theben

User Manual
Push Button Sensor
iONprime PB KNX

4969301

2025-12-17

Contents

1 General information

This manual provides detailed technical information about the function, installation and programming of the iONprime PB KNX push button sensor (4969301).

1.1 Main features

The iONprime PB KNX push button sensor is used to control functions such as switching, dimming, blinds, value transmitters, and scenes. The push-button sensor has a total of 8 buttons; the number of buttons used is defined by the parameter settings and the selected rocker switch. Each button has a multi-colored LED with adjustable colors. The LED can be permanently on or off, indicate the status, or be used as an activation indicator. The brightness of the LEDs can be individually adjusted via parameters or automatically controlled by the integrated brightness sensor depending on the ambient light.

The KNX push-button sensor features humidity, brightness, and proximity sensors, as well as temperature measurement and a temperature controller. Furthermore, the device determines the indoor air quality based on CO2 levels and can report it in 5 stages (very good, good, medium, poor, very poor). A transparent cover serves as dust protection and is included in the scope of delivery.

The push-button sensor must be used with the rockers available as accessories.

- The push-button sensor must be used in conjunction with the rockers available as accessories.
- KNX push-button sensor with integrated bus coupler
- 8 buttons and 8 RGB LEDs
- Available with 1-, 2-, and 4-button rocker switches in various materials and colors (separate accessories)
- Displays and controls up to 8 functions
- Controls switching, dimming, blinds, value transmitters, and scenes
- RGB LEDs for status or activation indication
- Adjustable LED brightness or automatically controlled based on ambient light
- Integrated temperature, humidity, brightness, CO2, and proximity sensors
- 2 configurable thresholds each for temperature and humidity
- Integrated temperature controller for regulating and controlling operating mode and temperature
- Logic function with 4 separate logic channels (AND / OR / XOR) and up to 4 output objects
- Function monitoring via object (signaling of disassembly)
- Includes dust cover

ⓘ The physical address is assigned, and the parameters are set using the Engineering Tool Software (ETS).

1.2 Accessories: rockers

The push button sensors consist of a base unit (4969301) that can be configured with various rockers. The following are available

- Single rocker (item numbers 9080057-9080063),
- 2-way rockers (9080064-9080070) and
- 4-way rockers (9080071-9080077),

which can be ordered separately; see
www.theben.de

2 Proper use

The iONprime PB KNX devices are push button sensors (1-/2-/4-way) that can measure and control temperature, humidity, CO_2 content, etc. in the room via integrated sensors.

They have 1, 2 or 4 push buttons that can be used to switch and dim lights, raise and lower blinds, trigger and save scenes. They can also measure temperature, control colours and display status.

They can be used with a single, double or quadruple rocker (9080057-9080077, separate accessory).

They are used in residential buildings, meeting rooms and offices, as well as in commercial buildings (in closed, dry rooms).

3 Security

3.1 Explanation of symbols used

The symbols in this document are defined as follows:

Symbol	Description
Caution	Indication of a dangerous situation which, if not avoided, will or may result in serious injury.
Caution	Indication of a potentially dangerous situation which, if not avoided, may result in damage to the device, loss of data, etc.
Note	Additional information to emphasize or supplement important points in the main text.

Danger of electric shock!

Direct or indirect contact with live parts will result in a dangerous electric current passing through the body. This can result in electric shock, burns, or death. There is a risk of fire if work on live parts is carried out improperly.

Assembly and installation must only be carried out by a qualified electrician or a person with appropriate professional training, knowledge, and experience to recognize and avoid the dangers posed by electricity.

Before commissioning and using the product, read the instructions completely and observe them.
These instructions are part of the product and must remain with the end user.

Disconnect the power supply before assembly and disassembly!

Work on the 110–240 V mains supply must only be carried out by qualified personnel.

3.2 Environment

Please protect the environment!
Used electrical and electronic devices must not be disposed of with household waste. The device contains valuable raw materials that can be reused.

Dispose of the device separately from household waste at an official Collection point.

