dimming way is selected "Step dimming". Set intervals of telegrams cyclically sending dimming telegram. Options: **0..25*0.1s, 0=send once**

5.6.1.3 RGB switching/send value

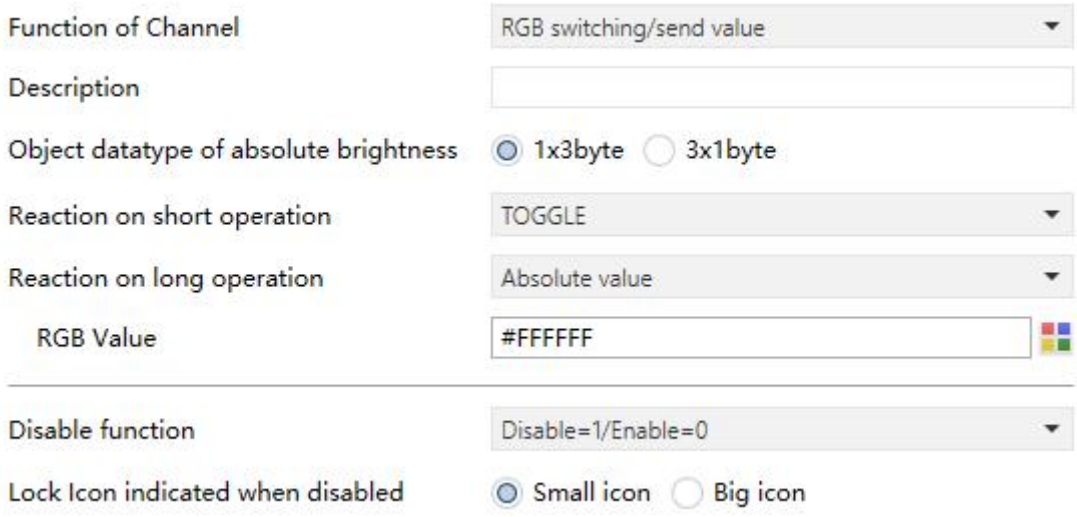


Fig.5.6.1.3 Parameter setting of RGB switching/send value

Parameter "Object datatype of absolute brightness"

This parameter is for setting the object datatype of absolute brightness. Options:

1x3byte

3x1byte

Parameter "Reaction on short operation"

Parameter "Reaction on long operation"

These two parameters are for setting the sending value when long/short operation.

Options:

No reaction

OFF

ON

TOGGLE

Absolute value

Parameter as follow is visible when “Absolute value” is selected.

——Parameter “RGB Value”

This parameter is for setting the RGB value when long/short operation.

Options: **#000000..#FFFFFF**

5.6.1.4 RGBW switching/send value

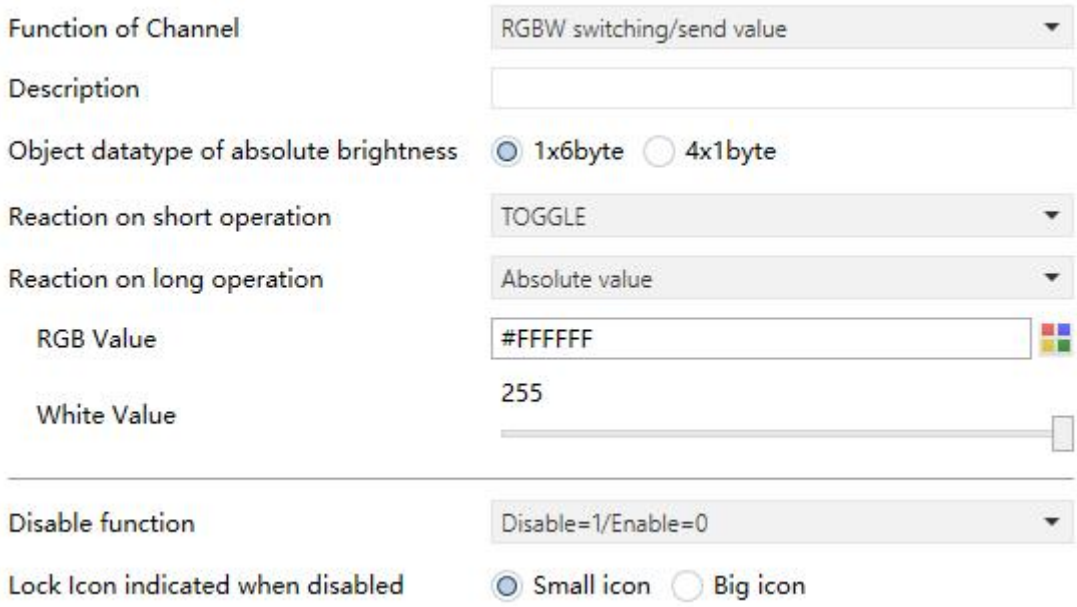


Fig.5.6.1.4 Parameter setting of RGBW switching/send value

Parameter "Object datatype of absolute brightness"

This parameter is for setting the object datatype of absolute brightness. Options:

1x6byte

4x1byte

Parameter "Reaction on short operation"

Parameter "Reaction on long operation"

These two parameters are for setting the sending value when long/short operation. Options:

No reaction

OFF

ON

TOGGLE

Absolute value

Parameters as follow are visible when "Absolute value" is selected.

——Parameter "RGB Value"

This parameter is for setting the RGB value when long/short operation.

Options: **#000000..#FFFFFF**

——Parameter "White Value"

This parameter is for setting the white value when long/short operation. Options: **0..255**

5.6.1.5 Colour temperature switching/send value

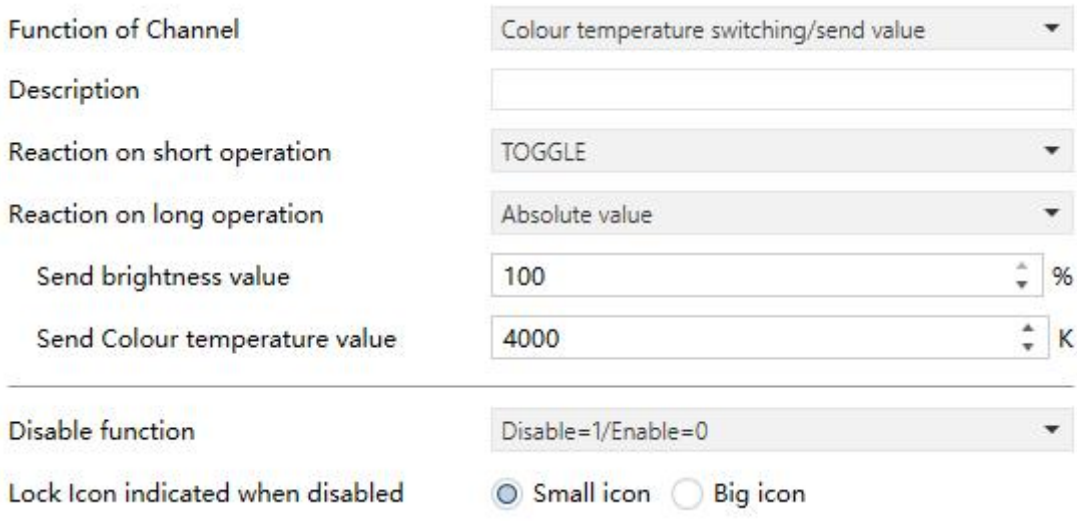


Fig.5.6.1.5 Parameter setting of colour temperature switching/send value

Parameter "Reaction on short operation"

Parameter "Reaction on long operation"

These two parameters are for setting the sending value when long/short operation. Options:

No reaction

OFF

ON

TOGGLE

Absolute value

Parameters as follow are visible when “Absolute value” is selected.

——Parameter “Send brightness value”

This parameter is for setting the brightness value when long/short operation. Options: **0..100 %**

——Parameter “Send Colour temperature value”

This parameter is for setting the colour temperature value when long/short operation.

Options: **1000..10000 K**

5.6.1.6 Value sender

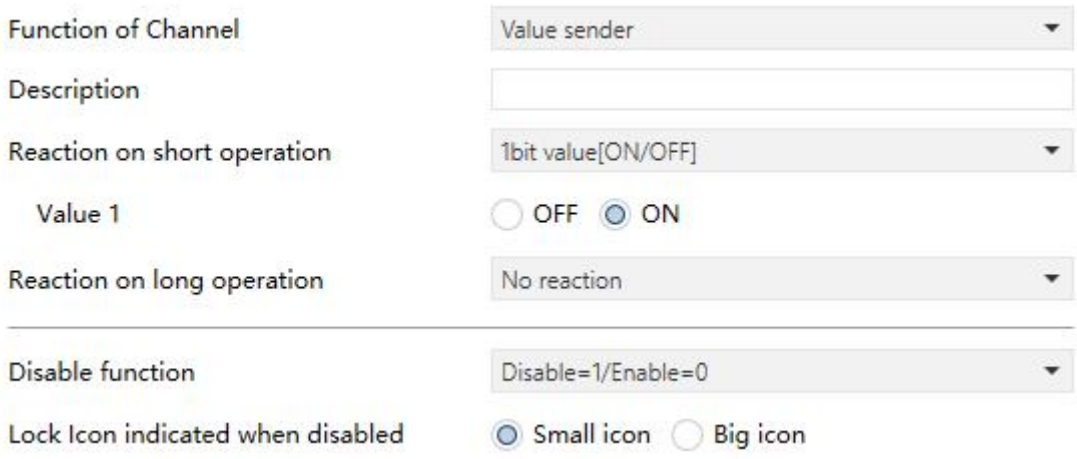


Fig.5.6.1.6 Parameter setting of value sender

Parameter "Reaction on short operation"

Parameter "Reaction on long operation"

These two parameters are for setting the datatype to send when long/short operation. Options:

No reaction	**2byte value[0..65535]**
1bit value[On/Off]	**2byte float value**

2bit value[0..3] **4byte value[0..4294967295]**

4bit value[0..15] **4byte float value**

1byte value[0..255]

Parameters as follow are visible when “No reaction” is not selected.

——Parameter “Value 1”

——Parameter “Value 2”

This parameter is for setting the data value to send when perform short/long operation. Range of value is determined according to the previous parameter selected datatype.

5.6.1.7 Scene control

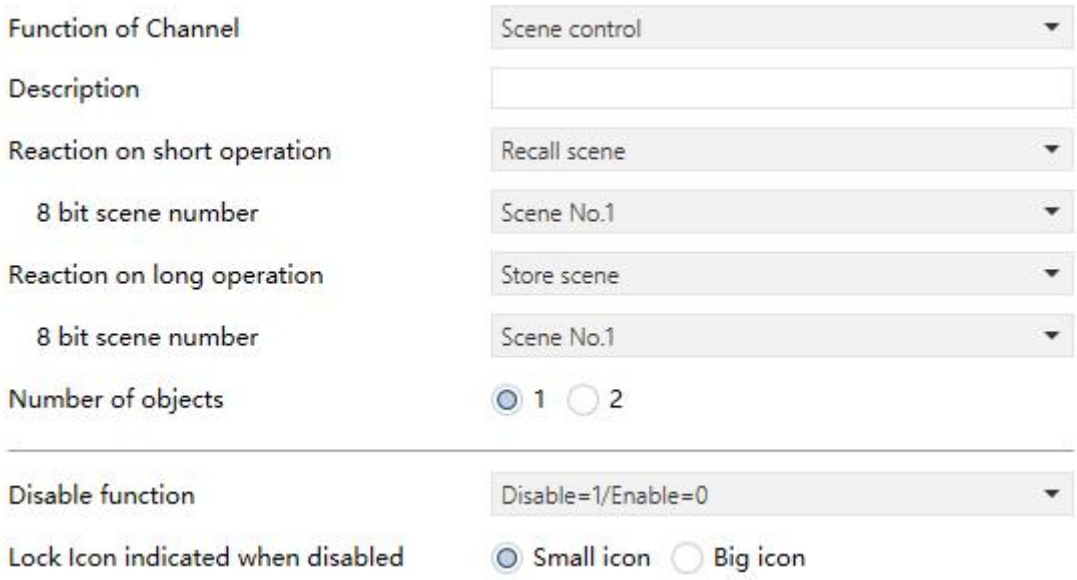


Fig.5.6.1.7 Parameter setting of scene control

Parameter "Reaction on short operation"

Parameter "Reaction on long operation"

These two parameters are for setting to recall or storage scene when long/short operation. Options:

No reaction

Recall scene

Store scene

——Parameter "8 bit scene number"

This parameter is visible when "No reaction" is not selected. Set the scene number.

Options:

Scene NO.1

Scene NO.2

Scene NO.3

...

Scene NO.64

Corresponding telegram is 0~63

Parameter "Number of objects"

This parameter is visible when the parameter "Reaction on long operation" is not selected "No reaction". Set the number of objects when short/long operation. Options:

1

2

5.6.1.8 Blind function

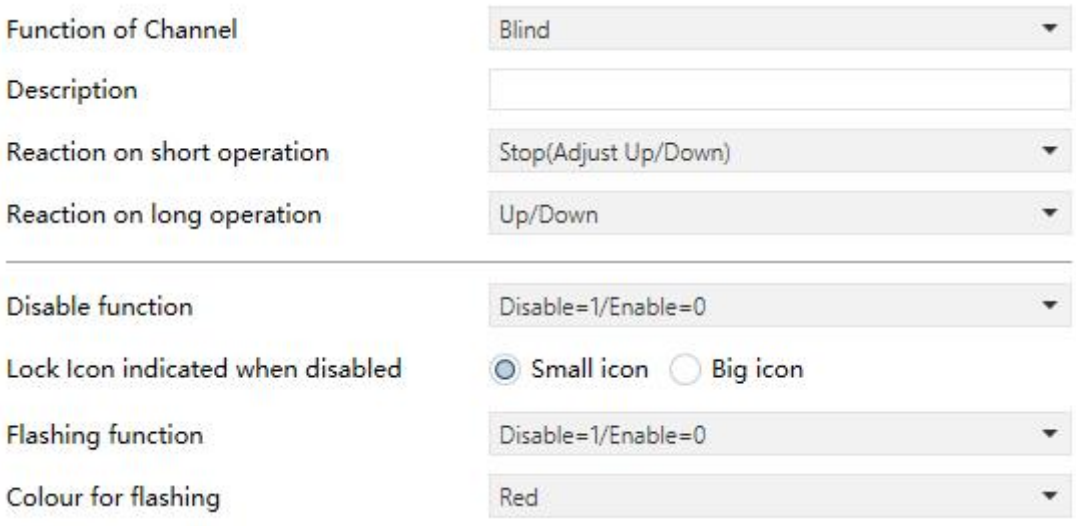


Fig.5.6.1.8 Parameter setting of blind function

Parameter "Reaction on short operation"

Parameter "Reaction on long operation"

These two parameters are for setting to performed actions when long/short operation. Options:

No reaction

Up

Down

Up/Down

Stop(Adjust Up)

Stop(Adjust Down)

Stop(Adjust Up/Down)

No action: no action is performed.

Up: the curtains/blinds will be opened or moved up.

Down: the curtains/blinds will be closed or moved down.

Up/Down: alternately open/close or move up/down the curtains/blinds.

Stop (Adjust Up): stop the curtain movement or move up the angle of blinds.

Stop (Adjust Down): stop the curtain movement or move down the angle of blinds.

Stop (Adjust Up/Down): stop the curtain movement or move up/down the angle of blinds alternately.

——Parameter " Interval of tele. cyclic send [0..25,0=send once] "

This parameter is visible when the parameter "Reaction on long operation" is selected "Stop...". Set the time interval of cyclical blinds angle adjustment telegram sent. Options: **0..25*0.1s,0=send once**

5.6.1.9 Shift register function

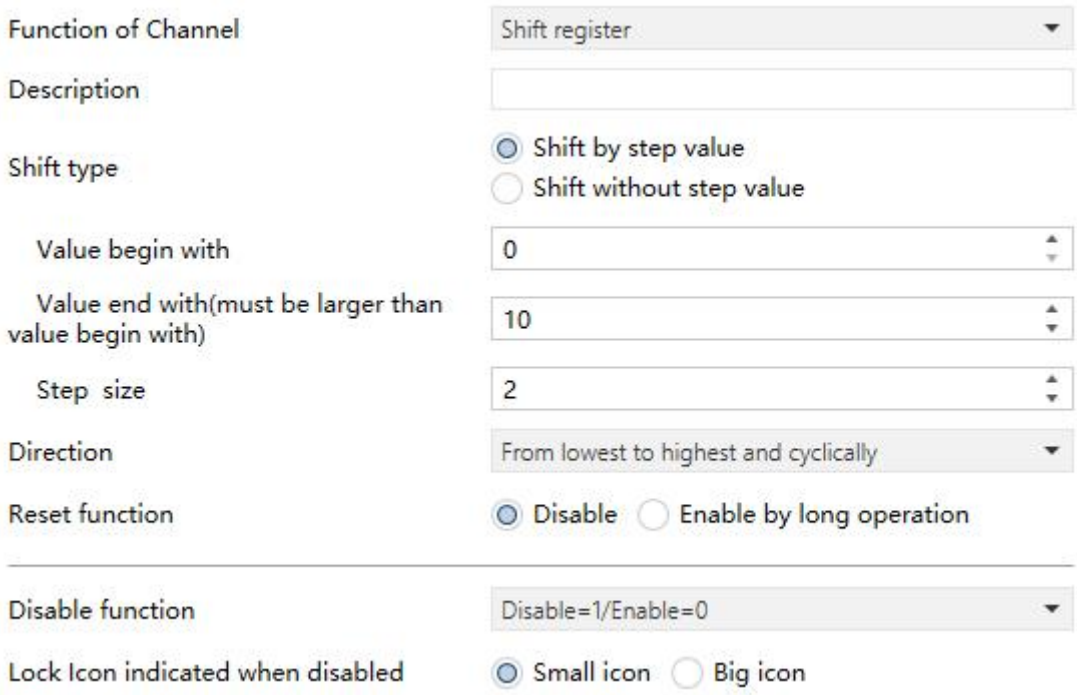


Fig.5.6.1.9 Parameter setting of shift register function

Parameter "Shift type"

This parameter is for setting the shift type. Options:

Shift by step value

Shift without step value

Shift by step value: Here the starting value and stopping value of shift can be set, the value increased (from low to high) or decreased (from high to low) from every shift can also be set.

Shift without step value: When there's no step value, the actual value sent by each shift can be set (max. 10 value), in every operation one value will be sent.

Three parameters as follow are visible when "Shift by step value" is selected.

——Parameter "Value begin with"

This parameter is for setting the starting value of the shift. Options: **0..240**

——Parameter "Value end with(must be larger than value begin with)"

This parameter is for setting the stopping value of the shift. Options: **1..250**

Note: the values must meet the condition: end value> begin value, if not, they can not be modified

on ETS, and display red box warning, as shown as follow:

——Parameter "Step size"

This parameter is for setting the increase (from low to high) or decrease (from high to low) value.

Options: **0..240**

Parameters as follow are visible when "Shift without step value" is selected.

Parameter "Object datatype"

This parameter is for setting the object datatype for the shift object. Options:

1byte unsigned value

Scene number

HVAC mode

1byte percentage

——Parameter "Shift number"

This parameter is for setting the number of shift, up to set 10 values.

When "1byte unsigned value", "Scene number" or "1byte percentage" is selected, options: **0/1/2../10**

When "HVAC mode" is selected, options: **1/2/3/4**

——Parameter "Value x"(x=1~10 or x=1~4)

This parameter is for setting the value when each shift operation to send,display according to data type.

When "1byte unsigned value" is selected, options: **0..255**

When "Scene number" is selected, options:

Scene NO.1

Scene NO.2

Scene NO.3

...

Scene NO.64

When “HVAC mode” is selected, options:

Comfort mode

Standby mode

Economy mode

Frost/heat protection

When “1byte percentage” is selected, options:

0%

1%

...

100%

Parameter "Direction"

This parameter is for setting the shift direction. Options:

From lowest to highest and stop to the end

From highest to lowest and stop to the begin

From lowest to highest and cyclically

From highest to lowest and cyclically

From lowest to highest and stop to the end: shift from low to high.

From highest to lowest and stop to the begin: shift from high to low.

From lowest to highest and cyclically: once to the end value, shift direction starts over again and constantly cycling from low to high operation.

From highest to lowest and cyclically: once to the start value, shift direction starts over again and constantly cycling from high to low operation.

Parameter "Reset function"

This parameter is for setting whether to enable shift reset function. Options:

Disable

Enable by long operation

Disable: not possible to reset shift;

Enable by long operation: possible to reset shift by long operation, when reset, shift will start new.

5.6.1.10 Multiple operation function

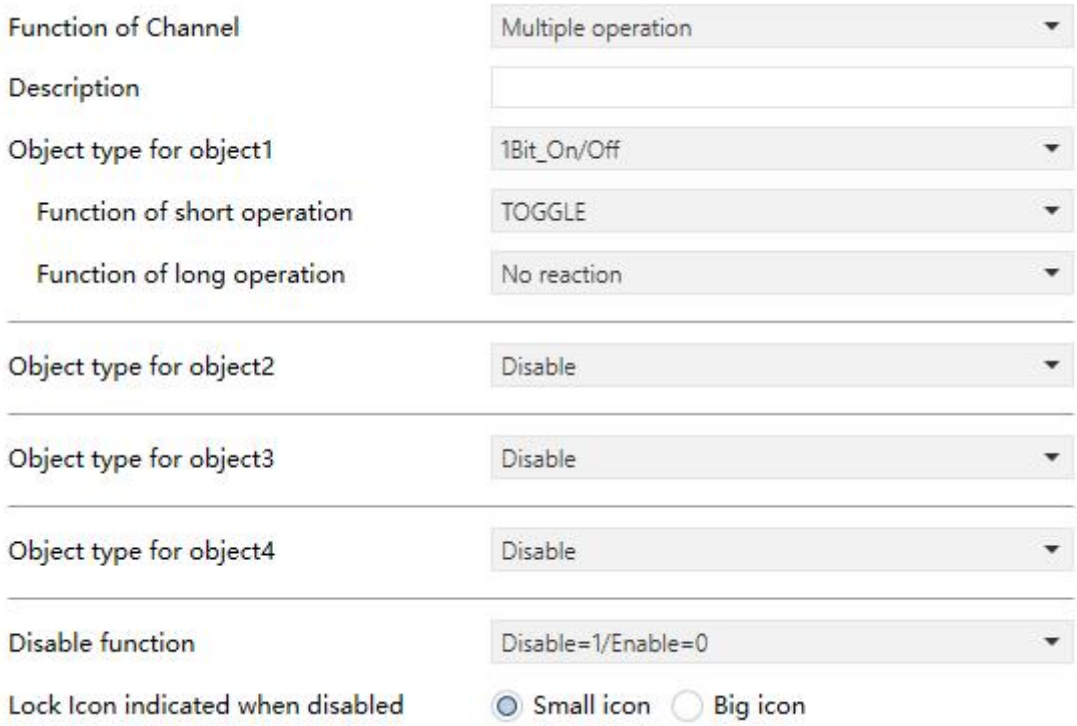


Fig.5.6.1.10 Parameter setting of multiple operation function

Parameter "Object type for object x"(x=1~4)

This parameter is for setting the datatype when long/short operation to send. Options:

Disable

1Bit_On/Off

1Bit_Up/Down

1Byte_RecallScene

1Byte_StoreScene

1Byte_Percentage

1Byte_Unsigned value

14Byte_String

Note: only object 1 and short operation support to send 14byte string.

——Parameter "Function of short operation"

——Parameter "Function of long operation"

These two parameters are for setting the specific values to send when perform the operation, either no action or sending value.

When "1Bit_On/Off" is selected, options:

No reaction

OFF

ON

TOGGLE

When "1Bit_Up/Down" is selected, options:

No reaction

Up

Down

Up/Down

When "1byte..." or "14Byte_String" is selected, options:

No reaction

Send Value

——Parameter "Value x..." (x=1~2)

This parameter is visible when "1byte..." is selected and previous parameter is selected "Send Value". Set sending values when perform operations. The range of value is up to the datatype selected by the parameter before last one.

——Parameter "String (10byte) value"

This parameter is visible when "14Byte_String" is selected and previous parameter is selected "Send Value". Set sending string when perform operations, up to input 10 characters.

5.6.1.11 Delay mode function

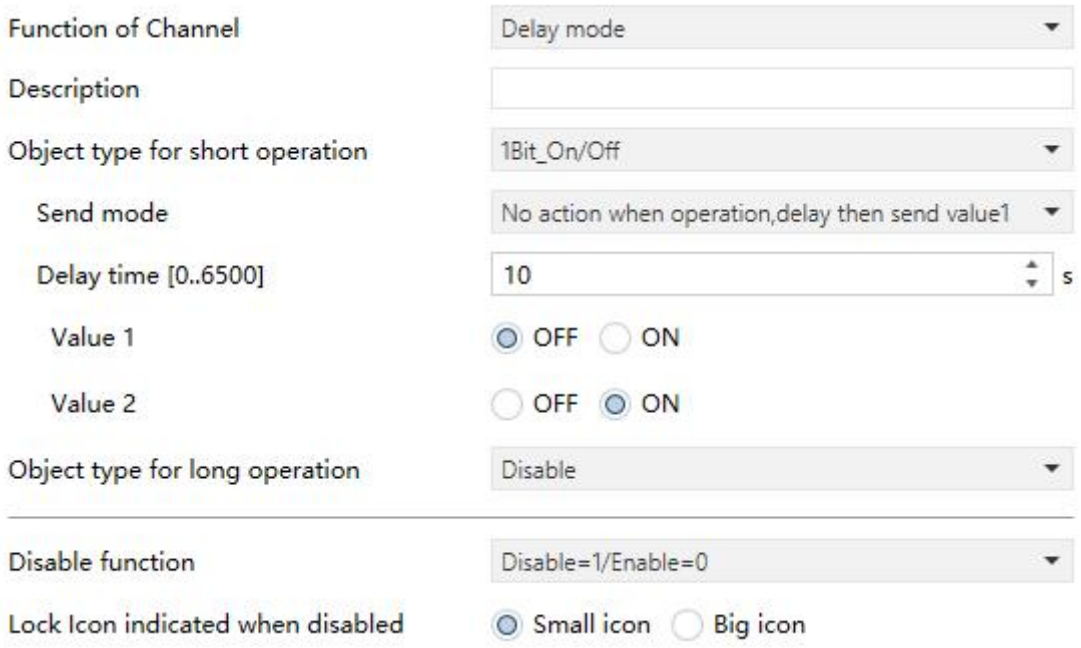


Fig.5.6.1.11 Parameter setting of delay mode function

Parameter "Object type for short operation"

Parameter "Object type for long operation"

These two parameters are for setting the datatype when long/short operation to send. Options:

Disable

1Bit_On/Off

4Bit_Dimming

1Byte_Unsigned value

These three parameters as follow are not visible when "Disable" is selected.

——Parameter "Send mode"

This parameter is for setting the send mode. Options:

No action when operation,delay then send value1

No action when operation,delay then send value2

Send value1 when operation,delay then send value2

Send value2 when operation,delay then send value1

——Parameter "Delay time [0..6500]"

This parameter is for setting the delay time. Options: **0..6500 s**

Note: If this parameter is set to 0, the delay is fixed to 1s.

——Parameter "Value x" (x=1~2)

This parameter is for setting the value 1/2 to send. The range of value is up to the datatype selected by the parameters.

5.6.1.12 RGB dimming

Function of Channel	RGB dimming
Description	
Reaction on short operation	Switch toggle
Reaction on long operation	Enter into the sub dimming page
Sub dimming page preview	

Button 1	press to decrease H value	Button 2	press to increase H value
Button 3	press to decrease S value	Button 4	press to increase S value
Button 5	press to decrease V value	Button 6	press to increase V value
Button 7	NA	Button 8	NA

Object datatype	1x3byte
Reaction on "off" operation	◉ Only switch object send value 0 ○ Brightness objects send value 0
Reaction on "on" operation	◉ Only switch object send value 1 ○ Preset colour brightness value
Step of H (hue)	30 °
Step of S (saturation)	10 %
Step of V (value)	10 %
Disable function	Disable=1/Enable=0
Lock Icon indicated when disabled	◉ Small icon ○ Big icon

Fig,5.6.1.12 Parameter setting of RGB dimming

Parameter "Reaction on short operation"

Parameter "Reaction on long operation"

These two parameters are for explaining the reaction on short/long operation. Short operation default to switch between on and off, and long operation is to enter the sub dimming page.

Display sub dimming page preview and the button operations below these parameters.

Parameter "Object datatype"

This parameter is for setting the object datatype of RGB dimming. Option is only **1x3byte**

Parameter "Reaction on "off" operation"

This parameter is for setting the sent telegram when "off" operation, you can choose only switch object send value 0, or the brightness objects send value 0. Options:

Only switch object send value 0

Brightness objects send value 0

Parameter "Reaction on "on" operation"

This parameter is for setting the sent telegram when "on" operation, you can choose only switch object send value 1, or the colour brightness objects send presetting value. Options:

Only switch object send value 1

Preset colour brightness value

——Parameter "RGB value"

This parameter is visible when "Preset colour brightness value" is selected. Set the sending RGB value. Options: **#000000 ....#FFFFFF**

Parameter "Step of H (hue)"

This parameter is for setting the step value of Hue. Options:

10°

...

40°

60°

Parameter "Step of S (saturation)"

This parameter is for setting the step value of Saturation. Options:

5%

10%

20%

Parameter "Step of V (value)"

This parameter is for setting the step value of Value. Options:

5%

10%

20%

5.6.1.13 RGBW dimming

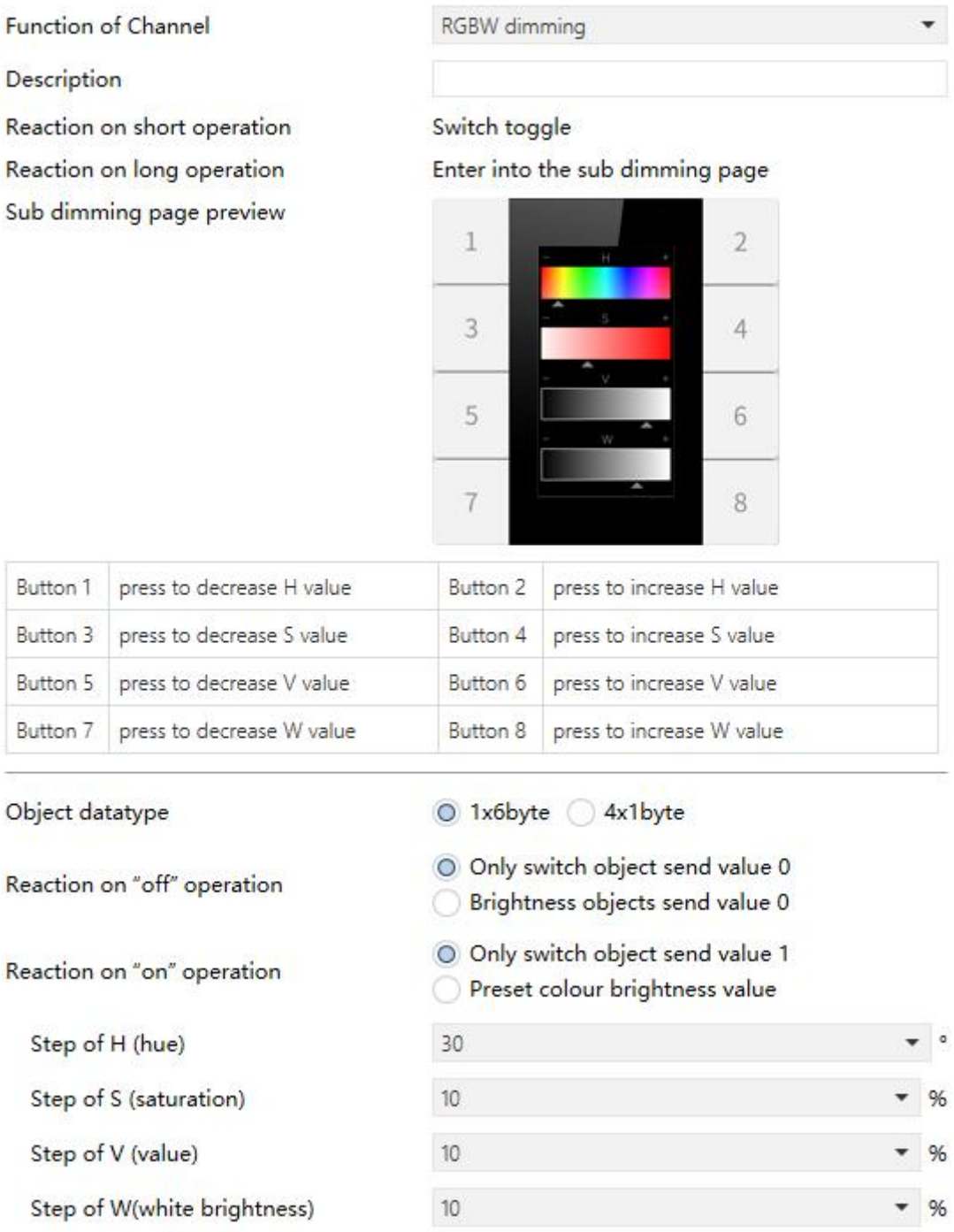


Fig.5.6.1.13 Parameter setting of RGBW dimming

Parameter "Reaction on short operation"

Parameter "Reaction on long operation"

These two parameters are for explaining the reaction on short/long operation. Short operation default to switch between on and off, and long operation is to enter the sub dimming page.

Display sub dimming page preview and the button operations below these parameters.

Parameter "Object datatype"

This parameter is for setting the object datatype of RGBW dimming. Options:

1x6byte

4x1byte

Parameter "Reaction on "off" operation"

This parameter is for setting the sent telegram when "off" operation, you can choose only switch object send value 0, or the brightness objects send value 0. Options:

Only switch object send value 0

Brightness objects send value 0

Parameter "Reaction on "on" operation"

This parameter is for setting the sent telegram when "on" operation, you can choose only switch object send value 1, or the colour brightness objects send presetting value. Options:

Only switch object send value 1

Preset colour brightness value

——Parameter "RGB value"

This parameter is visible when "Preset colour brightness value" is selected. Set the sending RGB value. Options: **#000000 ....#FFFFFF**

——Parameter "White brightness value"

This parameter is visible when "Preset colour brightness value" is selected. Set the sending white brightness value. Options: **0..100%**

Parameter "Step of H (hue)"

This parameter is for setting the step value of Hue. Options:

10°

...

40°

60°

Parameter "Step of S (saturation)"

This parameter is for setting the step value of Saturation. Options:

5%

10%

20%

Parameter "Step of V (value)"

This parameter is for setting the step value of Value. Options:

5%

10%

20%

Parameter "Step of W(white brightness)"

This parameter is for setting the step value of white brightness. Options:

5%

10%

20%

5.6.1.14 Colour temperature dimming

Function of Channel	Colour temperature dimming
Description	
Reaction on short operation	Switch toggle
Reaction on long operation	Enter into the sub dimming page
Sub dimming page preview	

Button 1	NA	Button 2	NA
Button 3	press to decrease colour temperature	Button 4	press to increase colour temperature
Button 5	press to decrease brightness	Button 6	press to increase brightness
Button 7	NA	Button 8	NA

Object datatype of colour temperature	○ 1byte relative percentage value ◉ 2byte absolute value
Reaction on "off" operation	◉ Only switch object send value 0 ○ Brightness objects send value 0
Reaction on "on" operation	Only switch object send value 1
Min. colour temperature [2000..7000]	2700 K
Max. colour temperature [2000..7000]	6500 K
Step of colour temperature	500 K
Step of brightness	10 %
Disable function	Disable=1/Enable=0
Lock Icon indicated when disabled	◉ Small icon ○ Big icon

Fig.5.6.1.14 Parameter setting of colour temperature dimming

Parameter "Reaction on short operation"

Parameter "Reaction on long operation"

These two parameters are for explaining the reaction on short/long operation. Short operation default to switch between on and off, and long operation is to enter the sub dimming page.

Display sub dimming page preview and the button operations below these parameters.

Parameter "Object datatype of colour temperature"

This parameter is for setting the object datatype of colour temperature dimming. Options:

1byte relative percentage value

2byte absolute value

When "1byte relative percentage value" is selected, it applies to the products of colour temperature with 0/1-10V drive. Control telegram is percentage type, and the step value is set via ETS, show the absolute colour temperature on the screen instead of percent value. Telegram range is 0~100%.

While "2byte absolute value" is selected, it applies to the products that support KNX colour temperature. Control telegram is absolute colour temperature type, and the step value is set via ETS, show directly the absolute colour temperature on the screen. Telegram range is depend on the configuration of Max./Min. parameters.

Parameter "Reaction on "off" operation"

This parameter is for setting the sent telegram when "off" operation, you can choose only switch object send value 0, or the brightness objects send value 0. Options:

Only switch object send value 0

Brightness objects send value 0

Parameter "Reaction on "on" operation"

This parameter is for setting the sent telegram when "on" operation, you can choose only switch object send value 1, or the colour brightness objects send presetting value. Options:

Only switch object send value 1

Preset brightness value

Preset brightness value+Colour temperature

——Parameter "Brightness is"

This parameter is visible when "Preset colour brightness value" is selected. Set the sending brightness value.

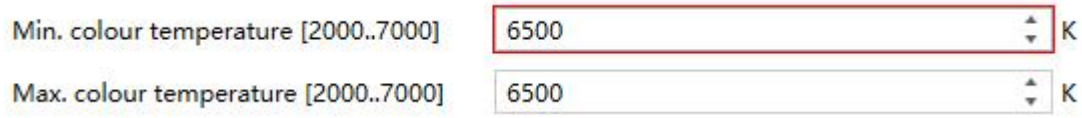
Options: **0..100%**

Parameter "Min./Max. colour temperature [2000..7000]"

These two parameters are for setting the adjustable range of colour temperature.

Options: **2000..7000K**

For colour temperature, the Min. value must less than the Max., if not, if not, they can not be modified on ETS, and display red box warning, as shown as follow:



Parameter "Step of colour temperature"

This parameter is for setting the step value of colour temperature. Options:

100K

200K

500K

1000K

Parameter "Step of brightness"

This parameter is for setting the step value of brightness. Options:

5%

10%

20%

5.6.1.15 Colour temperature adjustment

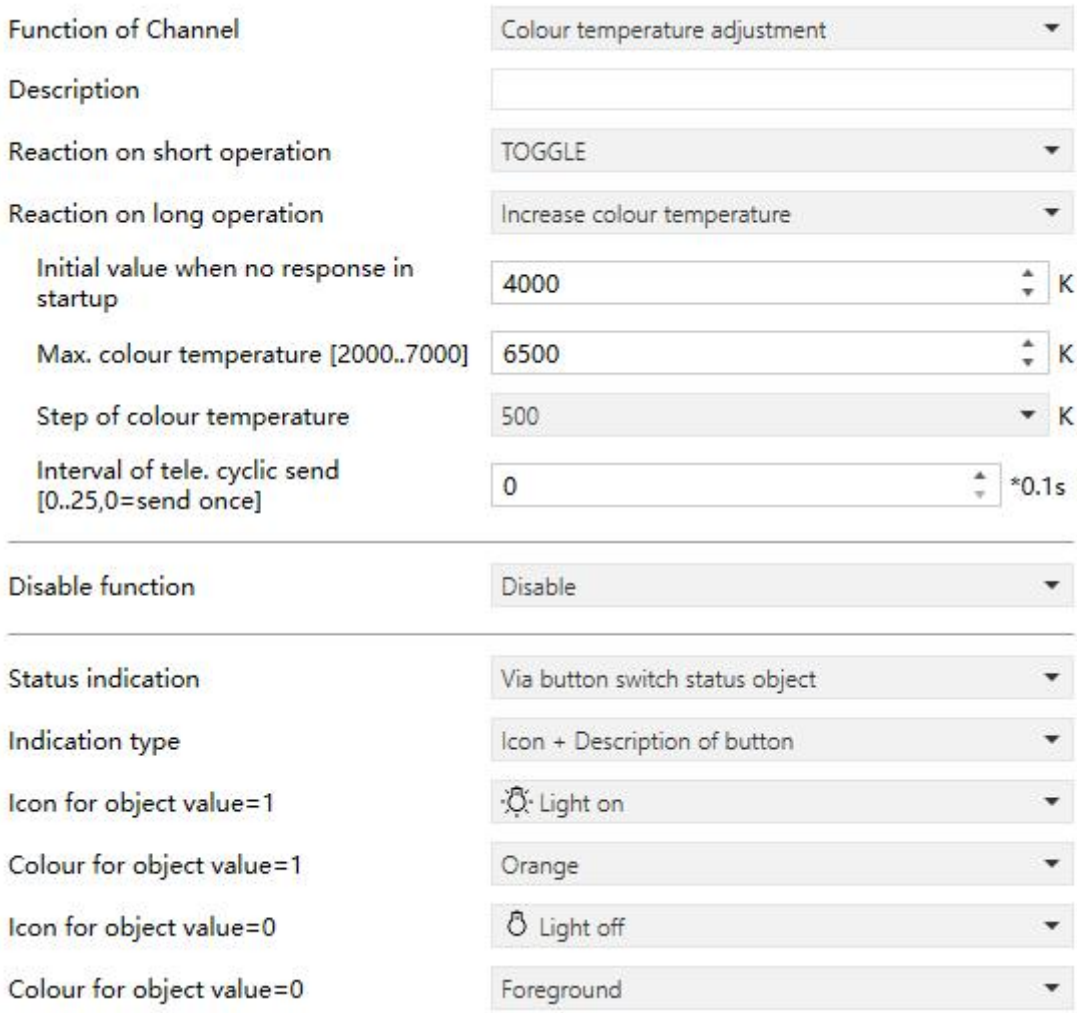


Fig.5.6.1.15 Parameter setting of colour temperature adjustment

Parameter "Reaction on short operation"

This parameter is for setting the performed action when short operation. Options:

No reaction

OFF

ON

TOGGLE

Parameter "Reaction on long operation"

This parameter is for setting the performed action when long operation, it is absolute adjustment of 2byte. Options:

Increase colour temperature

Decrease colour temperature

Increase/Decrease colour temperature

Parameter "Initial value when no response in startup"

This parameter is for setting the initial value when no response in startup. Options: **2000..7000K**

Parameter "Min. colour temperature [2000..7000]"

Parameter "Max. colour temperature [2000..7000]"

These two parameters are for setting the adjustable range of colour temperature.

Options: **2000..7000K**

When "Increase colour temperature" is selected for long operation, only allow to set the Max. colour temperature; while "Decrease colour temperature" is selected, only allow to set the Min. colour temperature.

Parameter "Step of colour temperature"

This parameter is for setting the step value of colour temperature. Options:

100K

200K

500K

1000K

Parameter "Interval of tele. cyclic send [0..25,0=send once]"

This parameter is visible when the dimming way is selected "Step dimming". Set intervals of telegram cyclically sending dimming telegram. Options: **0..25*0.1s, 0=send once**

5.6.2 Status indication of individual button

Status indication	Via button switch status object
Indication type	Icon + Description of button
Icon for object value=1	Light on
Colour for object value=1	Orange
Icon for object value=0	Light off
Colour for object value=0	Foreground

Via button switch status object

Status indication	Via external status object 1 bit
Indication type	Icon + Description of button
Icon for object value=1	Light on
Colour for object value=1	Orange
Icon for object value=0	Light off
Colour for object value=0	Foreground

Via external status object 1 bit

Status indication	Via external status object 1 byte
Indication type	Icon + Description of button
Object datatype	1byte[0..255] / 1byte[0..100%]
Threshold compare type	Between the threshold value / Equal to the threshold value
Number of threshold	1
Threshold value 1 is	0 %
Initial icon is	Light on
Initial colour is	Foreground
If object value<=threshold value 1	
Icon is	Light on
Colour is	Foreground
If object value>threshold value 1	
Icon is	Light on
Colour is	Red

Via external status object 1 byte

Fig.5.6.2 Parameter setting of status indication of individual button

Parameter "Status indication"

This parameter is for setting the status indication of button.

When button with switch function, including switch, dimming, RGB switching/send value, RGB switching/send value, colour temperature switching/send value, RGB dimming, RGBW dimming or colour temperature dimming. Options:

Via button switch status object

Via external status object 1 bit

Via external status object 1 byte

Always

When button without switch function, including value sender, scene control, blind, shift register, multiple operation, delay mode or RTC operation mode. Options:

Via external status object 1 bit

Via external status object 1 byte

Always

Indicate button press

When string(14bytes) is selected, options:

Always

Indicate button press

When status display is selected, option is only **Always**

Via button switch status object: indicate the status via the value feed back form the switch status object;

Via external status object 1 bit: indicate the status via the value feed back form the 1 bit external object;

Via external status object 1 byte: indicate the status via comparing the value feed back form the 1 byte external object to the threshold value;

Always: always indicate in the same status.

Indicate button press: flashing twice (0.5s on and 0.5s off) when press button, then return to normal indication, if there is another press during the flashing cycle, not reset the cycle.

Parameter "Indication type"

This parameter is for setting the indication type of button.

When you select the function: switch,dimming, RGB switching/send value, RGB switching/send value, colour temperature switching/send value, value sender, scene control, blind, shift register, multiple operation, delay mode, RTC operation mode, RGB dimming, RGBW dimming or colour temperature dimming. Options:

Description of button

Icon only

Icon + Description of button

The description of button is configured via the parameter "Description".

Parameters as follow are visible when status indication is selected "Via button switch status object" or "External status object 1 bit":

Parameter "Icon for object value=1"

Parameter "Icon for object value=0"

These two parameters are visible when indication type is selected "Icon...". Set the icon for object value=1 or value =0. Options:

Light on

Light off

...

Power meter

The icons corresponding to the options are described in the appendix, please refer to chapter 7.

Parameter "Colour for object value=1"

Parameter "Colour for object value=0"

These two parameters are for setting the colour of icon and text when status object telegram value is 1 or 0. Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

Parameters as follow are visible when status indication is selected "Via external status object 1 byte":

Parameter "Object datatype"

This parameter is for setting the object datatype of status indication. Options:

1byte[0..255]

1byte[0..100%]

Parameter "Threshold compare type"

This parameter is for setting the threshold compare type, you can select to display when between the threshold value, or equal to the threshold value. Options:

Between the threshold value

Equal to the threshold value

Parameter "Number of threshold"

This parameter is for setting the number of threshold compare.

When "Between the threshold value" is selected, options: **1 / 2 / 3 / 4**

When “Equal to the threshold value” is selected, options: **1 / 2 / 3 / 4 / 5**

Parameter “Threshold value x is” (x=1~5)

This parameter is for setting threshold value, status indication is via comparing between input value and threshold value.

Options display according to the object datatype: **0..255 / 0..100%**

Parameter “Initial icon is”

This parameter sets the icon displayed initially and when the threshold is not met.Options:

Light on

Light off

...

Power meter

The icons corresponding to the options are described in the appendix, please refer to chapter 7.

Parameter “Initial colour is”

This parameter sets the colour displayed initially and when the threshold is not met

Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

Parameter “If object value<=threshold value 1”

Parameter “If object value>threshold value 1”

....