3.3 Cleaning and maintenance

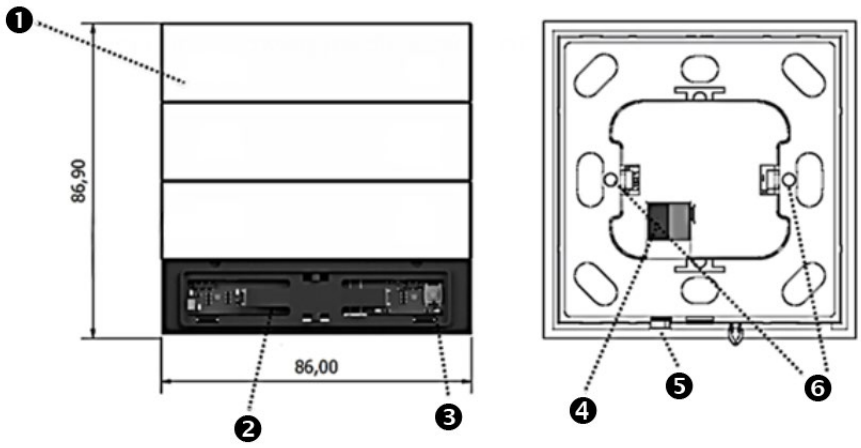
- Clean the device surface only with a dry, soft cloth.
- Do not use cleaning agents or solvents.

4 Technical data

Bus voltage KNX **Power input KNX**	21-32 V DC < 12 mA
Connectivity	KNX-TP
KNX bus cable diameter	0,6 ... 0,8 mm, single-wire
KNX terminal stripping length	6 mm
Dimensions	86 × 86 × 11 mm
Operating temperature	0 °C ... +45 °C
Protection rating	IP 20
Protection class	III
Connection type	Cable with KNX bus terminal
Pollution degree	2

ⓘ Programming requires the Engineering Tool Software ETS, version ETS 4 or higher, and the current application for the device. The current application can be found with the corresponding software information for download on the Internet at www.theben.de or in the ETS online catalogue.

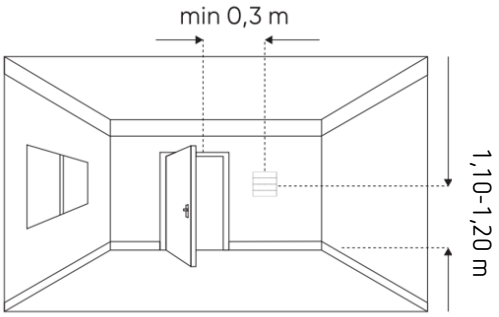
5 Description



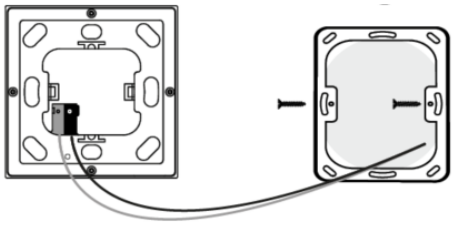
1. Rocker (1/2/4-way) (sold seperately)
2. Position of temperature sensor
3. KNX programming button
4. KNX connector
5. Position of light sensor
6. Screw holes

6 Installation and electrical connection

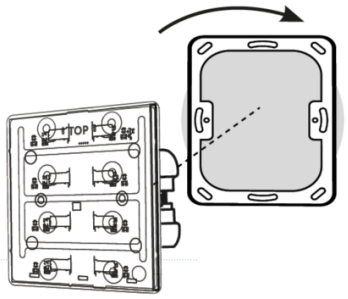
6.1 Installation site



- The device should be positioned approximately 120 cm above the ground and 30 cm away from the door.
- The device should not be installed close to the heat source. The wall opposite the heat source will be appropriate for the installation.

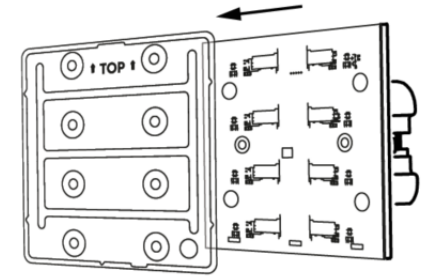


- Attach the metal frame to the wall using the two screws (included).
- Connect the KNX cable to the device via the bus terminal.
  Pay attention to the polarity!

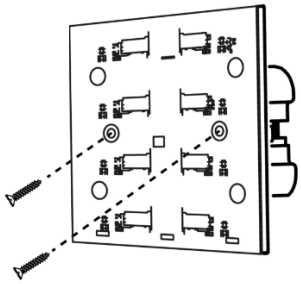


- Place the device on the metal frame.