According to the threshold compare type and the number of threshold compare, you can set the

icon and colour to display which match the threshold compare. Parameters as follow:

——Parameter "Icon is"

This parameter is visible when indication type is selected "Icon...". Set the icon to display which matches the threshold compare. Options:

Light on

Light off

...

Power meter

The icons corresponding to the options are described in the appendix, please refer to chapter 7.

——Parameter "Colour is"

This parameter is for setting the colour of icon and text which matches the threshold compare. Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

Parameters as follow are visible when status indication is selected “Always”:

Parameter "Icon for indication"

This parameter is visible when indication type is selected “Icon...”. Set the icon to display for status indication. Options:

Light on

Light off

...

Power meter

The icons corresponding to the options are described in the appendix, please refer to chapter 7.

Parameter "Colour for indication"

This parameter is for setting the colour for status indication. Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

5.6.3 Rocker button

5.6.3.1 Switch function

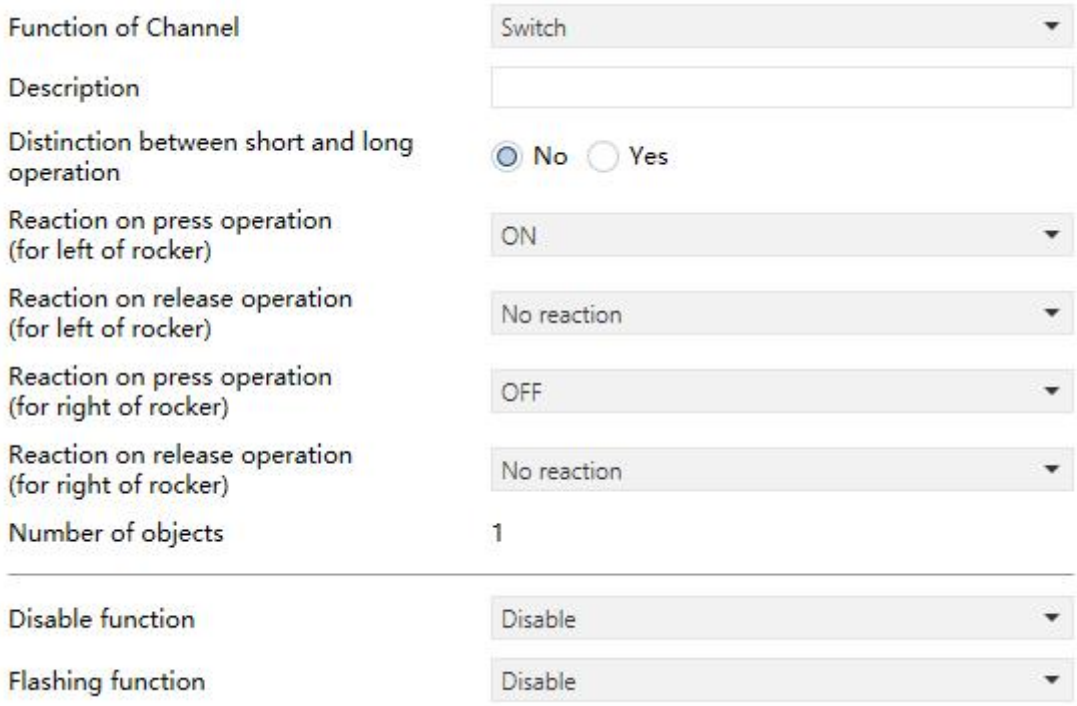


Fig.5.6.3.1 Parameter setting of switch function

Parameter "Description"

This parameter is for setting the description of rocker button, up to input 12 characters

Parameter "Distinction between short and long operation"

This parameter is for setting whether to distinction the contact operation between short and long operation. Options:

No

Yes

Parameter "Reaction on short/press operation (for left/right of rocker)"

Parameter "Reaction on long/release operation (for left/right of rocker)"

These parameters are for setting the performed actions for left/right of rocker buttons when press/release the contact or long/short operation. The object value is updated when the input is determined.

Options:

No reaction

OFF

ON

TOGGLE

No action: no telegrams have been sent.

ON: send the on telegram.

OFF: send the off telegram.

TOGGLE: each operation will switch between on and off. For example, if the last telegram was sent (or received) for on, then the next operation will trigger a telegram for off. When the switch is operated again, it will send a telegram for on etc., So the switch will always record the previous state and covert to opposite value during next operation.When the device is powered on for the first time or restarted after downloading, the default value for "Switch" is 0, meaning the first operation is ON.

Parameter "Number of objects"

This parameter is visible when the parameters "Reaction on short/press operation" or "Reaction on long/release operation" are not selected "No reaction". Set the number of objects when short/long or press/release operation:

1

2

Parameter "Disable function"

This parameter is for setting trigger value to disable/enable contacts. Options:

Disable

Disable=1/Enable=0

Disable=0/Enable=1

Parameter "Lock Icon indicated when disabled"

This parameter is visible when "Disable=1/Enable=0" or "Disable=0/Enable=1" is selected. Set the icon size when the button is in disable status. Options:

Small icon

Big icon

Big icon is the lock icon replaces the original icon, e.g.  ; while small icon is the two icons coexist and the lock icon is a small icon in right corner, e.g.  .

Parameter "Flashing function"

This parameter is for setting whether to enable flashing function. Options:

Disable

Disable=1/Enable=0

Disable=0/Enable=1

Parameter "Colour for flashing"

This parameter is visible when previous parameter is selected "Disable=1/Enable=0" or "Disable=0/Enable=1". Set the colour for flashing. Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

Note: flashing function is only used for "Switch", "Dimming" and "Blind".

Function display priority: Lock function >Flashing function > Normal status indication.

If flashing function and lock function are both triggered at the same time, it will interrupt flashing and the flashing can be resumed only after it is unlocked, cancel flashing then return to the normal status indication.

When enabled flashing function, flashing function is only applied to middle field, and the left/right field will not flash when flashing function enabled.

Repeat parameters will not be illustrated below; the usage is similar.

5.6.3.2 Dimming function

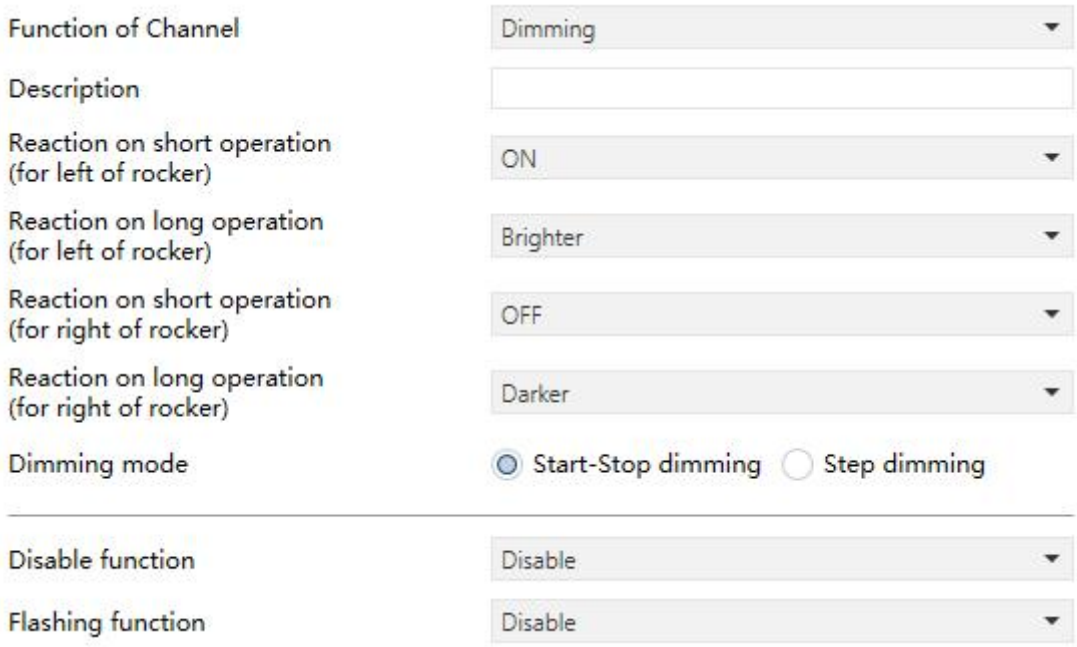


Fig.5.6.3.2 Parameter setting of dimming function

Parameter "Reaction on short operation (for left/right of rocker)"

These two parameters are for setting the sending switch value for left/right of rocker buttons when short operation. Options:

No reaction

OFF

ON

TOGGLE

No action: no telegrams have been sent.

ON: send the on telegram.

OFF: send the off telegram.

TOGGLE: each operation will switch between on and off. When the device is powered on for the first time or restarted after downloading, the default value for "Switch" is 0, meaning the first operation is ON.

Parameter "Reaction on long operation (for left/right of rocker)"

These two parameters are for setting the sending relative dimming value for left/right of rocker buttons when long operation, with dimming brighter or darker; when release the contact stop dimming.

Options:

No reaction

Brighter

Darker

Brighter/Darker

No action: no telegrams have been sent.

Brighter: the dimming up value will be sent.

Darker: the dimming down value will be sent.

Brighter/Darker: dimming up and down will be sent alternately. When the device is powered on for the first time or restarted after downloading, the default value for ”Dimming” is 0, meaning the first operation is dim up the brightness.

Note: in “TOGGLE” mode of this parameter setting, the value sent will be linked. For example, if the last value is switching on status, then it will be dimmed down in next dimming operation; if the last value is switching off, then it will be dimmed up in next dimming operation.

Parameter "Dimming mode"

This parameter is for setting the way of relative dimming. Options:

Start-Stop dimming

Step dimming

Start-stop dimming: the dimming mode will be start-stop, a dimming up or down telegram will be sent when the dimming starts, and a stop telegram will be sent when dimming ends. Here the dimming telegram will not be sent cyclically.

Steps dimming: the dimming mode will be a step one and the dimming telegram will be sent cyclically. When dimming ends, a stop dimming telegram will be sent immediately.

——Parameter “ Step size”

This parameter is visible when the dimming way is selected “Step dimming”. Set a cyclically sending dimming telegram which changes the brightness percentage, Options:

100%

50%

...

1.56%

——Parameter " Interval of tele. cyclic send [0..25,0=send once]"

This parameter is visible when the dimming way is selected "Step dimming". Set intervals of telegram cyclically sending dimming telegram. Options: **0..25*0.1s, 0=send once**

5.6.3.3 Scene control

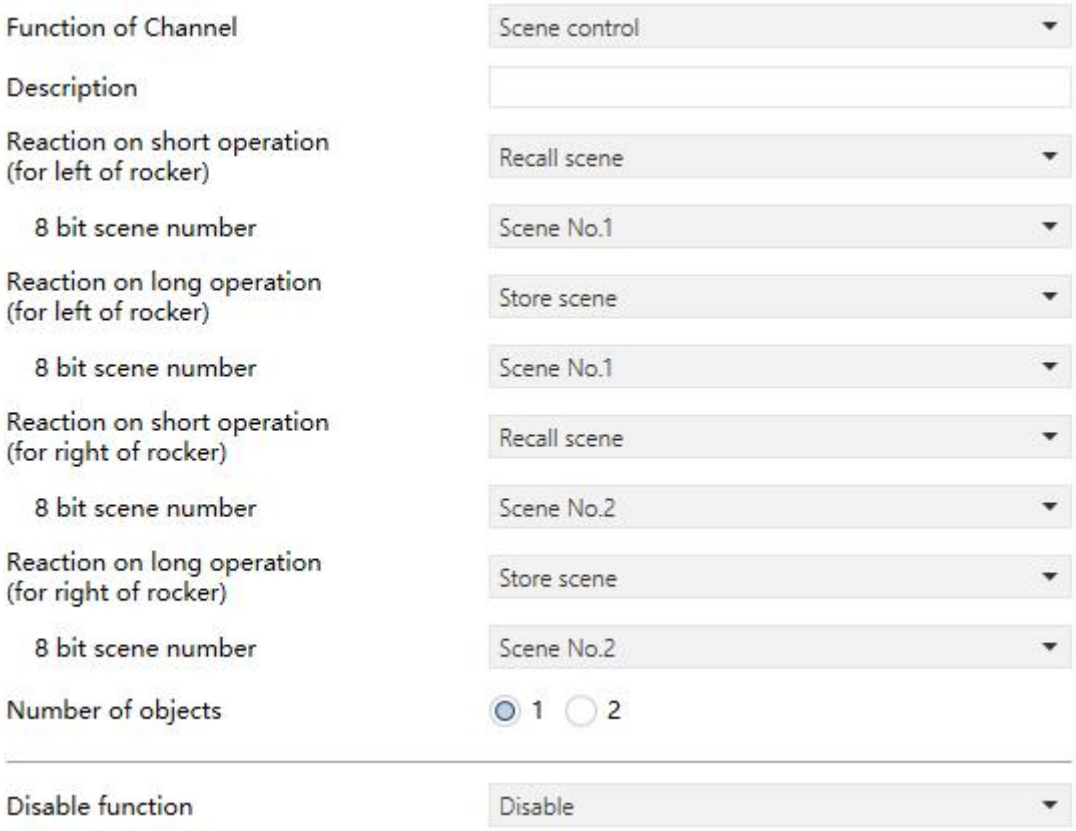


Fig.5.6.3.3 Parameter setting of dimming function

Parameter "Reaction on short operation (for left/right of rocker)"

Parameter "Reaction on long operation (for left/right of rocker)"

These two parameters are for setting to recall or storage scene for left/right of rocker buttons when long/short operation. Options:

No reaction

Recall scene

Store scene

——Parameter “8 bit scene number”

This parameter is visible when “No reaction” is not selected. Set the scene number. Options:

Scene NO.1

Scene NO.2

Scene NO.3

...

Scene NO.64

Corresponding telegram is 0~63

Parameter “Number of objects”

This parameter is visible when the parameters “Reaction on short operation” or “Reaction on long operation” are not selected “No reaction”. Set the number of objects when short/long operation:

1

2

5.6.3.4 Blind function

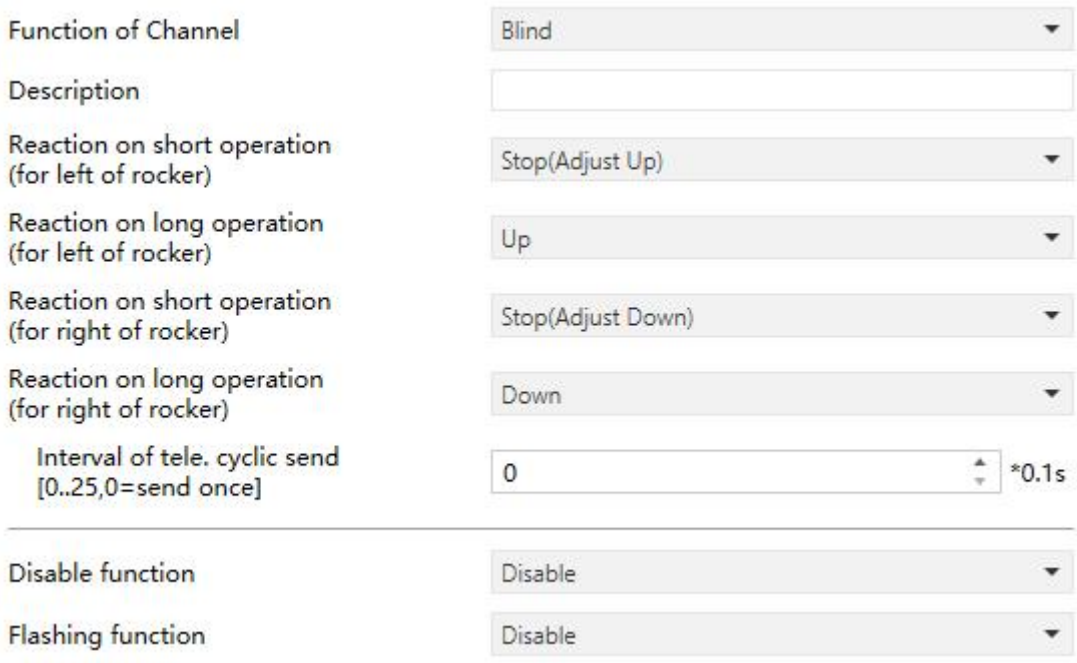


Fig.5.6.3.4 Parameter setting of blind function

Parameter "Reaction on short operation (for left/right of rocker)"

Parameter "Reaction on long operation (for left/right of rocker)"

These parameters are for setting the performed actions for left/right of rocker buttons when long/short operation. The object value is updated when the input is determined. Options:

No reaction

Up

Down

Up/Down

Stop(Adjust Up)

Stop(Adjust Down)

Stop(Adjust Up/Down)

No action: no telegram to be sent.

Up: the blinds will be opened or moved up.

Down: the blinds will be closed or moved down.

Up/Down: alternately open/close or move up/down the blinds. When the device is powered on for the first time or restarted after downloading, the default value for ”Up/Down, Blind” is 0, meaning the first operation is closing or moving down the blinds.

Stop (Adjust Up): stop the blind movement or move up the angle of blinds.

Stop (Adjust Down): stop the blind movement or move down the angle of blinds.

Stop (Adjust Up/Down): stop the blind movement or move up/down the angle of blinds alternately. When the device is powered on for the first time or restarted after downloading, the default value for ” Stop/Adjust Blind” is 0, meaning the first operation is stop or move down the angle of blinds.

——Parameter “ Interval of tele. cyclic send [0..25,0=send once] ”

This parameter is for setting the time interval of cyclical blinds angle adjustment telegram sent. Options: **0..25*0.1s,0=send once**

5.6.3.5 Setpoint adjustment

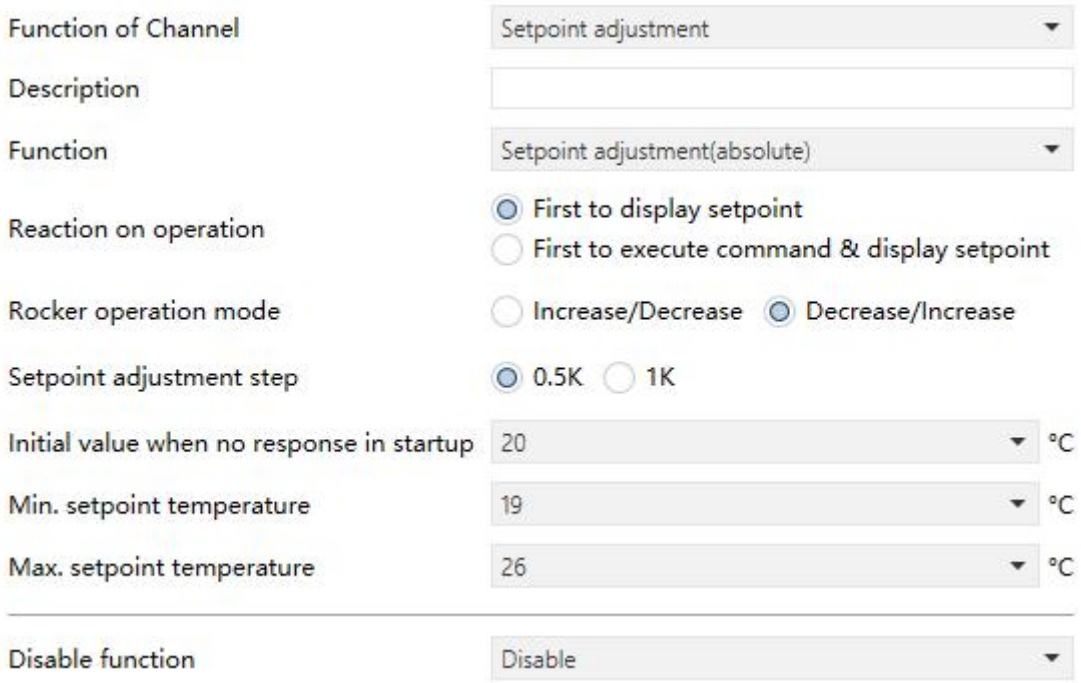


Fig.5.6.3.5 Parameter setting of setpoint adjustment

Parameter "Function"

This parameter is for setting the adjustment type of setpoint temperature. Options:

Setpoint adjustment(absolute)

Offset Increase/Decrease(relative)

Offset setpoint adjustment(relative)

Setpoint adjustment(absolute): apply to absolute adjust the setpoint temperature;

Offset Increase/Decrease(relative): apply to relative adjust the offset of setpoint temperature via 1 bit object;

Offset setpoint adjustment(relative): apply to relative adjust the offset of setpoint temperature.

Parameter "Reaction on operation"

This parameter is for setting whether only display setpoint temperature when first operate the button, or execute the command at the same time. Options:

First to display setpoint

First to both execute command and display setpoint

Parameter "Rocker operation mode"

This parameter is for setting the operation mode of rocker button. Options:

Increase/Decrease

Decrease/Increase

Increase/Decrease: the left of rocker button to increase setpoint temperature, and the right to decrease setpoint temperature;

Decrease/Increase: the left of rocker button to decrease setpoint temperature, and the right to increase setpoint temperature.

Parameter "Setpoint adjustment step"

This parameter is visible when the setpoint temperature adjustment is selected "Setpoint adjustment (absolute)" or "Offset setpoint adjustment (relative)". Set the step value of setpoint adjustment. Options:

0.5K

1K

For absolute adjustment, if current setpoint temperature is 21°C, increase 0.5°C, then the current setpoint temperature is change to 21.5°C and sent to the bus; while decrease 0.5°C, then the current setpoint temperature is change to 20.5°C and sent to the bus.

For relative adjustment, if step value is 1K, current offset is 0K, increase per time to send 1K offset to the bus, if current offset is -1K, decrease per time to send -2K offset to the bus.

Parameters as follow are visible when the setpoint temperature adjustment is selected "Setpoint adjustment (absolute)":

Parameter "Initial value when no response in startup"

This parameter is for setting the initial value of setpoint temperature after voltage recovery or download completion, that is, the used initial value when no response received in startup. Options:

5°C

6°C

...

37°C

Parameter "Min./Max. setpoint temperature"

These two parameters are for setting the adjustable range of the setpoint temperature. Options:

5°C

6°C

...

37°C

If the setpoint temperature beyond the limited range, it will output the limited temperature.

For setpoint temperature, the Min. value must less than the Max., if not, it can not be modified on ETS.

Parameters as follow are visible when the setpoint temperature adjustment is selected "Offset setpoint adjustment (relative)":

Parameter "Initial value when no response in startup"

This parameter is for setting the initial value of setpoint temperature offset after voltage recovery or download completion, that is, the used initial value when no response received in startup. Options: **-10..10 K**

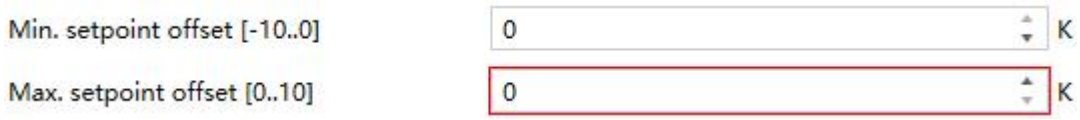
Parameter "Min. setpoint offset [-10..0]"

This parameter is for setting the maximum offset when setpoint temperature offset decrease (negative offset). Options: **-10..0 K**

Parameter "Max. setpoint offset [0..10]"

This parameter is for setting the maximum offset when setpoint temperature offset increase (forward offset). Options: **0..10 K**

For the offset, the Min. value and the Max. Value cannot be equal to 0 at the same time, if not, they can not be modified on ETS, and display red box warning, as shown as follow:



5.6.4 Status indication of rocker button

5.6.4.1 Left/Right field display

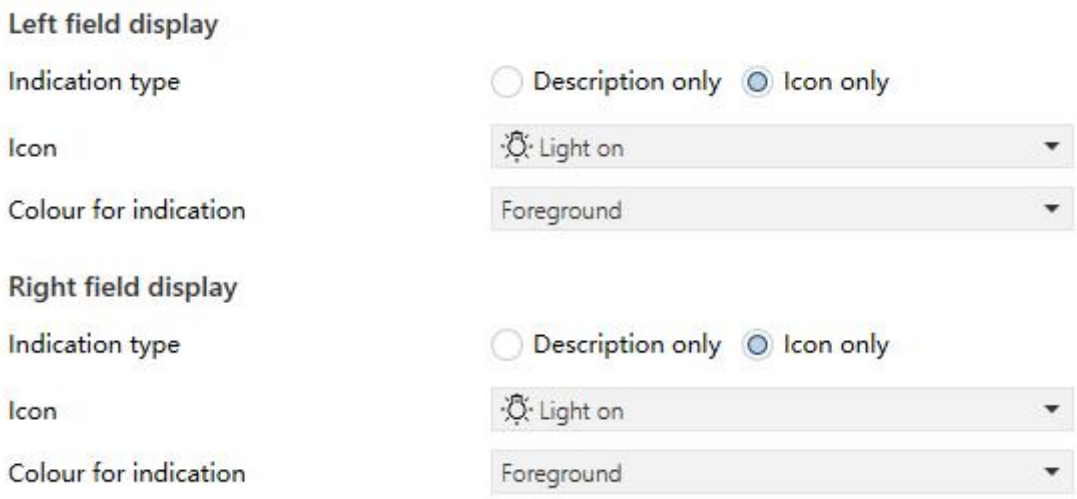


Fig.5.6.4.1 Parameter setting of left/right field display

Parameter "Indication type"

This parameter is for setting the indication type for left/right field of rocker buttons. Options:

Description only

Icon only

Parameter "Description (Valid display space is up to 10 small chars,while 4 Chinese chars)"

This parameter is for setting the description for for left/right field of rocker buttons, up to input 12 characters.

Parameter "Icon"

This parameter is visible when indication type is selected "Icon only". Set the icon of status indication. Options:

Light on

Light off

...

Power meter

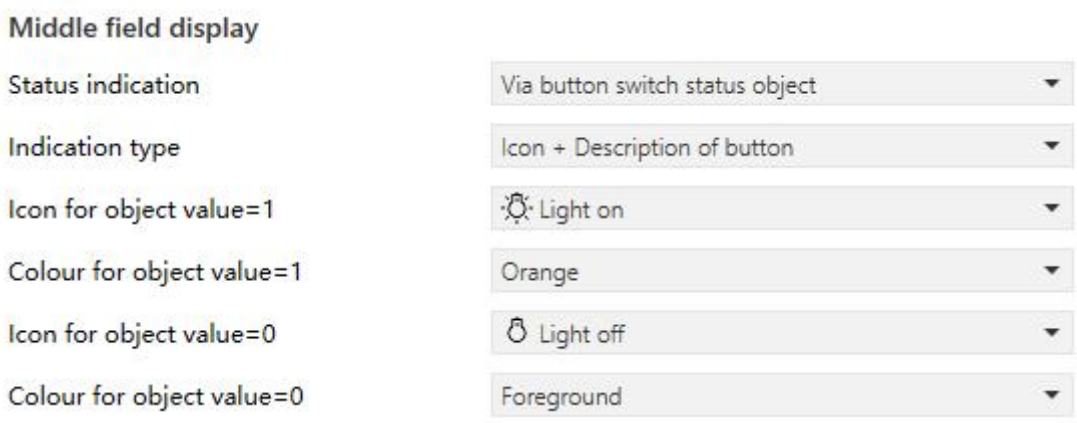
The icons corresponding to the options are described in the appendix, please refer to chapter 7.

Parameter "Colour for indication"

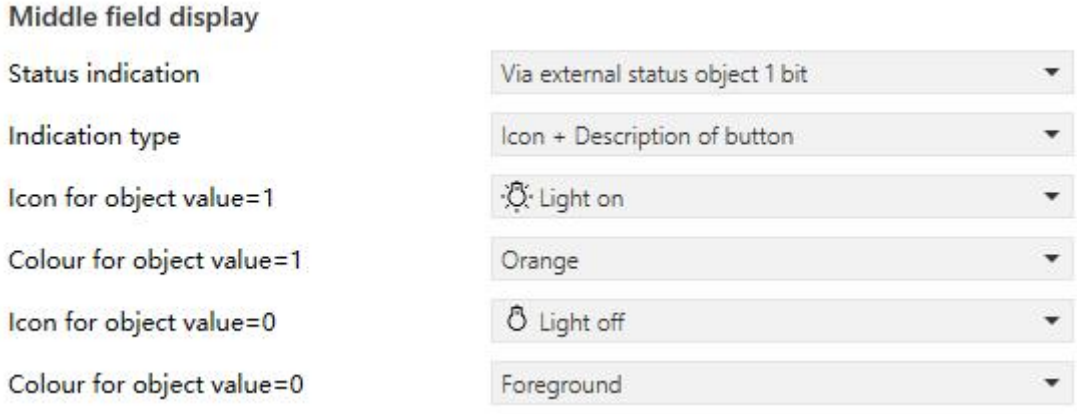
This parameter is for setting the colour of status indication. Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

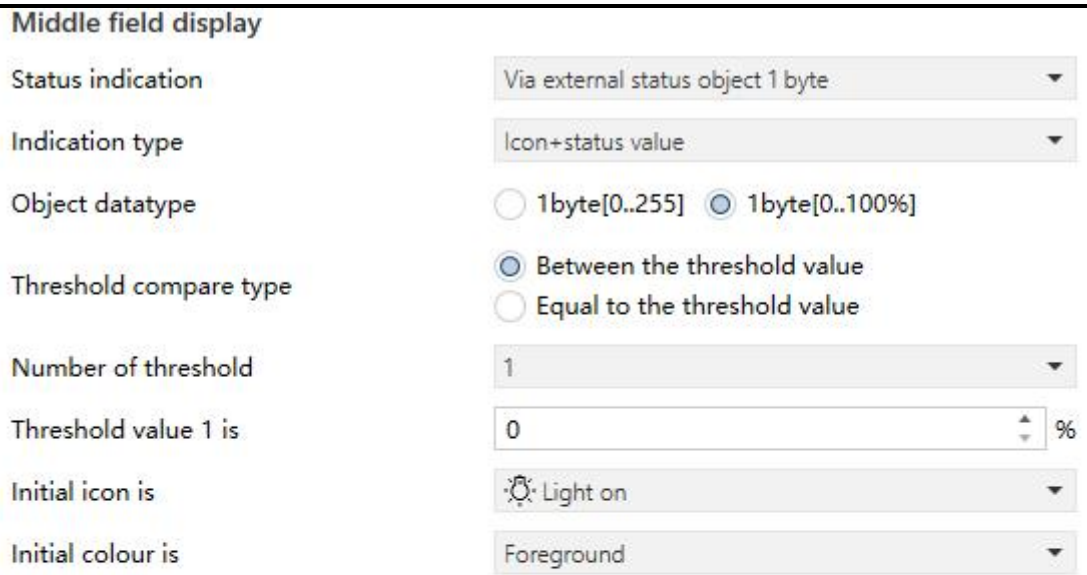
5.6.4.2 Middle field display



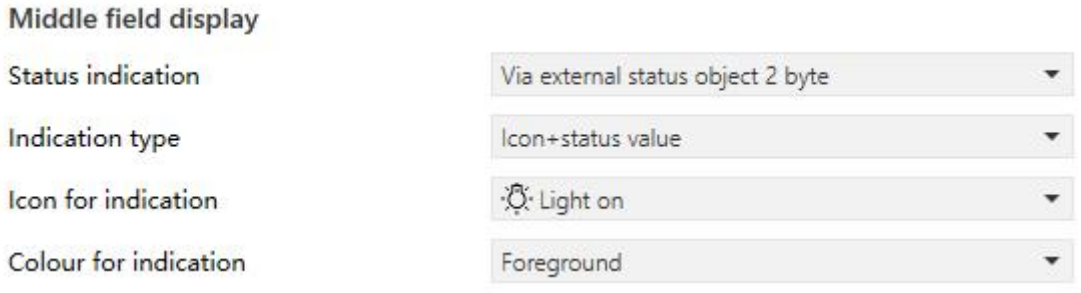
Via button switch status object



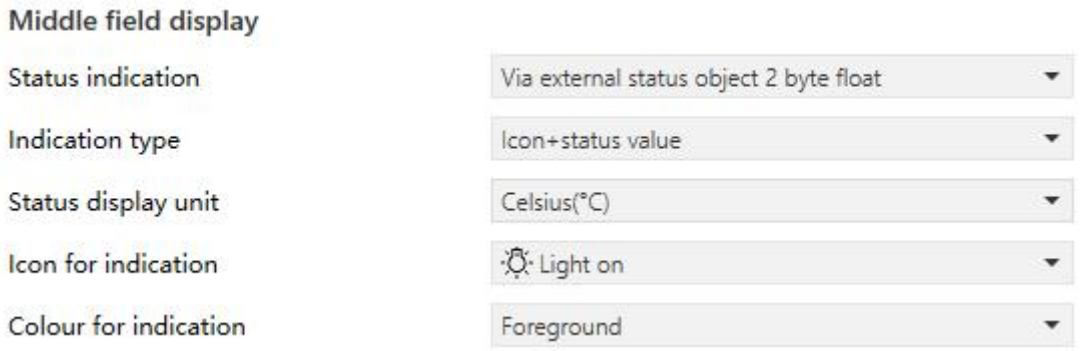
Via external status object 1 bit



Via external status object 1 byte



Via external status object 2 byte



Via external status object 2 byte float

Via external status object 14 byte

Always

Fig.5.6.4.2 Parameter setting of middle field display

Parameter "Status indication"

This parameter is for setting the status indication of button.

When button function is switch, options:

Via button switch status object

Via external status object 1 bit

Via external status object 1 byte

Via external status object 14 byte

Always

When button function is selected scene control or blind, there is no **Via button switch status object, Via external status object 14 byte** in the above options;

When button function is selected dimming, in addition to the above options you can also select **Via external status object 2 byte**;

When button function is selected setpoint adjustment, options:

Via external status object 1 bit

Via external status object 2 byte float

Always

Via button switch status object: indicate the status via the value feed back form the switch status object;

Via external status object 1 bit: indicate the status via the value feed back form the 1 bit external

object;

Via external status object 1 byte: indicate the status via comparing the value feed back form the 1 byte external object to the threshold value;

Via external status object 2 byte: display the received integer value, such as colour temperature;

Via external status object 2 byte float: display the received float value,such as temperature;

Via external status object 14 byte: display the received string;

Always: always indicate in the same status.

Parameter "Indication type"

This parameter is for setting the indication type of button. Options:

Description of button

Icon only

Icon + Description of button

Status value

Icon+status value

Status value+Int.temp

When button function is selected switch, when status indication is "Via button switch status object", "Via external status object 1 bit", "Via external status object 1 byte" or "Always", there are no option about status, that is, the options have no "Status value" and "...status value"; while it is "Via external status object 14 byte", only "Status value";

When button function is selected scene control, there are no option about status, that is, the options have no "Status value" and "...status value";

When button function is selected dimming, not support to the option "Int.temp + status value", when status indication is "Via button switch status object", "Via external status object 1 bit" or "Always", there are no option about status, that is, the options have no "Status value" and "...status value"; when it is "Via external status object 2 byte", there are only the options about status; while it is "Via external status object 14 byte", only "Status value";

When button function is selected blind, not support to the option "Int.temp + status value", when status indication is "Via button switch status object", "Via external status object 1 bit" or "Always", there are no option about status, that is, the options have no "Status value" and "...status value";

When button function is selected setpoint adjustment, there are no option about status when status indication is selected “Via external status object 1 bit” or “Always”, that is, the options have no “Status value” and “...status value”; While “Via external status object 2 byte float” is selected, only support to the options about status.

Parameters as follow are visible when status indication is selected “Via button switch status object” or “External status object 1 bit”:

Parameter “Icon for object value=1”

Parameter “Icon for object value=0”

These two parameters are visible when indication type is selected “Icon...”. Set the icon for object value=1 or value =0. Options:

Light on

Light off

...

Power meter

The icons corresponding to the options are described in the appendix, please refer to chapter 7.

Parameter “Colour for object value=1”

Parameter “Colour for object value=0”

These two parameters are for setting the colour of icon and text when status object telegram value is 1 or 0. Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

Parameters as follow are visible when status indication is selected "Via external status object 1 byte":

Parameter "Object datatype"

This parameter is for setting the object datatype of status indication. Options:

1byte[0..255]

1byte[0..100%]

Parameter "Threshold compare type"

This parameter is for setting the threshold compare type, you can select to display when between the threshold value, or equal to the threshold value. Options:

Between the threshold value

Equal to the threshold value

Parameter "Threshold compare type"

This parameter is for setting the number of threshold compare.

When "Between the threshold value" is selected, options: **1 / 2 / 3 / 4**

When "Equal to the threshold value" is selected, options: **1 / 2 / 3 / 4 / 5**

Parameter "Threshold value x is" (x=1~5)

This parameter is for setting threshold value, status indication is via comparing between input value and threshold value.

Options display according to the object datatype: **0..255 / 0..100**

Parameter "Initial icon is"

This parameter sets the icon displayed initially and when the threshold is not met.Options:

Light on

Light off

...

Power meter

The icons corresponding to the options are described in the appendix, please refer to chapter 7.

Parameter "Initial colour is"

This parameter sets the colour displayed initially and when the threshold is not met.

Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

Parameter "If object value<=threshold value 1"

Parameter "If object value>threshold value 1"

....

According to the threshold compare type and the number of threshold compare, you can set the icon and colour to display which match the threshold compare. Parameters as follow:

——Parameter "Icon is"

This parameter is visible when indication type is selected "Icon...". Set the icon to display which matches the threshold compare. Options:

Light on

Light off

...

Power meter

The icons corresponding to the options are described in the appendix, please refer to chapter 7.

——Parameter "Colour is"

This parameter is for setting the colour of icon and text which matches the threshold compare.

Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

Parameters as follow are visible when status indication is selected "Via external status object 2 byte float":

Parameter "Status display unit"

Parameter "Status display unit(Int.temp display unit always °C)"

This parameter is for setting the temperature unit displayed on the screen, and the object datatype is all DPT 9.001 temperature. Options:

Celsius(°C)

Fahrenheit(°F)

Kelvins(K)

The temperature accuracy is to 0.1 on the screen.

Parameters as follow are visible when status indication is selected “Via external status object 2 byte...” or “Always”:

Parameter “Icon for indication”

This parameter is visible when indication type is selected “Icon...”. Set the icon to display for status indication. Options:

Light on

Light off

...

Power meter

The icons corresponding to the options are described in the appendix, please refer to chapter 7.

Parameter “Colour for indication”

This parameter is for setting the colour for status indication. Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

Parameters as follow are visible when status indication is selected “Via external status object 14 byte”:

Parameter “Colour for indication”

This parameter is for setting the colour for status indication. Options:

Foreground	**Cyan blue**
Red	**Cyan**
Dark green	**Coffee**
Blue	**Light orange**
Yellow	**Customized colour 1**
Orange	**Customized colour 2**
Purple	**Customized colour 3**
Grey	**Customized colour 4**
Pink	**Customized colour 5**

5.6.5 Parameter window “Customized colour”

Fig.5.6.6 “Customized colour”parameter window

Customized colour x (x=1~5)

Parameter "RGB value"

This parameter is for setting the customized colour of status indication, user up to define 5 colours.

Options: **#000000 ....#FFFFFF**

5.7. Parameter window “Logic”

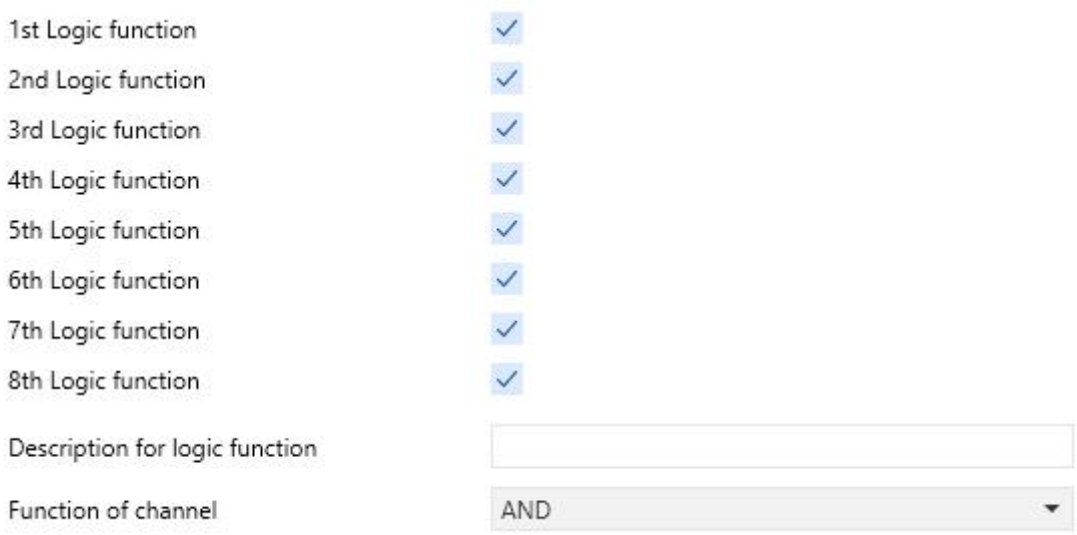


Fig.5.7 “Logic function setting” parameter window

Parameter "1st/2nd/3rd... Logic function"

This parameter is for setting the setting interface of logic function, display corresponding logic function page when select. Up to enable 8 logic functions.

Parameter "Description for logic function"

This parameter is for setting the name description for logic function, up to input 30 characters.

Parameter "Function of channel"

This parameter is for setting function of the channel. Options:

AND

OR

XOR

Gate forwarding

Threshold comparator

Format convert

Gate function

Delay function

Staircase lighting

AND/OR/XOR: as the parameter is similar to the communication object (only the logic algorithm is different), the following parameters taking one options for example.

5.7.1 Parameter window “AND/OR/XOR”

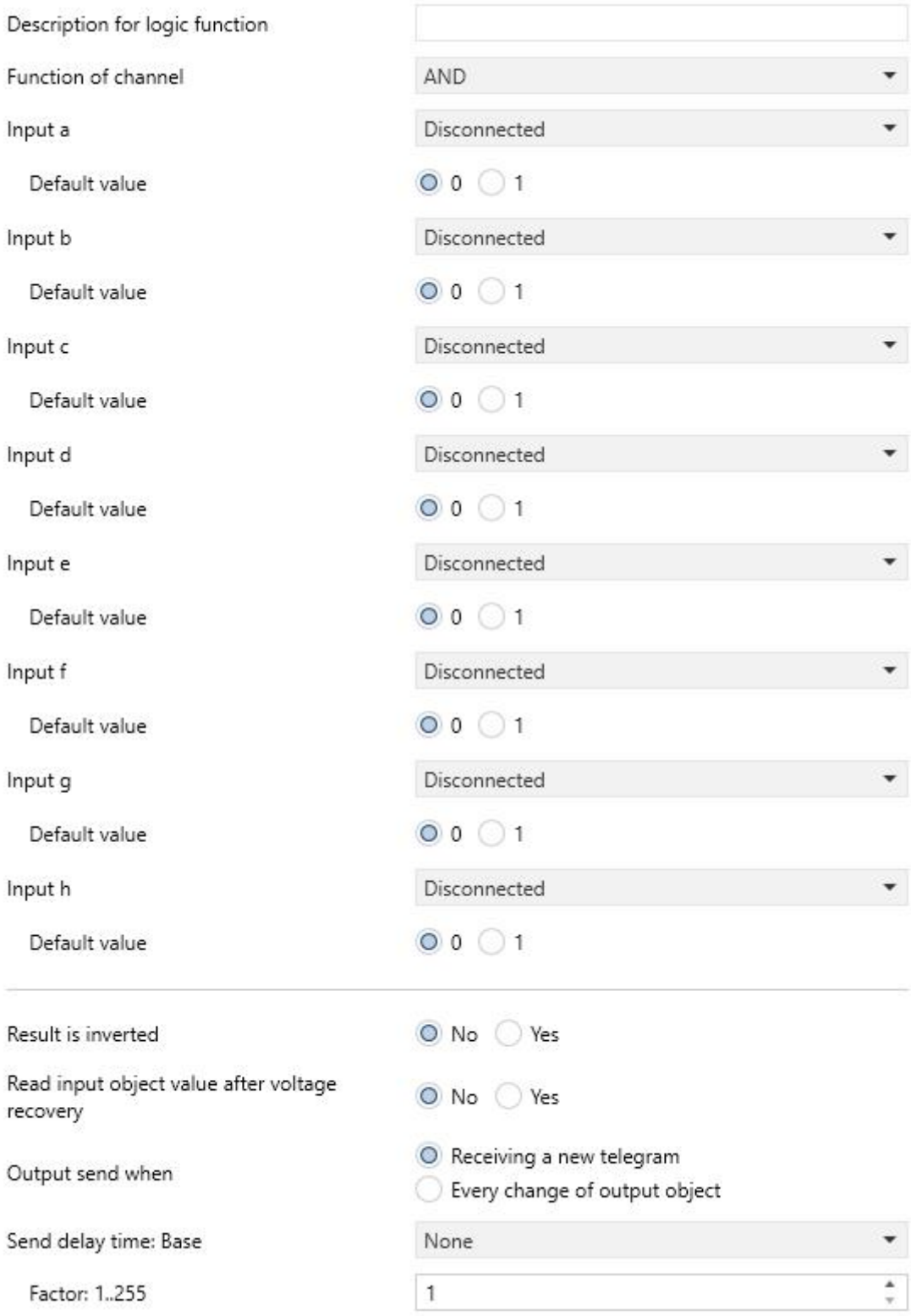


Fig.5.7.1 “AND/OR/XOR” parameter window

Parameter "Input a/b/c/d/e/f/g//h"

This parameter is for setting whether input x to calculate, whether to normally calculate or inverted calculate.Options:

Disconnected

Normal

Inverted

Disconnected: not to calculate;

Normal: to directly calculate the input value;

Inverted: invert the input value, then to calculate. **Note: not to invert the initiate value.**

——Parameter "Default value"

This parameter is for setting the initial value of logic input x. Options:

0

1

Parameter "Result is inverted"

This parameter is for setting whether to invert the logic calculation result. Options:

No

Yes

No: output directly;

Yes: output after inverting.

Parameter "Read input object value after voltage recovery"

This parameter is for setting whether to send the read request to the logic input object after device voltage recovery or finish programming. Options:

No

Yes

Parameter "Output send when"

This parameter is for setting the condition of sending logic result. Options:

Receiving a new telegram

Every change of output object

Receiving a new telegram：every time the object received a new input value will the logic result be sent to the bus;

Every change of output object：only when logic result has changed will it be sent to the bus.

Tip: when in the first time to logic calculate, the logic result will be sent even if it has no change.

Parameter "Send delay time"

Base: **None**

0.1s

1s

...

10s

25s

Factor: **1..255**

This parameter is for setting the delay time for sending the logic calculation result to the bus. Delay time = Base × Factor, if option “None” of Base is selected, then there is no delay.

5.7.2 Parameter window “Gate forwarding”

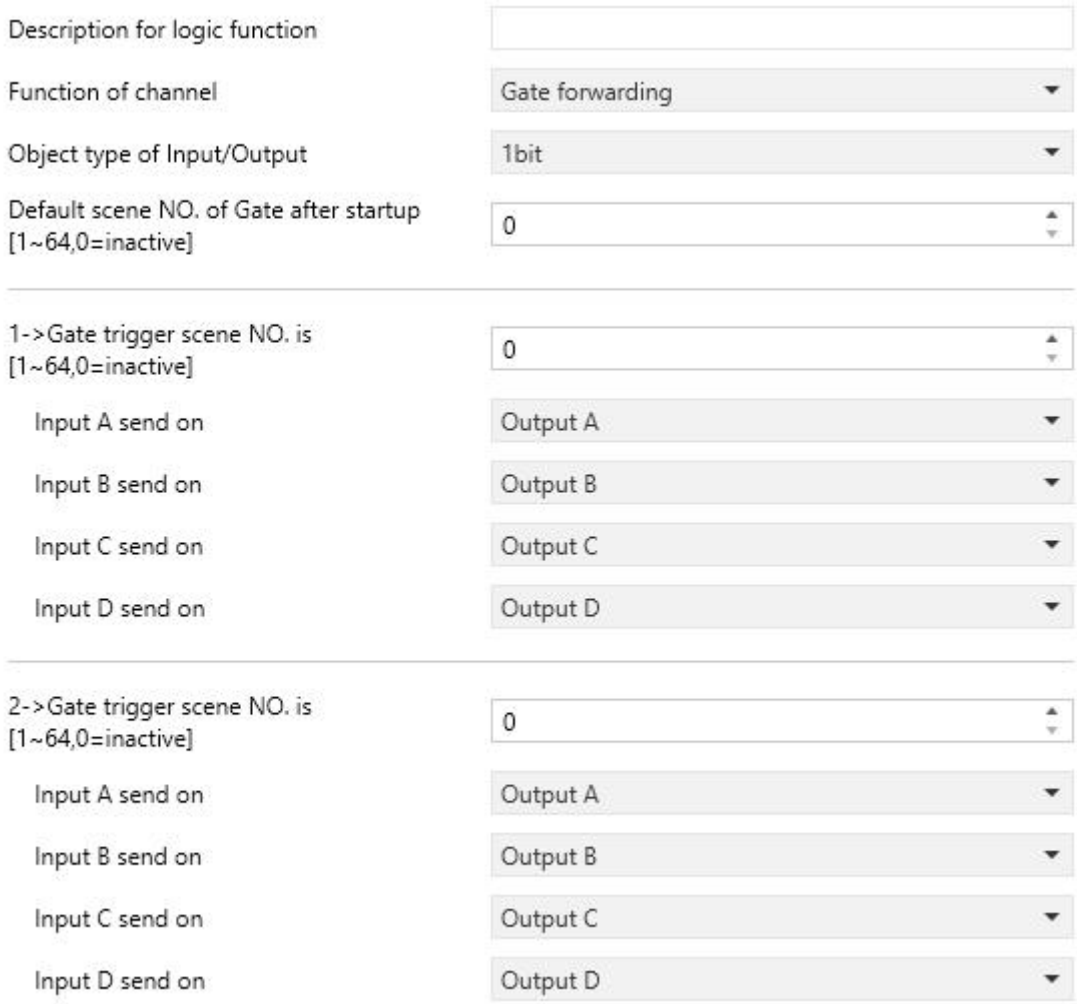


Fig.5.7.2 “Gate forwarding” parameter window

Parameter "Object type of Input/Output"

This parameter is for setting the object type of input/output. Options:

1bit

4bit

1byte

Parameter "Default scene NO. of Gate after startup [1~64,0=inactive]"

This parameter is for setting the initial scene where logical gate forwarding can be performed by default after device starts, which needs to be configured in the parameters. Options：**1..64, 0=inactive**

Note: gate scene is recommended to be selected before operating, or it will enable the initiate scene by default.

Parameter "z->Gate trigger scene NO. is [1~64,0=inactive]"(z=1~8)

This parameter is for setting scene number of logic gate forwarding. Up to 8 trigger scene number can be set for each logic. Options: **1..64, 0=inactive**

----Parameter "Input A/B/C/D send on"

This parameter is for setting the output of input X (X=A/B/C/D) after gate forwarding. Options:

Output A

Output B

...

Output B,C,D

According to the options, one input can be forwarded into one or more outputs, the output value is the same as the input value.

5.7.3 Parameter window “Threshold comparator”

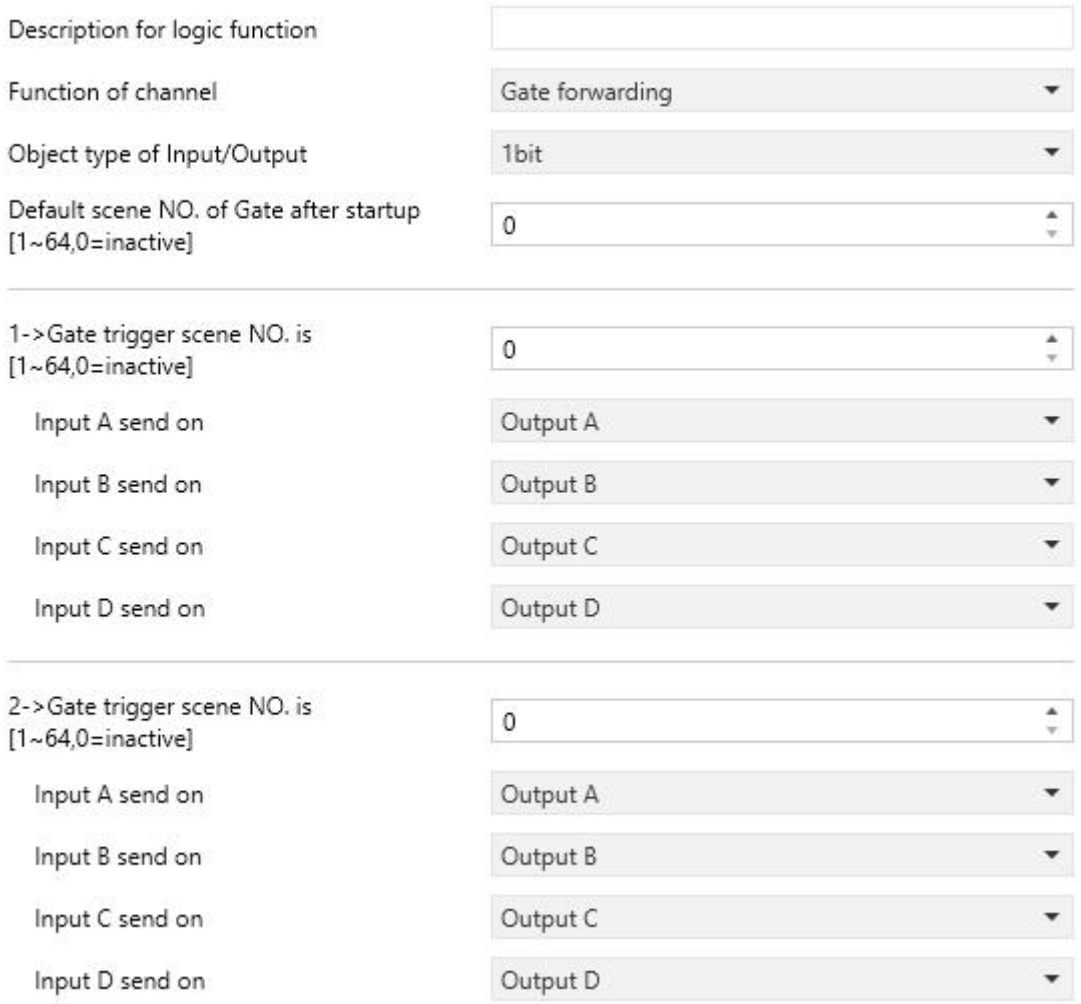


Fig.5.7.3 “Threshold comparator” parameter window

Parameter “Threshold value data type”

This parameter is for setting the threshold value data type. Options:

4bit value (DPT3.007) **4byte unsigned value[0..4294967295]**

1byte unsigned value (DPT5.010) **Ext. temperature value (DPT 9.001)**

2byte unsigned value (DPT7.001) **Ext. humidity value (DPT 9.007)**

2byte signed value (DPT8.x) **Illuminance value (DPT 9.004)**

2byte float value (DPT9.x)

Parameter “Threshold value”

This parameter is for setting threshold value, the range depends on the data type. Options:

4bit value (DPT3.007) 0..15 /1byte unsigned value (DPT5.010) 0..255 /

2byte unsigned value (DPT7.001) 0..65535 / 2byte signed value (DPT8.x) -32768..32767 /

2byte float value (DPT9.x) -670760...670760 / 4byte unsigned value[0..4294967295] 0..4294967295 /

Ext. temperature value (DPT 9.001) -20..95℃ / Ext. humidity value (DPT 9.007) 0..100% /

Illuminance value (DPT 9.004) 0..65535lux

Parameter "Hysteresis threshold value"

This parameter is visible when object datatype is selected "2byte float value (DPT9.x)", "Illuminance value (DPT 9.004)". Set the hysteresis threshold value. Options: **0..500**

Parameter "If Object value<Threshold value"

Parameter "If Object value=Threshold value"

Parameter "If Object value!=Threshold value"

Parameter "If Object value>Threshold value"

Parameter "If Object value<=Threshold value"

Parameter "If Object value>=Threshold value"

This parameter is for setting the logic result value that should be sent when threshold value less than, equal to, not equal to, greater than, less than or equal to the setting valve. When object datatype is selected "2byte float value (DPT9.x)", can only set the object value less than or greater than threshold value. Options:

Do not send telegram

Send value "0"

Send value "1"

Do not send telegram: not consider to select this option;

Send value "0"/"1": when condition is satisfied, send telegram 0 or1.

If there is a conflict between the setting options between parameters, the base on the value that should be sent when reach the final parameter condition. **For example: parameter "If Object value=Threshold value" is set to be "Send value "0" "; parameter "If Object value<=Threshold value" is set to be "Send value "1" "; when object value is equal to the threshold value, then the logic result will send "1".**

Parameter "Output send when"

This parameter is for setting the condition of sending logic result. Options:

Receiving a new telegram

Every change of output object

Receiving a new telegram: every time the object received a new input value will the logic result be sent to the bus;

Every change of output object: only when logic result has changed will it be sent to the bus.

Tip: when in the first time to logic algorithm, the logic result will be sent even if it has no change.

Parameter "Send delay time"

Base: **None**

0.1s

1s

...

10s

25s

Factor: **1..255**

This parameter is for setting the delay time for sending the logic algorithm result to the bus. Delay time = Base x Factor, if option "None" of Base is selected, then there is no delay.

5.7.4 Parameter window “Format convert”

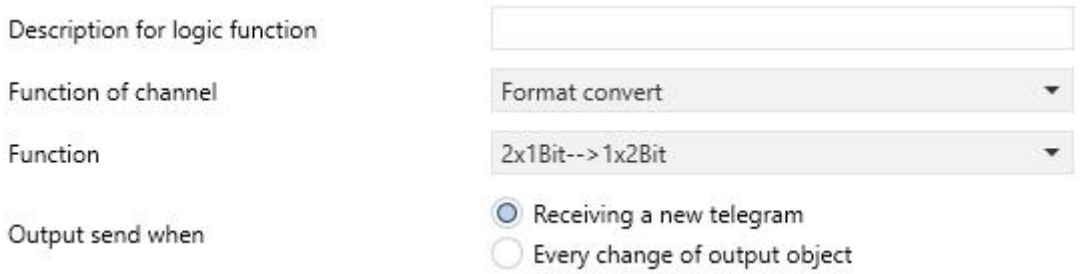


Fig.5.7.4 “Format convert” parameter window

Parameter "Function"

This parameter is for setting the format convert type.

Options:

2x1bit-->1x2bit

8x1bit-->1x1byte

1x1byte-->1x2byte

2x1byte-->1x2byte

2x2byte-->1x4byte

1x1byte-->8x1bit

1x2byte-->2x1byte

1x4byte-->2x2byte

1x3byte-->3x1byte

3x1byte-->1x3byte

Parameter "Output send when"

This parameter is for setting the condition of sending logic result. Options:

Receiving a new telegram

Every change of output object

Receiving a new telegram: every time the object received a new input value will the logic result be sent to the bus;

Every change of output object: only when logic result has changed will it be sent to the bus.

Tip: when in the first time to logic algorithm, the logic result will be sent even if it has no change.

5.7.5 Parameter window “Gate function”

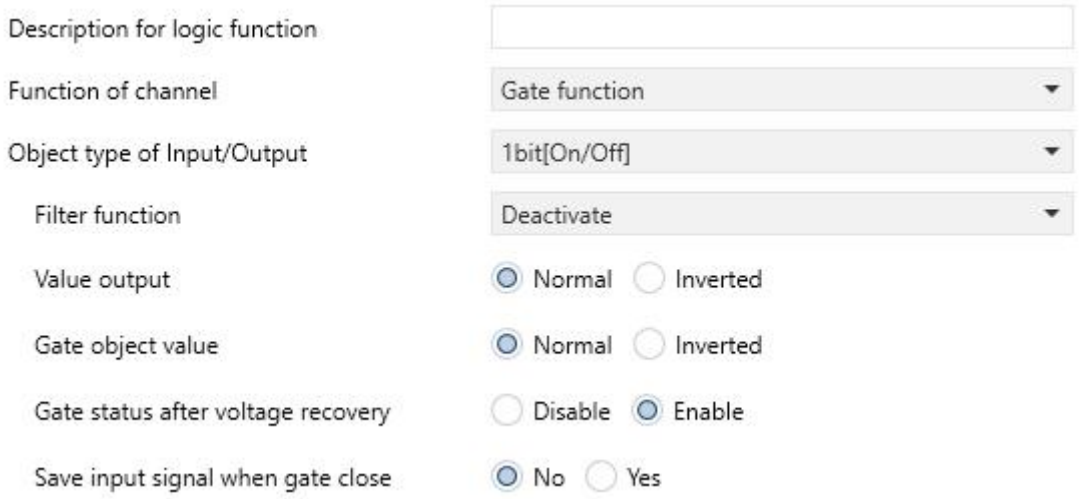


Fig.5.7.5 “Gate function” parameter window

Parameter “Object type of Input/Output”

This parameter is for setting the object type of input/output. Options:

1bit[On/Off]

1byte[0..100%]

1byte[0..255]

2byte[Float]

2byte[0..65535]

——Parameter “Filter function”

This parameter is visible when “1bit[On/Off]” is selected. Set whether to filter On or Off telegram, only pass one of them or pass all. Options:

Deactivate

On filter out

Off filter out

Deactivate: Do not filter the On or Off telegrams;

On filter out: Off can pass, On cannot pass;

Off filter out: On can pass, Off cannot pass.

——Parameter “Value output”

This parameter is visible when “1bit[On/Off]” is selected. Set whether to invert the value then

output it. Options:

Normal

Inverted

Parameter "Gate object value"

This parameter is for setting whether to invert the gate object value then output it. Options:

Normal

Inverted

Parameter "Gate status after voltage recovery"

This parameter is for setting the gate status after voltage recovery. Options:

Disable

Enable

Parameter "Save input signal when gate close"

This parameter is for setting whether to save input signal on gate close. Options:

No

Yes

No: disable to save the input, the input values received during the gate closing period are ignored;

Yes: enable to save the input, the input values received during the gate closing period are output when gate is open (whether the input value is changed or not).

Note: During the period when the gate is closed, the received filtered input values are not saved. After the gate is opened, the valid input values received are output.

5.7.6 Parameter window “Delay function”

Fig.5.7.6 “Delay function” parameter window

Parameter “Object type of Input/Output”

This parameter is for setting the object type of input/output. Options:

1bit[On/Off]

1byte[0..100%]

1byte[0..255]

2byte[Float]

2byte[0..65535]

——Parameter “Delay time [0..6500]s”

This parameter is for setting the delay time that output object forwards the value when the input object receives the telegram. Options: **0..6500**

Note: Receive telegram again in delay time, re-timing.

5.7.7 Parameter window “Staircase lighting”

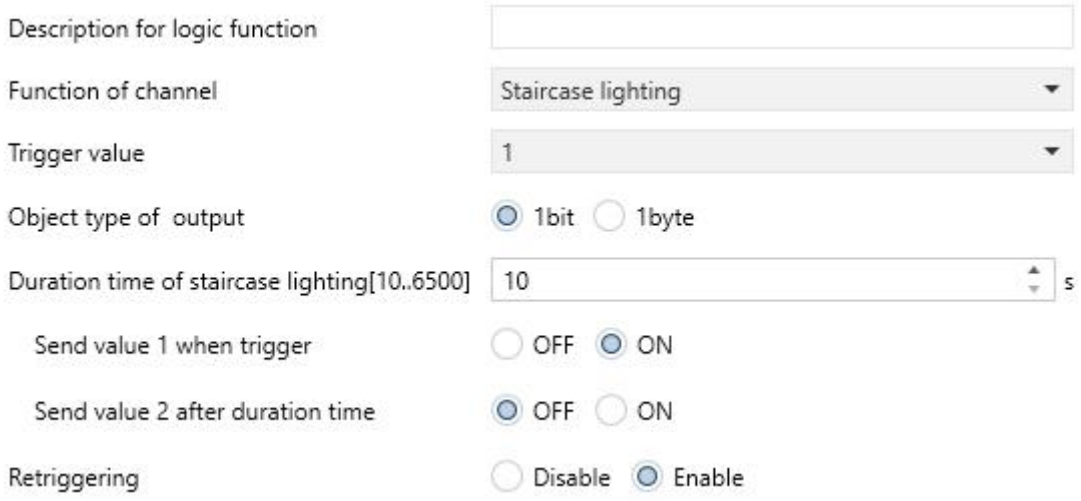


Fig.5.7.7 “Staircase lighting” parameter window

Parameter “Trigger value”

This parameter is for setting the telegram value of the object “Trigger value”. Options:

0

1

0 or 1

Parameter “Object type of output”

This parameter is for setting the object type of output. Options:

1bit

1byte

Parameter “Duration time of staircase lighting[10..6500]”

This parameter is for setting duration time of staircase lighting after the stair light power on.

Options: **10..6500 s**

——Parameter “Send value 1 when trigger”

——Parameter “Send value 2 after duration time”

These parameters are for setting the value to send. Send value 1 when trigger, and then send value 2 after duration time. Options display according to the output object datatype.

When 1 bit, options:

OFF

ON

When 1 byte , options: **0..255**

Parameter "Retriggering"

This parameter is for setting whether to trigger re-timing when received trigger value in delay time.

Options:

Disable

Enable

5.8. Parameter window “Scene Group”

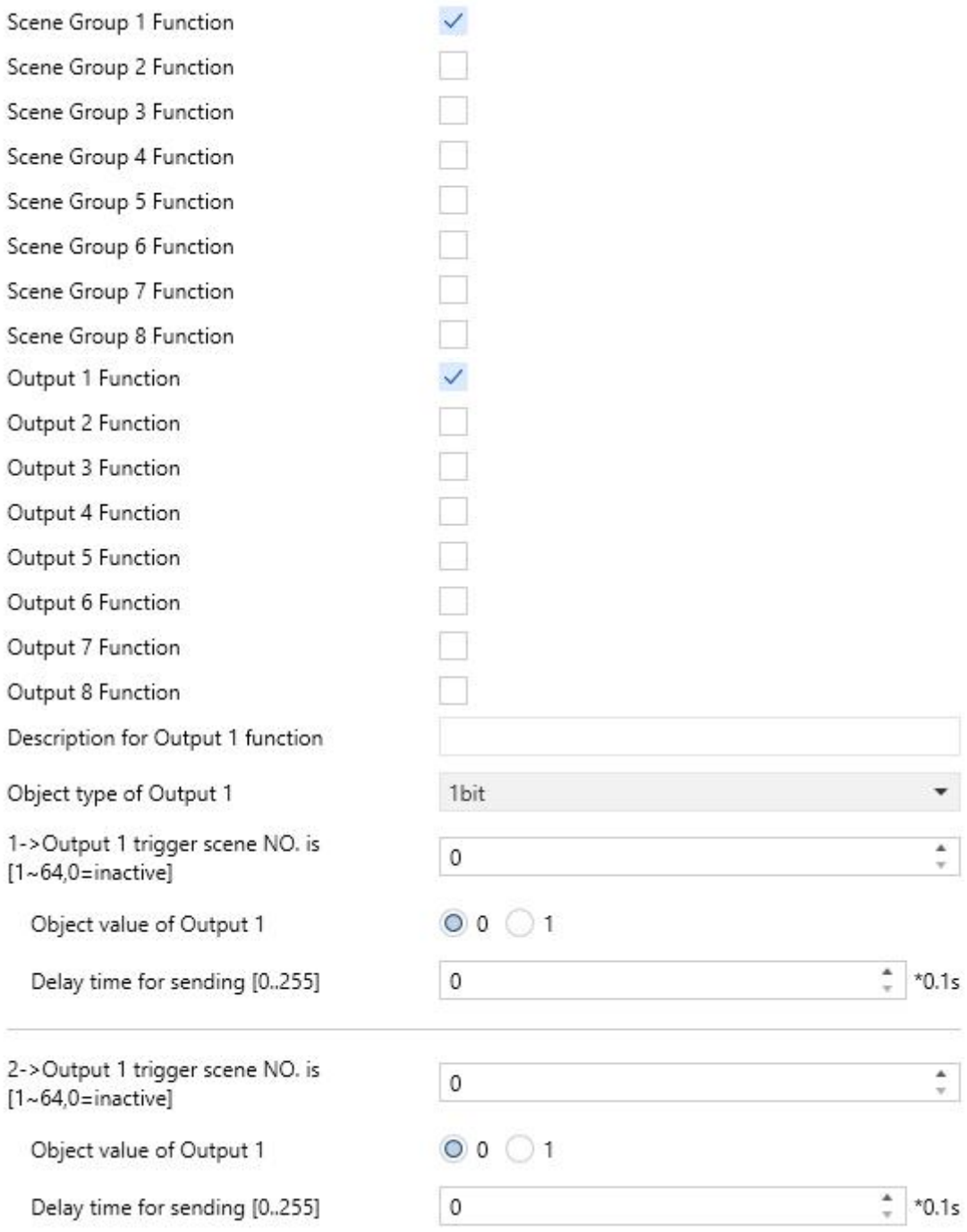


Fig.5.8 “Scene Group” parameter window

Parameter "Scene Group x Function"(x=1~8)

This parameter is for setting whether to enable scene group x function, up to 8 scene groups.

Parameter "Output y Function"(y=1~8)

This parameter is for setting whether to enable output y of scene group x, up to 8 output functions for each scene group.

As 8 group functions are the same, and 8 output functions of each group as well, the following description only about one output of a group.

Parameter "Description for Output y function"(y=1~8)

This parameter is for setting the name description for output y of group x, up to input 30 characters.

Parameter "Object type of Output y"(y=1~8)

This parameter is for setting the object type of output y of group x. Options:

1bit

1byte

2byte

RGB

RGBW

Parameter "Object datatype"

This parameter is for setting the datatype of 1byte or 2byte.

When the datatype is 1byte, options:

1byte unsigned value

HVAC mode

When the datatype is 2byte, options:

2byte unsigned value

Temperature value

Parameter "z->Output y trigger scene NO. is [1~64,0=inactive]"(z=1~8)

This parameter is for setting the triggered scene number of output y of group x. Up to 8 triggered scene of each output can be configured. Options:**0..64, 0=inactive**

——Parameter "Object value of Output y"

This parameter is for setting the output value, the range depends on the data type of output y.

When the datatype is 1bit, options: **0..1**

When the datatype is 1byte-1byte unsigned value, options: **0..255**

When the datatype is 1byte-HVAC mode, options:

Comfort mode

Standby mode

Economy mode

Frost/heat protection

When the datatype is 2byte-2byte unsigned value, options: **0..65535**

When the datatype is 2byte-Temperature value, options:

-5°C

-4°C

...

45°C

——Parameter "RGB value of Output y"

When the datatype is RGB or RGBW, this parameter is for setting the output value of RGB.

Options: **#000000..#FFFFFF**

——Parameter "White value of Output y"

When the datatype is RGBW, this parameter is for setting the output value of white.

Options: **0..255**

——Parameter "Delay time for sending [0···255]"

This parameter is for setting the delay time for sending the output value to the bus.

Options: **0..255 *0.1s**

Chapter 6 Description of Communication Object

The communication object is the medium to communicate other device on the bus, namely only the communication object can communicate with the bus.

NOTE: "C" in "Flag" column in the below table means enable the communication function of the object; "W" means value of object can be written from the bus; "R" means the value of the object can be read by the other devices; "T" means the object has the transmission function; "U" means the value of the object can be updated.

6.1. "General" Communication Object

Num	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
1	General	In operation			1 bit	C	R	-	T	-	-	switch	Low
4	General	Screen brightness			1 byte	C	-	W	-	-	-	percentage (0..100%)	Low
224	Extension function	Panel locking			1 bit	C	-	W	-	-	-	enable	Low
225	Extension function	Screen on/off			1 bit	C	-	W	-	-	-	switch	Low
226	Extension function	Night mode			1 bit	C	-	W	T	U	-	day/night	Low
228	Extension function	Dis/En Proximity function			1 bit	C	-	W	-	-	-	enable	Low
229	Extension function	Proximity input			1 bit	C	-	W	-	-	-	switch	Low
230	Extension function	Proximity output			1 bit	C	-	-	T	-	-	switch	Low
231	Extension function	Alarm acknowledge			1 bit	C	-	-	T	-	-	acknowledge	Low
232	Extension function	Alarm message			14 bytes	C	-	W	-	-	-	Character String (ISO 8859-1)	Low
233	Extension function	Alarm input			1 bit	C	-	W	T	U	-	alarm	Low
234	Extension function	Locking scene			1 byte	C	-	-	T	-	-	scene number	Low
235	Extension function	Screen off scene			1 byte	C	-	-	T	-	-	scene number	Low
236	Extension function	Orientation LED function			1 bit	C	-	W	-	-	-	enable	Low
237	Screensaver-Items 1	Temperature value			2 bytes	C	-	W	T	U	-	temperature (°C)	Low
238	Screensaver-Items 2	Humidity value			2 bytes	C	-	W	T	U	-	humidity (%)	Low
239	Screensaver-Items 3	1bit value			1 bit	C	-	W	T	U	-	switch	Low
240	Screensaver-Items 4	1byte percent value			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low

Fig.6.1 "General" communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
1	**In operation**	**General**	**1bit**	**C,R,T**	**1.001 switch**
The communication object is used to periodically send a telegram "1" to the bus to indicate this device in normal operation. The period is set by the parameter.					
4	**Screen brightness**	**General**	**1byte**	**C,W**	**5.001 percentage(0..100%)**
The communication object is used to modify the brightness of current mode. For example, if current is normal mode, it is only updated the brightness in normal mode, while night mode it is still determined to its parameter. Note: brightness in screen saver can not be modified via the object. Brightness range: 10~100%, when telegram is below 10%, output 10% directly.					

224	**Panel locking**	**Extension function**	**1bit**	**C,W**	**1.003 enable**
The communication object is used to lock the panel. After screen is locked, the operation on the panel will not be responded, but can still receive the bus telegram. Telegram value is defined by the parameter.					
225	**Screen on/off**	**Extension function**	**1bit**	**C,W**	**1.001 switch**
The communication object is used to receive the telegrams from bus to control screen on/off. Telegram value: 0——Off 1——On					
226	**Night mode**	**Extension function**	**1bit**	**C,W,T,U**	**1.024 day/night**
This communication object is used to send day/night status to the bus. Telegram value: 0 —— Day 1 —— Night Receive the telegram value via bus to switch. If device restart, the object sends status request telegram.					
228	**Dis/En Proximity function**	**Extension function**	**1bit**	**C,W**	**1.003 enable**
The communication object is used to enable/disable proximity function.					
229	**Proximity input**	**Extension function**	**1bit**	**C,W**	**1.001 switch**
The communication object is visible when proximity function is triggered by the object. Receive the telegram value from bus: 1——Trigger proximity function 0——No available					

230	**Proximity output**	**Extension function**	**1bit** **1byte** **2byte**	**C,T**	**1.001 switch** **5.010 counter pulses** **17.001 scene number** **5.001 percentage** **7.001 pulses**
The communication object is determined by the parameter “Object type of output value”. When proximity function is triggered, the object can send the parameter setting value(1byte/2byte) or ON(1bit) to the bus separately. The range of value is determined by the selected data type.					
231	**Alarm acknowledge**	**Extension function**	**1bit**	**C,T**	**1.016 acknowledge**
When the user acknowledges the warning message on the screen, the communication object sends an acknowledge telegram to the bus, and the telegram value is 1.					
232	**Alarm message**	**Extension function**	**14byte**	**C,W**	**16.001 character string (ISO 8859-1)**
The communication object is used to receive the warning message displayed on the screen from bus. When no value is received initially, the warning pop-up is displayed empty.					
233	**Alarm input**	**Extension function**	**1bit**	**C,W,T,U**	**1.005 alarm**
The communication object is used to receive the alarm signal from bus. Telegram value: 0 —— No alarm 1 —— Alarm If device restart, the object sends status request telegram.					
234	**Locking scene**	**Extension function**	**1byte**	**C,T**	**17.001 scene number**
The communication object is visible when panel locking function and external scene function are enabled. Used to recall external scene command.					
235	**Screen off scene**	**Extension function**	**1byte**	**C,T**	**17.001 scene number**
The communication object is visible when screen off and external scene function are enabled. Used to recall external scene command.					
236	**Orientation LED function**	**Extension function**	**1bit**	**C,W**	**1.003 enable**
The communication object is used to receive the telegram of orientation LED function from bus. Telegrams: 0 —— Disable 1 —— Enable					

237	**Temperature value** **Humidity value** **1bit value** **1byte percent value** **1byte unsigned value** **2byte unsigned value** **2byte float value** **4byte unsigned value** **4byte float value** **14byte value**	**Screensaver-Items 1**	**2byte** **2byte** **1bit** **1byte** **1byte** **2byte** **2byte** **4byte** **4byte** **14byte**	**C,W,T,U**	**9.001 temperature** **9.007 humidity** **1.001 switch** **5.001 percentage(0..100%)** **5.010 counter pulses** **7.001 pulses** **9.x float value** **12.001 counter pulses** **14.x float value** **16.001 character string (ISO 8859-1)**
The communication object is used to receive the corresponding value from the bus and update it to the display. Object datatype and telegram range are determined by the parameter setting.					

Table 6.1 “General” communication object table

6.2. “Internal sensor measurement” Communication Object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
5	Internal sensor	Temperature value			2 bytes	C	R	-	T	-	temperature (°C)	Low
6	Internal sensor	Low temperature alarm			1 bit	C	R	-	T	-	alarm	Low
7	Internal sensor	High temperature alarm			1 bit	C	R	-	T	-	alarm	Low
8	Internal sensor	Humidity value			2 bytes	C	R	-	T	-	humidity (%)	Low
9	Internal sensor	Low humidity alarm			1 bit	C	R	-	T	-	alarm	Low
10	Internal sensor	High humidity alarm			1 bit	C	R	-	T	-	alarm	Low

Fig.6.2 “Internal sensor measurement” communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
5	**Temperature value**	**Internal sensor**	**2byte**	**C,R,T**	**9.001 temperature**
The communication object is used for transmitting the temperature value detected by the built-in temperature sensor of the device to the bus. Range:-50~99.8℃					
6	**Low temperature alarm**	**Internal sensor**	**1bit**	**C,R,T**	**1.005 alarm**
The communication object is used to send the low temperature alarm signal to bus, when temperature lower than low threshold that defined by parameter.					
7	**High temperature alarm**	**Internal sensor**	**1bit**	**C,R,T**	**1.005 alarm**
The communication object is used to send the high temperature alarm signal to bus, when temperature higher than high threshold that defined by parameter.					
8	**Humidity value**	**Internal sensor**	**2byte**	**C,R,T**	**9.007 humidity**
The communication object is used to receive humidity measurements sent from the humidity sensor on the bus. Range:0~100%					
9	**Low humidity alarm**	**Internal sensor**	**1bit**	**C,R,T**	**1.005 alarm**
The communication object is used to send the low humidity alarm signal to bus, when humidity lower than low threshold that defined by parameter.					
10	**High humidity alarm**	**Internal sensor**	**1bit**	**C,R,T**	**1.005 alarm**
The communication object is used to send the high humidity alarm signal to bus, when humidity higher than high threshold that defined by parameter.					

Table 6.2 “Internal sensor measurement” communication object table

6.3. “Input” Communication Object

Num	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
219	Input 1 - ...	Actual temperature, Sensor			2 bytes	C	R	-	T	-	-	temperature (°C)	Low
220	Input 1 - ...	Temperature error report, Sensor			1 bit	C	R	-	T	-	-	alarm	Low

Temperature probe

Num	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
218	Input 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
219	Input 1 - ...	Switch			1 bit	C	R	W	T	U	-	switch	Low
219	Input 1 - ...	Close, Switch			1 bit	C	R	W	T	U	-	switch	Low
220	Input 1 - ...	Open, Switch			1 bit	C	R	W	T	U	-	switch	Low
219	Input 1 - ...	Short, Switch			1 bit	C	R	W	T	U	-	switch	Low
220	Input 1 - ...	Long, Switch			1 bit	C	R	W	T	U	-	switch	Low

BI: Switch sensor

Num	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
218	Input 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
219	Input 1 - ...	Scene			1 byte	C	-	-	T	-	-	scene control	Low
219	Input 1 - ...	Close, Scene			1 byte	C	-	-	T	-	-	scene control	Low
220	Input 1 - ...	Open, Scene			1 byte	C	-	-	T	-	-	scene control	Low
219	Input 1 - ...	Short, Scene			1 byte	C	-	-	T	-	-	scene control	Low
220	Input 1 - ...	Long, Scene			1 byte	C	-	-	T	-	-	scene control	Low

BI: Scene control

Num	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
218	Input 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
219	Input 1 - ...	String			14 bytes	C	-	-	T	-	-	Character String (ISO 8859-1)	Low
219	Input 1 - ...	Close, String			14 bytes	C	-	-	T	-	-	Character String (ISO 8859-1)	Low
220	Input 1 - ...	Open, String			14 bytes	C	-	-	T	-	-	Character String (ISO 8859-1)	Low
218	Input 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
219	Input 1 - ...	Short, String			14 bytes	C	-	-	T	-	-	Character String (ISO 8859-1)	Low
220	Input 1 - ...	Long, String			14 bytes	C	-	-	T	-	-	Character String (ISO 8859-1)	Low

BI: Send string

Fig.6.3 “Input” communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
219	**Actual temperature, Sensor**	**Input 1 - {{...}}**	**2byte**	**C,R,T**	**9.001 temperature**
The communication object is used for transmitting the temperature value detected by the external temperature sensor of the device to the bus. Range:-50~99.8℃ The name in parentheses changes with the parameter “Description (max 30 char.)”. If description is empty, display “Input x - ...” by default. The same below.					
220	**Temperature error report, Sensor**	**Input 1 - {{...}}**	**1bit**	**C,R,T**	**1.005 alarm**
The communication object is used to send the error report of the external temperature sensor, and the object value is defined according to the parameters.					
218	**Disable**	**Input 1 - {{...}}**	**1bit**	**C,W**	**1.003 enable**
The communication object is used to disable/enable the function of contact input, apply to binary input function, including switch, scene and send string.					
219	**Switch**	**Input 1 - {{...}}**	**1bit**	**C,R,W,T,U**	**1.001 switch**
219	**Close/Short, Switch**	**Input 1 - {{...}}**	**1bit**	**C,R,W,T,U**	**1.001 switch**

220	**Open/Long, Switch**	**Input 1 - {{...}}**	**1bit**	**C,R,W,T,U**	**1.001 switch**

These communication objects are used to trigger a switching operation. Use a common object or two separate objects is according to the parameter setting.

Only the object “Switch” is visible when use a common object. If use two separate objects, “Close/Open” is visible when there is no distinction for short/long operation; “Short/Long” is visible when there is distinction for short/long operation. Telegrams:

0——Off

1——On

219	**Scene**	**Input 1 - {{...}}**	**1byte**	**C,T**	**18.001 scene control**
219	**Close/Short, Scene**	**Input 1 - {{...}}**	**1byte**	**C,T**	**18.001 scene control**
220	**Open/Long, Scene**	**Input 1 - {{...}}**	**1byte**	**C,T**	**18.001 scene control**

These communication objects are used to send a 8 bit command to recall or storage scene. Use a common object or two separate objects is according to the parameter setting.

Only the object “Scene” is visible when use a common object. If use two separate objects, “Close/Open” is visible when there is no distinction for short/long operation; “Short/Long” is visible when there is distinction for short/long operation.

Detailed 8bit the meaning of the directive.

Set up a 8bit Orders for the (Binary code): FXNNNNNN

F: '0' recall scene; '1' for storage scene;

X : 0 ;

NNNNNN: Scene number(0... 63).

As follows:

Object message value	Description
0	Recall scene 1
1	Recall scene 2
2	Recall scene 3
…	…
63	Recall scene 64
128	Store scene 1
129	Store scene 2
130	Store scene 3
…	…
191	Store scene 64

Parameter setting Options are 1~64, actually communication object “Scene” corresponds to the telegram received is 0~63 . Such as parameter settings is the scene 1, communication object “Scene” sends the scene for 0.

219	**String**	**Input 1 - {{...}}**	**14byte**	**C,T**	**16.001 character string (ISO 8859-1)**
219	**Close/Short, String**	**Input 1 - {{...}}**	**14byte**	**C,T**	**16.001 character string (ISO 8859-1)**
220	**Open/Long, String**	**Input 1 - {{...}}**	**14byte**	**C,T**	**16.001 character string (ISO 8859-1)**

These communication objects are used to send the sting to bus. Use a common object or two separate objects is according to the parameter setting.

Only the object “String” is visible when use a common object. If use two separate objects, “Close/Open” is visible when there is no distinction for short/long operation; “Short/Long” is visible when there is distinction for short/long operation.

Table 6.3 “Input” communication object table

6.4. “Room temperature controller” Communication object

Num	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
148	RTC 1 - ...	Power on/off			1 bit	C	R	W	-	-	-	switch	Low
149	RTC 1 - ...	External temperature sensor			2 bytes	C	-	W	T	U	-	temperature (°C)	Low
150	RTC 1 - ...	Base setpoint adjustment			2 bytes	C	-	W	-	-	-	temperature (°C)	Low
151	RTC 1 - ...	Setpoint offset			1 bit	C	-	W	-	-	-	step	Low
152	RTC 1 - ...	Float offset value			2 bytes	C	-	W	-	-	-	temperature difference (K)	Low
153	RTC 1 - ...	Setpoint offset reset			1 bit	C	-	W	-	-	-	reset	Low
154	RTC 1 - ...	Heating/Cooling mode			1 bit	C	-	W	-	-	-	cooling/heating	Low
155	RTC 1 - ...	Operation mode			1 byte	C	-	W	-	-	-	HVAC mode	Low
156	RTC 1 - ...	Comfort mode			1 bit	C	-	W	-	-	-	enable	Low
157	RTC 1 - ...	Economy mode			1 bit	C	-	W	-	-	-	enable	Low
158	RTC 1 - ...	Frost/Heat protection mode			1 bit	C	-	W	-	-	-	enable	Low
159	RTC 1 - ...	Standby mode			1 bit	C	-	W	-	-	-	enable	Low
160	RTC 1 - ...	Extended comfort mode			1 bit	C	-	W	-	-	-	acknowledge	Low
161	RTC 1 - ...	Fan automatic operation			1 bit	C	-	W	-	-	-	enable	Low
162	RTC 1 - ...	Window contact			1 bit	C	-	W	T	U	-	window/door	Low
163	RTC 1 - ...	Presence detector			1 bit	C	-	W	T	U	-	occupancy	Low
164	RTC 1 - ...	Actual temperature, status			2 bytes	C	R	-	T	-	-	temperature (°C)	Low
165	RTC 1 - ...	Base temperature setpoint, status			2 bytes	C	R	-	T	-	-	temperature (°C)	Low
166	RTC 1 - ...	Setpoint offset, status			2 bytes	C	R	-	T	-	-	temperature difference (K)	Low
167	RTC 1 - ...	Current temperature setpoint, status			2 bytes	C	R	-	T	-	-	temperature (°C)	Low
168	RTC 1 - ...	Heating/Cooling mode, status			1 bit	C	R	-	T	-	-	cooling/heating	Low
169	RTC 1 - ...	Operation mode, status			1 byte	C	R	-	T	-	-	HVAC mode	Low
170	RTC 1 - ...	Comfort mode, status			1 bit	C	R	-	T	-	-	enable	Low
171	RTC 1 - ...	Economy mode, status			1 bit	C	R	-	T	-	-	enable	Low
172	RTC 1 - ...	Frost/Heat protection mode, status			1 bit	C	R	-	T	-	-	enable	Low
173	RTC 1 - ...	Standby mode, status			1 bit	C	R	-	T	-	-	enable	Low
174	RTC 1 - ...	Heating control value			1 bit	C	R	-	T	-	-	switch	Low
175	RTC 1 - ...	Cooling control value			1 bit	C	R	-	T	-	-	switch	Low
176	RTC 1 - ...	Fan speed			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low
177	RTC 1 - ...	Fan speed low			1 bit	C	-	W	T	U	-	switch	Low
178	RTC 1 - ...	Fan speed medium			1 bit	C	-	W	T	U	-	switch	Low
179	RTC 1 - ...	Fan speed high			1 bit	C	-	W	T	U	-	switch	Low
180	RTC 1 - ...	Fan speed off			1 bit	C	-	W	T	U	-	switch	Low
181	RTC 1 - ...	Additional heating control value			1 bit	C	R	-	T	-	-	switch	Low
182	RTC 1 - ...	Additional cooling control value			1 bit	C	R	-	T	-	-	switch	Low

Fig.6.4 “Room temperature controller” communication object

NO.	Object Function	Name	Data Type	Flag	DPT
148	**Power on/off**	**RTC 1 - {{...}}**	**1bit**	**C,W,R**	**1.001 switch**
The communication object is used to receive the telegram from the bus to control RTC power on/off. Telegrams: 1——On 0——Off					
149	**External temperature sensor**	**RTC 1 - {{...}}**	**2byte**	**C,W,T,U**	**9.001 temperature**
The communication object is used to receive the temperature value detected by the temperature sensor of the device form the bus. Range:-50~99.8℃					
150	**Current setpoint adjustment** **Base setpoint adjustment**	**RTC 1 - {{...}}**	**2byte**	**C,W**	**9.001 temperature**

"Current setpoint adjustment" is visible when operation mode is not enabled, and under absolute adjustment. Used to modify the base value of the set temperature; and to modify set temperature value of current room operation mode when absolute adjustment.

"Base setpoint adjustment" is visible only when relative adjustment, used to modify the base value of the set temperature, that is, the temperature setting value of the comfort mode, and the setting temperature of the standby mode and the economy mode changes according to the relative change.

151	**Setpoint offset**	**RTC 1 - {{...}}**	**1bit**	**C,W**	**1.007 step**

The communication object is visible only when absolute adjustment, and offset function enabled. Used to adjust the offset to adjust setpoint temperature indirectly. The step value set according to the parameter.

Telegrams:

1——Increase the offset

0——Decrease the offset

152	**Float offset value**	**RTC 1 - {{...}}**	**2byte**	**C,W**	**9.002 temperature difference**

The communication object is visible only when absolute adjustment, and offset function enabled. Used to modify the accumulated offset via 2 byte float value.

153	**Setpoint offset reset**	**RTC 1 - {{...}}**	**1bit**	**C,W**	**1.015 reset**

The communication object is visible only when absolute adjustment, and offset function enabled. Reset offset value when telegram is 1.

154	**Heating/Cooling mode**	**RTC 1 - {{...}}**	**1bit**	**C,W**	**1.100 cooling/heating**

The communication object is used for changing the heating and cooling via the bus. Telegrams:

1——Heating

0——Cooling

155	**Operation mode**	**RTC 1 - {{...}}**	**1byte**	**C,W**	**20.102 HVAC mode**
156	**Comfort mode**	**RTC 1 - {{...}}**	**1bit**	**C,W**	**1.003 enable**
157	**Economy mode**	**RTC 1 - {{...}}**	**1bit**	**C,W**	**1.003 enable**
158	**Frost/Heat protection mode**	**RTC 1 - {{...}}**	**1bit**	**C,W**	**1.003 enable**
159	**Standby mode**	**RTC 1 - {{...}}**	**1bit**	**C,W**	**1.003 enable**

These communication objects are used to control the RTC operation mode via the bus.

When 1 byte: object 155 is visible, telegrams: 1-comfort, 2-standby, 3-economy, 4-protection, other reserved.

When 1bit:

Object 156—— Comfort mode

Object 157—— Economy mode

Object 158—— Protection mode

Object 159—— Standby mode

When the object receives the telegram “1”, the corresponding mode is activated. When 1 bit standby object is not enable, and the telegrams of comfort, economy, protection mode are 0, is standby mode. When 1 bit standby object is enable, standby object receives “1” activates standby mode, 0 is ignored.

160	**Extended comfort mode**	**RTC 1 - {{...}}**	**1bit**	**C,W**	**1.016 acknowledge**

The communication object is used for triggering time to extended comfort mode. Telegrams:

1——Activate comfort mode

0——No sense

Activate comfort mode when the object receives telegram 1. If receive again telegram 1 during delay time, time will be reset again. And return the previous operation mode from comfort mode once finish timing. If there is a new operation mode during delay time, exit the comfort mode.

If change the operation mode, exit the timing, but switch the heating/cooling will not.

161	**Fan automatic operation**	**RTC 1 - {{...}}**	**1bit**	**C,W**	**1.003 enable**

The communication object is used to activate the fan automatic operation via the bus. Telegram:

1——Auto

0——Exit auto

162	**Window contact**	**RTC 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.019 Window/door**

The communication object is used to receive the switch status of window contact.

Telegrams:

1——Open window

0——Close window

163	**Presence detector**	**RTC 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.018 occupancy**

The communication object is used to receive the room occupancy status from presence detector. Telegrams:

1——Occupied

0——Unoccupied

164	**Actual temperature, status**	**RTC 1 - {{...}}**	**2byte**	**C,R,T**	**9.001 temperature**

The communication object is visible when temperature reference of RTC function is combination of internal and external sensor. Used to send the actual temperature after the combination to the bus.

165	**Base temperature setpoint, status**	**RTC 1 - {{...}}**	**2byte**	**C,R,T**	**9.001 temperature**

The communication object is visible only when relative adjustment. Used to send the current base set temperature to the bus.

Current base set temperature value = parameter set value (or object 19 base value)+accumulated offset value

166	**Setpoint offset, status**	**RTC 1 - {{...}}**	**2byte**	**C,R,T**	**9.002 temperature difference**

The communication object is visible only when relative adjustment. Used to send the accumulated offset value of base set temperature to the bus.

167	**Current temperature setpoint, status**	**RTC 1 - {{...}}**	**2byte**	**C,R,T**	**9.001 temperature**

The communication object is used to send current set temperature to the bus.

168	**Heating/Cooling mode, status**	**RTC 1 - {{...}}**	**1bit**	**C,R,T**	**1.100 cooling/heating**

The communication object is used to feedback the telegram of changing cooling and heating function to the bus.

169	**Operation mode, status**	**RTC 1 - {{...}}**	**1byte**	**C,R,T**	**20.102 HVAC mode**
170	**Comfort mode, status**	**RTC 1 - {{...}}**	**1bit**	**C,R,T**	**1.003 enable**
171	**Economy mode, status**	**RTC 1 - {{...}}**	**1bit**	**C,R,T**	**1.003 enable**
172	**Frost/Heat protection mode, status**	**RTC 1 - {{...}}**	**1bit**	**C,R,T**	**1.003 enable**

173	**Standby mode, status**	**RTC 1 - {{...}}**	**1bit**	**C,R,T**	**1.003 enable**

These communication objects are used to send RTC operation mode status to the bus.

When 1 byte: object 169 is visible, telegrams: 1-comfort, 2-standby, 3-economy, 4-protection, other reserved.

When 1bit:

Object 170—— Comfort mode

Object 171—— Economy mode

Object 172—— Protection mode

Object 173—— Standby mode

When a mode is activated, the corresponding object only sends telegram “1”. When 1 bit standby object is not enable, activate standby mode when comfort, economy, protection objects send telegram 0 together. When 1 bit standby object is enable, activate standby mode only when standby object send 1.

174	**Heating/Cooling control value** **Heating control value**	**RTC 1 - {{...}}**	**1bit** **1byte**	**C,R,T**	**1.001 Switch** **5.001 percentage**
175	**Cooling control value**	**RTC 1 - {{...}}**	**1bit** **1byte**	**C,R,T**	**1.001 Switch** **5.001 percentage**

The communication object is used to send control value of heating or cooling function to the bus. Object datatype is according to parameter setting.

176	**Fan speed**	**RTC 1 - {{...}}**	**1byte**	**C,W,T,U**	**5.001 percentage** **5.100 fan stage**
177	**Fan speed low**	**RTC 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.001 switch**
178	**Fan speed medium**	**RTC 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.001 switch**
179	**Fan speed high**	**RTC 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.001 switch**
180	**Fan speed off**	**RTC 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.001 switch**

These communication objects are used to send control telegrams of the fan speed to the bus.

1bit object is visible according to the parameter setting :

Object 177——Fan speed low

Object 178——Fan speed medium

Object 179——Fan speed high

Object 180——Fan speed off

Only the corresponding object sends telegram “1” when a certain fan speed is selected. When 1bit-off object is not enable, all objects send telegrams “0” when fan speed off is selected (The situation apply to connect with fan actuator of GVS);

When 1bit-off object is enable, only 1bit-off object send telegram “1” (The situation apply to connect with fan actuator of other manufacturers).

1byte: the corresponding telegram value of each fan speed is defined by the parameter. Activate the corresponding fan speed, and object 45 sends the corresponding telegram value of the fan speed to the bus.

273	**Additional heating control value** **Additional heating/cooling control value**	**RTC 1 - {{...}}**	**1bit** **1byte**	**C,R,T**	**1.001 switch** **5.001 percentage**
274	**Additional cooling control value**	**RTC 1 - {{...}}**	**1bit** **1byte**	**C,R,T**	**1.001 switch** **5.001 percentage**

These communication objects are used to send additional control value of heating or cooling function to the bus. Object datatype is according to parameter setting.

If 1bit is selected, when open valve, send telegram 1 to the bus, while close valve, send telegram 0;

If 1byte is selected, when open valve, send 100% to the bus, while close valve, send 0%.

Table 6.4 “Room temperature controller” communication object table

6.5. “Button” Communication Object

6.5.1 Individual/Rocker button

The objects of individual button are similar to the rocker button, so the repeat objects as follow are explained by individual button.

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Switch			1 bit	C	-	-	T	-	-	switch	Low
258	Button 1 - ...	Flashing function			1 bit	C	-	W	-	U	-	enable	Low
260	Button 1 - ...	Switch status			1 bit	C	-	W	T	U	-	switch	Low
255	Button 1 - ...	Press, Switch			1 bit	C	-	-	T	-	-	switch	Low
256	Button 1 - ...	Release, Switch			1 bit	C	-	-	T	-	-	switch	Low
260	Button 1 - ...	Press, Switch status			1 bit	C	-	W	T	U	-	switch	Low
261	Button 1 - ...	Release, Switch status			1 bit	C	-	W	T	U	-	switch	Low
255	Button 1 - ...	Short, Switch			1 bit	C	-	-	T	-	-	switch	Low
256	Button 1 - ...	Long, Switch			1 bit	C	-	-	T	-	-	switch	Low
260	Button 1 - ...	Short, Switch status			1 bit	C	-	W	T	U	-	switch	Low
261	Button 1 - ...	Long, Switch status			1 bit	C	-	W	T	U	-	switch	Low
265	Button 1 - ...	Status indication			1 bit	C	-	W	T	U	-	switch	Low

Switch

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Short, Switch			1 bit	C	-	-	T	-	-	switch	Low
256	Button 1 - ...	Long, Dimming			4 bit	C	-	W	T	-	-	dimming control	Low
258	Button 1 - ...	Flashing function			1 bit	C	-	W	-	U	-	enable	Low
260	Button 1 - ...	Switch status			1 bit	C	-	W	T	U	-	switch	Low
265	Button 1 - ...	Status indication			1 bit	C	-	W	T	U	-	switch	Low

Dimming

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Switch			1 bit	C	-	-	T	-	-	switch	Low
256	Button 1 - ...	RGB dimming value			3 bytes	C	-	-	T	-	-	RGB value 3x(0..255)	Low
256	Button 1 - ...	Red dimming value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
257	Button 1 - ...	Green dimming value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
258	Button 1 - ...	Blue dimming value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
260	Button 1 - ...	Switch status			1 bit	C	-	W	T	U	-	switch	Low
265	Button 1 - ...	Status indication			1 bit	C	-	W	T	U	-	switch	Low

RGB switching/send value

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Switch			1 bit	C	-	-	T	-	-	switch	Low
256	Button 1 - ...	RGBW dimming value			6 bytes	C	-	-	T	-	-	RGBW value 4x(0..100%)	Low
256	Button 1 - ...	Red dimming value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
257	Button 1 - ...	Green dimming value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
258	Button 1 - ...	Blue dimming value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
259	Button 1 - ...	White dimming value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
260	Button 1 - ...	Switch status			1 bit	C	-	W	T	U	-	switch	Low
265	Button 1 - ...	Status indication			1 bit	C	-	W	T	U	-	switch	Low

RGBW switching/send value

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Switch			1 bit	C	-	-	T	-	-	switch	Low
256	Button 1 - ...	Brightness value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
257	Button 1 - ...	Colour temperature value			2 bytes	C	-	-	T	-	-	absolute colour temperature...	Low
260	Button 1 - ...	Switch status			1 bit	C	-	W	T	U	-	switch	Low
265	Button 1 - ...	Status indication			1 bit	C	-	W	T	U	-	switch	Low

Colour temperature switching/send value

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Short, 1bit value			1 bit	C	-	-	T	-	-	switch	Low
256	Button 1 - ...	Long, 1bit value			1 bit	C	-	-	T	-	-	switch	Low
265	Button 1 - ...	Status indication			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low

Value sender

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Scene			1 byte	C	-	-	T	-	-	scene control	Low
265	Button 1 - ...	Status indication			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low
255	Button 1 - ...	Short, Scene			1 byte	C	-	-	T	-	-	scene control	Low
256	Button 1 - ...	Long, Scene			1 byte	C	-	-	T	-	-	scene control	Low

Scene control

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Up/Down, Blind			1 bit	C	-	W	T	-	-	up/down	Low
256	Button 1 - ...	Stop/Adjust, Blind			1 bit	C	-	W	T	-	-	step	Low
258	Button 1 - ...	Flashing function			1 bit	C	-	W	-	U	-	enable	Low
265	Button 1 - ...	Status indication			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low

Blind

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Register value			1 byte	C	-	W	T	U	-	counter pulses (0..255)	Low
265	Button 1 - ...	Status indication			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low

Shift register

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Object1-On/Off			1 bit	C	-	W	T	-	-	switch	Low
256	Button 1 - ...	Object2-On/Off			1 bit	C	-	W	T	-	-	switch	Low
257	Button 1 - ...	Object3-On/Off			1 bit	C	-	W	T	-	-	switch	Low
258	Button 1 - ...	Object4-On/Off			1 bit	C	-	W	T	-	-	switch	Low
265	Button 1 - ...	Status indication			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low

Multiple operation

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Short, Delay mode			1 bit	C	-	-	T	-	-	switch	Low
256	Button 1 - ...	Long, Delay mode			1 bit	C	-	-	T	-	-	switch	Low
265	Button 1 - ...	Status indication			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low

Delay mode

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Switch			1 bit	C	-	-	T	-	-	switch	Low
256	Button 1 - ...	RGB dimming value			3 bytes	C	-	-	T	-	-	RGB value 3x(0..255)	Low
260	Button 1 - ...	Switch status			1 bit	C	-	W	T	U	-	switch	Low
261	Button 1 - ...	RGB brightness, status			3 bytes	C	-	W	T	U	-	RGB value 3x(0..255)	Low
265	Button 1 - ...	Status indication			1 bit	C	-	W	T	U	-	switch	Low

RGB dimming

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Switch			1 bit	C	-	-	T	-	-	switch	Low
256	Button 1 - ...	RGBW dimming value			6 bytes	C	-	-	T	-	-	RGBW value 4x(0..100%)	Low
256	Button 1 - ...	Red dimming value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
257	Button 1 - ...	Green dimming value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
258	Button 1 - ...	Blue dimming value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
259	Button 1 - ...	White dimming value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
260	Button 1 - ...	Switch status			1 bit	C	-	W	T	U	-	switch	Low
261	Button 1 - ...	RGBW brightness, status			6 bytes	C	-	W	T	U	-	RGBW value 4x(0..100%)	Low
261	Button 1 - ...	Red brightness, status			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low
262	Button 1 - ...	Green brightness, status			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low
263	Button 1 - ...	Blue brightness, status			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low
264	Button 1 - ...	White brightness, status			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low
265	Button 1 - ...	Status indication			1 bit	C	-	W	T	U	-	switch	Low

RGBW dimming

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Switch			1 bit	C	-	-	T	-	-	switch	Low
256	Button 1 - ...	Brightness value			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
257	Button 1 - ...	Relative percentage colour temperature			1 byte	C	-	-	T	-	-	percentage (0..100%)	Low
260	Button 1 - ...	Switch status			1 bit	C	-	W	T	U	-	switch	Low
261	Button 1 - ...	Brightness value, status			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low
262	Button 1 - ...	Relative percentage colour temperature, status			1 byte	C	-	W	T	U	-	percentage (0..100%)	Low
265	Button 1 - ...	Status indication			1 bit	C	-	W	T	U	-	switch	Low
257	Button 1 - ...	Absolute colour temperature			2 bytes	C	-	-	T	-	-	absolute colour temperature...	Low
262	Button 1 - ...	Absolute colour temperature, status			2 bytes	C	-	W	T	U	-	absolute colour temperature...	Low

Colour temperature dimming

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Button 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Button 1 - ...	Switch			1 bit	C	-	-	T	-	-	switch	Low
257	Button 1 - ...	Absolute colour temperature			2 bytes	C	-	-	T	-	-	absolute colour temperature...	Low
260	Button 1 - ...	Switch status			1 bit	C	-	W	T	U	-	switch	Low
262	Button 1 - ...	Absolute colour temperature, status			2 bytes	C	-	W	T	U	-	absolute colour temperature...	Low

Colour temperature adjustment

Nun	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	I	Data Type	Priority
254	Rocker 1 - ...	Disable			1 bit	C	-	W	-	-	-	enable	Low
255	Rocker 1 - ...	Current setpoint adjustment			2 bytes	C	-	-	T	-	-	temperature (°C)	Low
260	Rocker 1 - ...	Current temperature setpoint, status			2 bytes	C	-	W	T	U	-	temperature (°C)	Low
265	Rocker 1 - ...	Status indication			1 bit	C	-	W	T	U	-	switch	Low
255	Rocker 1 - ...	Setpoint offset			1 bit	C	-	-	T	-	-	step	Low
255	Rocker 1 - ...	Offset setpoint adjustment			2 bytes	C	-	-	T	-	-	temperature difference (K)	Low
260	Rocker 1 - ...	Current Setpoint offset, status			2 bytes	C	-	W	T	U	-	temperature difference (K)	Low

Setpoint adjustment

Fig.6.5.1 “Individual/Rocker button” communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
254	**Disable**	**Button 1 - {{...}}**	**1bit**	**C,W**	**1.003 enable**
This communication object is used to the following functions. Used to disable/enable the function of contact input. The name in parentheses changes with the parameter “Description”. If description is empty, display “Button 1 - ....” by default. The same below.					
255	**Switch**	**Button 1 - {{...}}**	**1bit**	**C,T**	**1.001 switch**
255	**Press/Short, Switch**	**Button 1 - {{...}}**	**1bit**	**C,T**	**1.001 switch**
256	**Release/Long, Switch**	**Button 1 - {{...}}**	**1bit**	**C,T**	**1.001 switch**
260	**Switch status**	**Button 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.001 switch**
260	**Press/Short, switch status**	**Button 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.001 switch**
261	**Release/Long, switch status**	**Button 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.001 switch**
These communication objects are used to trigger a switching operation. Use a common object or two separate objects is according to the parameter setting when press/release and long/short operation.					

Only “Switch” and “Switch status” are visible when use a common object. If use two separate objects, “Press/Release” is visible when there is no distinction for short/long operation; “Short/Long” is visible when there is distinction for short/long operation. Telegrams:

0——Off

1——On

Obj.255/Obj.256: used to send telegrams of switch control to the bus.

Obj.260/Obj.261: used to receive the feedback of switch status from the bus. If device restart, the object sends status request telegram.

255	**Short, Switch**	**Button 1 - {{...}}**	**1bit**	**C,T**	**1.001 switch**
256	**Long, Dimming**	**Button 1 - {{...}}**	**4bit**	**C,W,T**	**3.007 dimming**
260	**Switch status**	**Button 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.001 switch**

These communication objects are used to switch/dimming operation, with distinction for long/short operation.

Obj.255, Obj.256: as the same as above.

Obj.256: used to trigger a relative dimming operation.

Dimming down when telegram of object “Long, Dimming” is 1~7, and the larger this range the adjust step is smaller. That is, the maximum step of dimming down when is 1, and the minimum step of dimming down when is 7, stop dimming when is 0;

Dimming up when telegram is 9~15, and the larger this range the adjust step is smaller. That is, the maximum step of dimming up when is 9, and the minimum step of dimming up when is 15, stop dimming when is 8.

255	**Up/Down, Blind**	**Button 1 - {{...}}**	**1bit**	**C,W,T**	**1.008 up/down**
256	**Stop/Adjust, Blind**	**Button 1 - {{...}}**	**1bit**	**C,W,T**	**1.007 step**

These two communication objects are used to control the blind.

Obj.255: used to control blind up/down. Telegrams:

0——Move up

1——Move up

Obj.256: used to stop curtain movement. Telegram:

1——Stop

255	Short, 1bit value Short, 2bit value Short, 4bit value Short, 1byte value Short, 2byte value Short, 2byte float value Short, 4byte value Short, 4byte float value	Button 1 - {{...}}	1bit 2bit 4bit 1byte 2byte 2byte 4byte 4byte	C,T	1.001 switch 2.001 switch control 3.007 dimming 5.010 counter pulses 7.001 pulses 9.x float value 12.001 counter pulses 14.x float value
256	Long, 1bit value Long, 2bit value Long, 4bit value Long, 1byte value Long, 2byte value Long, 2byte float value Long, 4byte value Long, 4byte float value	Button 1 - {{...}}	1bit 2bit 4bit 1byte 2byte 2byte 4byte 4byte	C,T	1.001 switch 2.001 switch control 3.007 dimming 5.010 counter pulses 7.001 pulses 9.x float value 12.001 counter pulses 14.x float value

These communication objects are used to value sender. Object type and value range are determined by the parameter setting datatype.

Obj.255: used to send telegram to the bus when short operation.

Obj.256: used to send telegram to the bus when long operation.

255	Scene	Button 1 - {{...}}	1byte	C,T	18.001 scene control
255	Short, Scene	Button 1 - {{...}}	1byte	C,T	18.001 scene control
256	Long, Scene	Button 1 - {{...}}	1byte	C,T	18.001 scene control

These communication objects are used to scene control. Use a common object or two separate objects is according to the parameter setting when long/short operation.

Only the object “Scene” is visible when use a common object. If use two separate objects, “Short/Long” is visible when there is distinction for short/long operation. Telegrams:

Detailed 8bit the meaning of the directive.

Set up a 8bit Orders for the (Binary code): FXNNNNNN

F: '0' recall scene; '1' for storage scene;

X : 0 ;

NNNNNN: Scene number(0... 63).

As follows:

Object message value	Description
0 1 2 … 63	Recall scene 1 Recall scene 2 Recall scene 3 ... Recall scene 64
128 129 130 … 191	Store scene 1 Store scene 2 Store scene 3 ... Store scene 64

Parameter setting Options are 1~64, actually communication object “Scene” corresponds to the telegram received is 0~63 . Such as parameter settings is the scene 1, communication object “Scene” sends the scene for 0.

255	**Register value**	**Button 1 - {{...}}**	**1byte**	**C,W,T,U**	**5.010 counter pulses** **17.001 scene number** **20.102 HVAC mode** **5.001 percentage(0..100%)**

This communication object is used to shift register. To send the value to the bus, object type is determined by the parameter setting datatype.

255	**Switch**	**Button 1 - {{...}}**	**1bit**	**C,T**	**1.001 switch**
256	**RGB dimming value**	**Button 1 - {{...}}**	**3byte**	**C,T**	**232.600 RGB value 3x(0..255)**
260	**Switch status**	**Button 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.001 switch**
261	**RGB brightness, status**	**Button 1 - {{...}}**	**3byte**	**C,W,T,U**	**232.600 RGB value 3x(0..255)**

These communication objects are used for RGB switching/send value, and RGB dimming.

Obj.255, Obj.260: as the same as above.

When RGB object type is selected 1x3byte, Obj.256 and Obj.261 are visible:

Obj.256: used to send brightness value of RGB three-colour lamp to the bus.

Obj.261: only visible when dimming function, used to receive brightness telegram of RGB three-colour lamp from bus.

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

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

R: red dimming value; G: green dimming value; B: blue dimming value.

255	**Switch**	**Button 1 - {{...}}**	**1bit**	**C,T**	**1.001 switch**
256	**RGBW dimming value**	**Button 1 - {{...}}**	**6byte**	**C,T**	**251.600 DPT_Colour_RGBW**
260	**Switch status**	**Button 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.001 switch**
261	**RGBW brightness, status**	**Button 1 - {{...}}**	**6byte**	**C,W,T,U**	**251.600 DPT_Colour_RGBW**

These communication objects are used for RGBW switching/send value, and RGBW dimming.

Obj.255, Obj.260: as the same as above.

When RGBW object type is selected 1x6byte, Obj.256 and Obj.261 are visible:

Obj.256: used to send brightness value of RGBW four-colour lamp to the bus.

Obj.261: only visible when dimming function, used to receive brightness telegram of RGBW four-colour 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}	5	4	3	2	1_{LSB}
R	G	B	W	Reserve	r r r r mR mG mB mW
UUUUUUUU	UUUUUUUU	UUUUUUUU	UUUUUUUU	00000000	0000BBBB

R: red dimming value; G: green dimming value; B: blue dimming value; W: white dimming value;

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.

256	**Red dimming value**	**Button 1 - {{...}}**	**1byte**	**C,T**	**5.001 percentage(0..100%)**
257	**Green dimming value**	**Button 1 - {{...}}**	**1byte**	**C,T**	**5.001 percentage(0..100%)**
258	**Blue dimming value**	**Button 1 - {{...}}**	**1byte**	**C,T**	**5.001 percentage(0..100%)**
259	**White dimming value**	**Button 1 - {{...}}**	**1byte**	**C,T**	**5.001 percentage(0..100%)**
261	**Red dimming value, status**	**Button 1 - {{...}}**	**1byte**	**C,W,T,U**	**5.001 percentage(0..100%)**

262	**Green dimming value, status**	**Button 1 - {{...}}**	**1byte**	**C,W,T,U**	**5.001 percentage(0..100%)**
263	**Blue dimming value, status**	**Button 1 - {{...}}**	**1byte**	**C,W,T,U**	**5.001 percentage(0..100%)**
264	**White brightness, status**	**Button 1 - {{...}}**	**1byte**	**C,W,T,U**	**5.001 percentage(0..100%)**

These communication objects are used for RGB and RGBW switching/send value, and dimming function.

Obj.256~Obj.258 and Obj.261~Obj.263 are visible when 3x1byte for the RGB object type or 4x1byte for the RGBW object type, Obj.259 and Obj.264 are only visible when RGBW is selected 4x1byte.Telegrams: 0...100%

Obj.256: used to send brightness value of the control R (red) channel to the bus.

Obj.257: used to send brightness value of the control G (green) channel to the bus.

Obj.258: used to send brightness value of the control B (blue) channel to the bus.

Obj.259: used to send brightness value of the control W (white) channel to the bus.

Obj.261: used to receive brightness status of the control R (red) channel from bus.

Obj.262: used to receive brightness status of the control G (green) channel from bus.

Obj.263: used to receive brightness status of the control B (blue) channel from bus.

Obj.264: used to receive brightness status of the control W (white) channel from bus.

255	**Switch**	**Button 1 - {{...}}**	**1bit**	**C,T**	**1.001 switch**
256	**Brightness value**	**Button 1 - {{...}}**	**1byte**	**C,T**	**5.001 percentage(0..100%)**
257	**Colour temperature value** **Relative percentage colour temperature** **Absolute colour temperature**	**Button 1 - {{...}}**	**2byte**	**C,T**	**5.001 percentage(0..100%)** **7.600 absolute colour temperature**
260	**Switch status**	**Button 1 - {{...}}**	**1bit**	**C,W,T,U**	**1.001 switch**
261	**Brightness value, status**	**Button 1 - {{...}}**	**1byte**	**C,W,T,U**	**5.001 percentage(0..100%)**
262	**Relative percentage colour temperature, status** **Absolute colour temperature, status**	**Button 1 - {{...}}**	**1byte** **2byte**	**C,W,T,U**	**5.001 percentage(0..100%)** **7.600 absolute colour temperature**

These communication objects are used for colour temperature switching/send value, dimming function and adjustment function.

Obj.255, Obj.260: as the same as above.

Obj.256: used to send the dimming telegram of the colour temperature to the bus, that is, sending the brightness value. Telegrams: 0…100%

Obj.257: only display “Colour temperature value” when switching/send value; display “Relative percentage colour temperature” or “Absolute colour temperature” according to object type when dimming function. Only “Absolute colour temperature” when adjustment function. Used to send the control telegram of the colour temperature to the bus.

Telegrams: 1byte is 0..100% and 2byte is 2000...7000 K

Obj.261: only visible when dimming function, used to receive status of brightness value from bus.

Obj.262: when dimming function, display “Relative percentage colour temperature, status” or “Absolute colour temperature” according to object type; while adjustment function, only display “Absolute colour temperature, status”. Used to receive colour temperature status from bus.

255	**Object1-On/Off** **Object1-Up/Down** **Object1-SceneControl** **Object1-Percentage** **Object1-Unsigned value** **Object1-String**	**Button 1 - {{...}}**	**1bit** **1bit** **1byte** **1byte** **1byte** **14byte**	**C,W,T** **C,W,T** **C,T** **C,T** **C,T** **C,T**	**1.001 switch** **1.008 up/down** **18.001 scene control** **5.001 percentage(0..100%)** **5.010 counter pulses** **16.001 character string (ISO 8859-1)**

These communication objects are used to multiple operation, up to activate 4 objects at the same time, and operation once can send the value of 4 different datatype objects to the bus via these objects. Range of values that can be sent are determined by the datatype, and the datatype is determined by the parameter setting.

Note: 14byte is only applied to object1.

255	**Short, Delay mode**	**Button 1 - {{...}}**	**1bit** **4bit** **1byte**	**C,T**	**1.001 switch** **3.007 dimming** **5.010 counter pulses**
256	**Long, Delay mode**	**Button 1 - {{...}}**	**1bit** **4bit** **1byte**	**C,T**	**1.001 switch** **3.007 dimming** **5.010 counter pulses**

These communication objects are used to delay mode. Range of values that can be sent are determined by the datatype, and the datatype is determined by the parameter setting.

Obj.255: used to send telegrams of delay mode to the bus when short operation.

Obj.256: used to send telegrams of delay mode to the bus when long operation.

255	**Current setpoint adjustment**	**Rocker 1 - {{...}}**	**2byte**	**C,T**	**9.001 temperature**
260	**Current temperature setpoint, status**	**Rocker 1 - {{...}}**	**2byte**	**C,W,T,U**	**9.001 temperature**

These communication objects are used to setpoint temperature adjustment, are visible when

"Setpoint adjustment(absolute)" is selected. Obj.255: used to send current setpoint temperature to the bus when button operation. Obj.260: used to receive the current setpoint temperature. If device restart, the object sends status request telegram.					
255	**Setpoint offset**	**Rocker 1 - {{...}}**	**1bit**	**C,T**	**1.007 step**
This communication object is used to setpoint temperature adjustment, are visible when "Offset Increase/Decrease(relative)" is selected. Used to send the telegrams of setpoint temperature increase/decrease to the bus when button operation. Telegrams: 0——Decrease 1——Increase					
255	**Offset setpoint adjustment**	**Rocker 1 - {{...}}**	**2byte**	**C,T**	**9.001 temperature**
260	**Current Setpoint offset, status**	**Rocker 1 - {{...}}**	**2byte**	**C,W,T,U**	**9.001 temperature**
These communication objects are used to setpoint temperature adjustment, are visible when "Offset setpoint adjustment(relative)" is selected. Obj.255: used to send the offset of the current setpoint adjustment to the bus when button operation. Obj.260: used to receive the offset of the current setpoint adjustment from bus.If device restart, the object sends status request telegram.					
258	**Flashing function**	**Button 1 - {{...}}**	**1bit**	**C,W,U**	**1.003 enable**
This communication object is only applied to switch, dimming and blind. Used to disable/enable flashing function.					
265	**Status indication**	**Button 1 - {{...}}**	**1bit** **1byte**	**C,W,T,U**	**1.001 switch** **5.010 counter pulses** **5.001 percentage(0..100%)**
265	**Status indication**	**Rocker 1 - {{...}}**	**1bit** **1byte**	**C,W,T,U**	**1.001 switch** **5.010 counter pulses** **5.001 percentage(0..100%)** **7.600 absolute colour temperature** **9.001 temperature(°C)** **16.001 character string (ISO 8859-1)**
This communication object is used to control the status of button function on the screen via the bus, and also can receive status feedback. Range of telegram values is determined by the datatype, and					

the datatype is determined by the parameter setting. If device restart, the object sends status request telegram.

Table 6.5.1 “Individual/Rocker button” communication object table

6.6. “Logic” Communication Object

6.6.1 “AND/OR/XOR” Communication Object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Input a			1 bit	C	-	W	T	U	boolean	Low
12	1st Logic	Input b			1 bit	C	-	W	T	U	boolean	Low
13	1st Logic	Input c			1 bit	C	-	W	T	U	boolean	Low
14	1st Logic	Input d			1 bit	C	-	W	T	U	boolean	Low
15	1st Logic	Input e			1 bit	C	-	W	T	U	boolean	Low
16	1st Logic	Input f			1 bit	C	-	W	T	U	boolean	Low
17	1st Logic	Input g			1 bit	C	-	W	T	U	boolean	Low
18	1st Logic	Input h			1 bit	C	-	W	T	U	boolean	Low
19	1st Logic	Logic result			1 bit	C	-	-	T	-	boolean	Low

Fig.6.6.1 “AND/OR/XOR” communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
11/.../18	**Input x**	**{{1st Logic}}**	**1bit**	**C,W,T,U**	**1.002 boolean**
The communication object is used to receive the value of logical input Input x. The name in parentheses changes with the parameter “Description for logic function”. If description is empty, display “1st Logic” by default. The same below.					
19	**Logic result**	**{{1st Logic}}**	**1bit**	**C,T**	**1.002 boolean**
The communication object is used to send the results of logical operation.					

Table 6.6.1 “AND/OR/XOR” communication object table

6.6.2 “Gate forwarding” Communication Object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Gate value select			1 byte	C	-	W	-	-	scene number	Low
12	1st Logic	Input A			1 bit	C	-	W	-	-	switch	Low
13	1st Logic	Input B			1 bit	C	-	W	-	-	switch	Low
14	1st Logic	Input C			1 bit	C	-	W	-	-	switch	Low
15	1st Logic	Input D			1 bit	C	-	W	-	-	switch	Low
16	1st Logic	Output A			1 bit	C	-	-	T	-	switch	Low
17	1st Logic	Output B			1 bit	C	-	-	T	-	switch	Low
18	1st Logic	Output C			1 bit	C	-	-	T	-	switch	Low
19	1st Logic	Output D			1 bit	C	-	-	T	-	switch	Low

Fig.6.6.2 “Gate forwarding” communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
11	**Gate value select**	**{{1st Logic}}**	**1byte**	**C,W**	**17.001 scene number**
The communication object is used to select the scene of logical gate forwarding.					
12/.../15	**Input x**	**{{1st Logic}}**	**1bit** **4bit** **1byte**	**C,W**	**1.001 switch** **3.007 dimming control** **5.010 counter pulses(0..255)**
The communication object is used to receive the value of the logic gate input Input x.					
16/../19	**Output x**	**{{1st Logic}}**	**1bit** **4bit** **1byte**	**C,T**	**1.001 switch** **3.007 dimming control** **5.010 counter pulses(0..255)**
The communication object is used to output the value forwarded by the logic gate. The output value is the same as the input value, but one input can be forwarded into one or more outputs, set by parameters.					

Table 6.6.2 “Gate forwarding” communication object table

6.6.3 “Threshold comparator” Communication Object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Threshold value input			4 bit	C	-	W	-	U	dimming control	Low
11	1st Logic	Threshold value input			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
11	1st Logic	Threshold value input			2 bytes	C	-	W	-	U	pulses	Low
11	1st Logic	Threshold value input			2 bytes	C	-	W	-	U	2-byte signed value	Low
11	1st Logic	Threshold value input			2 bytes	C	-	W	-	U	2-byte float value	Low
11	1st Logic	Threshold value input			4 bytes	C	-	W	-	U	counter pulses (unsigned)	Low
11	1st Logic	Threshold value input			2 bytes	C	-	W	-	U	temperature (°C)	Low
11	1st Logic	Threshold value input			2 bytes	C	-	W	-	U	humidity (%)	Low
11	1st Logic	Threshold value input			2 bytes	C	-	W	-	U	lux (Lux)	Low
19	1st Logic	Logic result			1 bit	C	-	-	T	-	boolean	Low

Fig.6.6.3 “Threshold comparator” communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
11	**Threshold value input**	**{{1st Logic}}**	**4bit** **1byte** **2byte** **4byte**	**C,W, U**	**3.007 dimming** **5.010 counter pulses** **7.001 pulses** **12.001 counter pulses**
The communication object is used to input threshold value.					
19	**Logic result**	**{{1st Logic}}**	**1bit**	**C,T**	**1.002 boolean**
The communication object is used to send the results of logical operation. That is, the value that should be sent after the object input threshold is compared with the setting threshold value.					

Table 6.6.3 “Threshold comparator” communication object table

6.6.4 "Format convert" Communication Object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Input 1bit-bit0			1 bit	C	-	W	-	U	boolean	Low
12	1st Logic	Input 1bit-bit1			1 bit	C	-	W	-	U	boolean	Low
19	1st Logic	Output 2bit			2 bit	C	-	-	T	-	switch control	Low

"2x1bit --> 1x2bit"function: converts two 1bit values to a 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
11	1st Logic	Input 1bit-bit0			1 bit	C	-	W	-	U	boolean	Low
12	1st Logic	Input 1bit-bit1			1 bit	C	-	W	-	U	boolean	Low
13	1st Logic	Input 1bit-bit2			1 bit	C	-	W	-	U	boolean	Low
14	1st Logic	Input 1bit-bit3			1 bit	C	-	W	-	U	boolean	Low
15	1st Logic	Input 1bit-bit4			1 bit	C	-	W	-	U	boolean	Low
16	1st Logic	Input 1bit-bit5			1 bit	C	-	W	-	U	boolean	Low
17	1st Logic	Input 1bit-bit6			1 bit	C	-	W	-	U	boolean	Low
18	1st Logic	Input 1bit-bit7			1 bit	C	-	W	-	U	boolean	Low
19	1st Logic	Output 1byte			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

"8x1bit --> 1x1byte"function: converts eight 1bit values to a 1byte value, such as Input bit2=1, bit1=1, bit0=1,other bits are 0--> Output 1byte=7

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Input 1byte			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
19	1st Logic	Output 2byte			2 bytes	C	-	-	T	-	pulses	Low

"1x1byte --> 1x2byte"function: converts one 1byte values to a 2byte value, such as Input 1byte=125--> Output 2byte=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
11	1st Logic	Input 1byte-low			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
12	1st Logic	Input 1byte-high			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
19	1st Logic	Output 2byte			2 bytes	C	-	-	T	-	pulses	Low

"2x1byte --> 1x2byte"function: converts two 1byte values to a 2byte value, such as Input 1byte-low = 255 ($FF), Input 1byte-high = 100 ($64) --> Output 2byte = 25855 ($64 FF)

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Input 2byte-low			2 bytes	C	-	W	-	U	pulses	Low
12	1st Logic	Input 2byte-high			2 bytes	C	-	W	-	U	pulses	Low
19	1st Logic	Output 4byte			4 bytes	C	-	-	T	-	counter pulses (unsigned)	Low

"2x2byte --> 1x4byte"function: converts two 2 byte values to a 4byte value, such as Input 2byte-low = 65530 ($FF FA), Input 2byte-high = 32768 ($80 00)--> Output 2byte = 2147549178 ($80 00 FF FA)

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Input 1byte			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
12	1st Logic	Output 1bit-bit0			1 bit	C	-	-	T	-	boolean	Low
13	1st Logic	Output 1bit-bit1			1 bit	C	-	-	T	-	boolean	Low
14	1st Logic	Output 1bit-bit2			1 bit	C	-	-	T	-	boolean	Low
15	1st Logic	Output 1bit-bit3			1 bit	C	-	-	T	-	boolean	Low
16	1st Logic	Output 1bit-bit4			1 bit	C	-	-	T	-	boolean	Low
17	1st Logic	Output 1bit-bit5			1 bit	C	-	-	T	-	boolean	Low
18	1st Logic	Output 1bit-bit6			1 bit	C	-	-	T	-	boolean	Low
19	1st Logic	Output 1bit-bit7			1 bit	C	-	-	T	-	boolean	Low

"1x1byte --> 8x1bit" function: converts one 1byte values to eight 1but value, such as Input 1byte=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
11	1st Logic	Input 2byte			2 bytes	C	-	W	-	U	pulses	Low
18	1st Logic	Output 1byte-low			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
19	1st Logic	Output 1byte-high			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

"1x2byte --> 2x1byte"function: converts one 2byte values to two 2byte value, such as Input 2byte = 55500 ($D8 CC) --> Output 1byte-low = 204 ($CC), Output 1byte-high =216 ($D8)

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Input 4byte			4 bytes	C	-	W	-	U	counter pulses (unsigned)	Low
18	1st Logic	Output 2byte-low			2 bytes	C	-	-	T	-	pulses	Low
19	1st Logic	Output 2byte-high			2 bytes	C	-	-	T	-	pulses	Low

"1x4byte --> 2x2byte"function: converts one 4byte values to two 2byte value, such as Input 4byte = 78009500 ($04 A6 54 9C) --> Output 2byte-low = 21660 ($54 9C), Output 2byte-high =1190 ($04 A6)

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Input 3byte			3 bytes	C	-	W	-	U	RGB value 3x(0..255)	Low
17	1st Logic	Output 1byte-low			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
18	1st Logic	Output 1byte-middle			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
19	1st Logic	Output 1byte-high			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

"1x3byte --> 3x1byte"function: converts one 3byte values to three 1byte value, such as Input 3byte = $78 64 C8--> Output 1byte-low = 200 ($C8) , Output 1byte-middle = 100 ($64) , Output 1byte-high =120 ($78)

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Input 1byte-low			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
12	1st Logic	Input 1byte-middle			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
13	1st Logic	Input 1byte-high			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
19	1st Logic	Output 3byte			3 bytes	C	-	-	T	-	RGB value 3x(0..255)	Low

"3x1byte --> 1x3byte"function: converts three 1byte values to a 3byte value, such as Input 1byte-low = 150 ($96), Input 1byte-middle = 100 ($64), Input 1byte-high = 50 ($32)--> Output 3byte = $32 64 96

Fig.6.6.4 "Format convert" communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
11	**Input ...**	**{{1st Logic}}**	**1bit** **1byte** **2byte** **3byte** **4byte**	**C,W,U**	**1.001 switch** **5.010 counter pulses(0..255)** **7.001 pulses** **232.600 RGB value 3x(0..255)** **12.001 counter pulses**
The communication object is used to input a value that needs to be converted.					
19	**Output ...**	**{{1st Logic}}**	**1bit** **2bit** **1byte** **2byte** **3byte** **4byte**	**C,T**	**1.001 switch** **2.001 switch control** **5.010 counter pulses(0..255)** **7.001 pulses** **232.600 RGB value 3x(0..255)** **12.001 counter pulses**
The communication object is used to output the converted value.					

Table 6.6.4 "Format convert" communication object table

6.6.5 "Gate function" Communication Object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Input			1 bit	C	-	W	-	-	switch	Low
12	1st Logic	Gate input			1 bit	C	-	W	-	-	boolean	Low
19	1st Logic	Output			1 bit	C	-	-	T	-	switch	Low
			Input/Output - 1bit[On/Off]									
11	1st Logic	Input			1 byte	C	-	W	-	-	percentage (0..100%)	Low
12	1st Logic	Gate input			1 bit	C	-	W	-	-	boolean	Low
19	1st Logic	Output			1 byte	C	-	-	T	-	percentage (0..100%)	Low
			Input/Output - 1byte[0..100%]									
11	1st Logic	Input			1 byte	C	-	W	-	-	counter pulses (0..255)	Low
12	1st Logic	Gate input			1 bit	C	-	W	-	-	boolean	Low
19	1st Logic	Output			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
			Input/Output - 1byte[0..255]									
11	1st Logic	Input			2 bytes	C	-	W	-	-	temperature (°C)	Low
12	1st Logic	Gate input			1 bit	C	-	W	-	-	boolean	Low
19	1st Logic	Output			2 bytes	C	-	-	T	-	temperature (°C)	Low
			Input/Output - 2byte[Float]									
11	1st Logic	Input			2 bytes	C	-	W	-	-	pulses	Low
12	1st Logic	Gate input			1 bit	C	-	W	-	-	boolean	Low
19	1st Logic	Output			2 bytes	C	-	-	T	-	pulses	Low
			Input/Output - 2byte[0..65535]									

Fig.6.6.5 "Gate function" communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
11	**Input**	**{{1st Logic}}**	**1bit** **1byte** **2byte**	**C,W**	**1.001 switch** **5.001 percentage** **5.010 counter pulses** **9.001 temperature** **7.001 pulses**
The communication object is used to input a value that needs to gate filter.					
12	**Gate input**	**{{1st Logic}}**	**1bit**	**C,W**	**1.002 boolean**
The communication object is used to control the switch status of gate input. Input signal is allowed to pass when gate open, then output, and the current input status is still sent if there is a change; Can not pass when gate close.					
13	**Output**	**{{1st Logic}}**	**bit** **1byte** **2byte**	**C,T**	**1.001 switch** **5.001 percentage** **5.010 counter pulses** **9.001 temperature** **7.001 pulses**
The communication object is used to output the value after gate filtering. Only when gate input status is open, output is available, defined by the object "Gate input".					

Table 6.6.5 "Gate function" communication object table

6.6.6 “Delay function” Communication Object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Input			1 bit	C	-	W	-	-	switch	Low
19	1st Logic	Output			1 bit	C	-	-	T	-	switch	Low
Input/Output - 1bit[On/Off												
11	1st Logic	Input			1 byte	C	-	W	-	-	percentage (0..100%)	Low
19	1st Logic	Output			1 byte	C	-	-	T	-	percentage (0..100%)	Low
Input/Output - 1byte[0..100%]												
11	1st Logic	Input			1 byte	C	-	W	-	-	counter pulses (0..255)	Low
19	1st Logic	Output			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
Input/Output - 1byte[0..255]												
11	1st Logic	Input			2 bytes	C	-	W	-	-	temperature (°C)	Low
19	1st Logic	Output			2 bytes	C	-	-	T	-	temperature (°C)	Low
Input/Output - 2byte[Float]												
11	1st Logic	Input			2 bytes	C	-	W	-	-	pulses	Low
19	1st Logic	Output			2 bytes	C	-	-	T	-	pulses	Low
Input/Output - 2byte[0..65535]												

Fig.6.6.6 “Delay function” communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
11	**Input**	**{{1st Logic}}**	**1bit** **1byte** **2byte**	**C,W**	**1.001 switch** **5.001 percentage** **5.010 counter pulses** **9.001 temperature** **7.001 pulses**
The communication object is used to input a value that needs to delay.					
19	**Output**	**{{1st Logic}}**	**1bit** **1byte** **2byte**	**C,T**	**1.001 switch** **5.001 percentage** **5.010 counter pulses** **9.001 temperature** **7.001 pulses**
The communication object is used to output that needs to delay converted value, delay time is defined by the parameter.					

Table 6.6.6 “Delay function” communication object table

6.6.7 “Staircase lighting” Communication Object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
11	1st Logic	Trigger value			1 bit	C	-	W	-	-	trigger	Low
12	1st Logic	Light-on duration time			2 bytes	C	-	W	-	-	time (s)	Low
19	1st Logic	Output			1 bit	C	-	-	T	-	switch	Low
19	1st Logic	Output			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

Fig.6.6.7 “Staircase lighting” communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
11	**Trigger value**	**{{1st Logic}}**	**1bit**	**C,W**	**1.017 trigger**
The communication object is used to receive the value to trigger staircase lighting.					
12	**Light-on duration time**	**{{1st Logic}}**	**2byte**	**C,W**	**7.005 time(s)**
The communication object is used to modify the staircase light-on duration time, the modified range is referenced from the range defined by the parameter, take the limit value if exceeded.					
19	**Output**	**{{1st Logic}}**	**1bit** **1byte**	**C,T**	**1.001 switch** **5.010 counter pulses**
The communication object is used to output value 1 when trigger, and send value 2 after duration time. Telegram value is determined by the parameter setting datatype.					

Table 6.6.7 “Staircase lighting” communication object table

6.7. “Scene Group” Communication Object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
83	Scene Group	Main scene trigger			1 byte	C	-	W	-	-	scene number	Low
84	1st Scene Group-Output 1	1bit value			1 bit	C	-	-	T	-	switch	Low
92	2nd Scene Group-Output 1	1bit value			1 bit	C	-	-	T	-	switch	Low
100	3rd Scene Group-Output 1	1bit value			1 bit	C	-	-	T	-	switch	Low
108	4th Scene Group-Output 1	1bit value			1 bit	C	-	-	T	-	switch	Low
116	5th Scene Group-Output 1	1bit value			1 bit	C	-	-	T	-	switch	Low
124	6th Scene Group-Output 1	1bit value			1 bit	C	-	-	T	-	switch	Low
132	7th Scene Group-Output 1	1bit value			1 bit	C	-	-	T	-	switch	Low
140	8th Scene Group-Output 1	1bit value			1 bit	C	-	-	T	-	switch	Low

Fig.6.7 “Scene Group” communication Object

NO.	Object Function	Name	Data Type	Flag	DPT
83	**Main scene trigger**	**Scene Group**	**1byte**	**C,W**	**17.001 scene number**
This communication object triggers each output in the scene group to send a specific value to the bus by recalling the scene number. Telegrams: 0.. 63					
84/../	**1bit value** **1byte unsigned value** **HVAC mode** **2byte unsigned value** **Temperature**	**1st Scene Group-{{Output x}}**	**1bit** **1byte** **2byte** **3byte** **6byte**	**C,T**	**1.001 switch** **5.010 counter pulses** **20.102 HVAC mode** **7.001 pulses** **9.001 temperature** **232.600 RGB value 3x(0..255)** **251.600 DPT_Colour_RGBW**
When a scene is recalled, the communication object is used to send the corresponding output value of the scene to the bus. If the output is not set to this scene, it will not be sent. A total of 8 scene groups can be set up, with 8 outputs per group. The name in parentheses changes with the parameter “Description for Output x function”. If description is empty, display “1st Scene Group-Output x” by default. The same below.					

Table 6.7 “Scene Group” communication object table

Chapter 7 Icon list

ETS options	Icon
Light on	
Light off	
Ceiling light	
Downlight	
Wall light	
Spotlight	
Chandelier	
Floor light	
RGB lamp	
Colour temperature	
LED strip	
General scene 1	

ETS options	Icon
General scene 2	
General scene 3	
Curtain	
Blind(open/close)	
Blind(up/down)	
Blind(with slat)	
Shutter up	
Shutter down	
Blind open 1	
Blind close 1	
Blind open 2	
Blind close 2	

ETS options	Icon
Arrow up	
Arrow down	
Plus	
Minus	
Brighter	
Darker	
Go home 1	
Leave home 1	
Go home 2	
Leave home 2	
Welcome	
Meeting(guest)	

ETS options	Icon
Dinner	
Party	
Sleeping	
Reading	
Media	
Cleaning	
Comfort	
Standby	
Economy	
Protection	
Wake up	
TV	

ETS options	Icon
Socket(CN)	
Socket(EU)	
Socket(CN)	
Fan	
Door lock	
Power supply	
Window 1	
Window 2	
Alarm	
Heating/Cooling system	
Air conditioner	
Floor heating	

ETS options	Icon
Water heating	
Ventilation system	
Mode	
Auto mode	
Heating mode	
Cooling mode	
Dehumidification mode	
Refresh mode	
Sleep mode	
Wind direction	
Fan speed	
Fan speed off	

ETS options	Icon
Fan speed 1	
Fan speed 2	
Fan speed 3	
Fan speed 4	
Fan speed 5	
Fan speed auto	
Music	
Play	
Pause	
Volume +	
Volume -	
Previous track	
Next track	

ETS options	Icon
Random playback	
Sequential playback	
Repeat playlist	
Playlist	
Presence	
On	
Off	
Open	
Close	
Power on/off	
Unlock	
Lock	
Stop charge	

ETS options	Icon	ETS options	Icon
Charge		**PM10**	
Unmute		**TVOC/VOC**	
Mute		**CO2**	
Day		**Temperature**	
Night		**Humidity**	
Text		**Brightness**	
Message		**Windspeed**	
Setting		**Rain**	
Room temperature		**Current**	
Timmer		**Voltage**	
PM2.5		**Power meter**