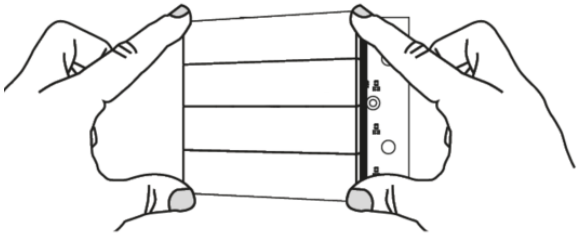
Electrostatic discharge! Caution: sensitive electronic components!
When fitting, observe ESD safety measures (electrostatic discharge).



➢ Remove the plastic cover.

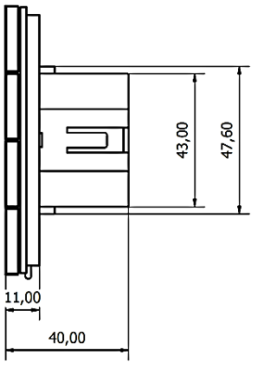


➢ Secure with the screws.



➢ Finally, attach the push button.

6.2 Dimension diagram

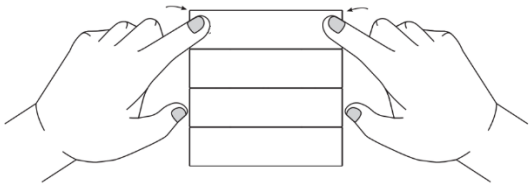


7 Commissioning

For commissioning the device, the following activities are required:

- Make electrical connections.
- Turn on the bus power supply.
- Switch the device operation to programming mode.

Alternatively, instead of using the programming button, it is possible to switch operation of the device to programming mode by pressing button 1 and button 2 simultaneously for 5 seconds.



- Download into device the physical address and the configuration with ETS program.

→ At the end of the download operation of the device returns to normal mode.

→ Now the device is programmed and ready to use.

Configuration and commissioning of the device requires the use of ETS4 or later releases.

8 Operation

The push button sensors have 1, 2 or 4 rockers. Using the ETS application, you can assign various functions to the individual rockers, such as switching the light on/off and dimming it; raising and lowering blinds, triggering and saving scenes, etc., as well as assigning different colours to the LEDs.
Furthermore, the temperature can be measured, colours controlled and the status displayed.
The function of the buttons, their operation and the control of the consumers can be individually set for each device.

There are two different types of operation:

Single-surface operation: Switching on/off or dimming brighter/dimmer, e.g. of lighting, is done alternately by repeatedly pressing a button area.

Two-surface operation: Two adjacent button areas form a function pair. Pressing the left button switches on/dims a light, for example, while pressing the right button switches off/dims a light.

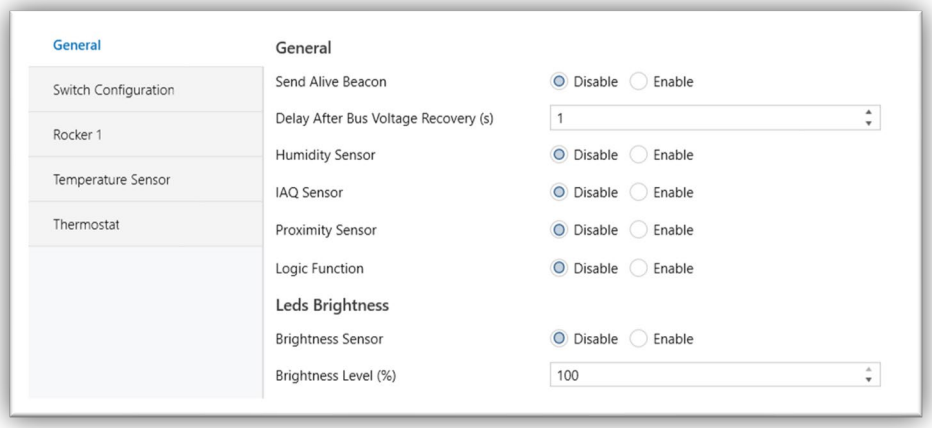
Operating functions or consumers
Consumers such as lighting, blinds, etc. are operated via the button areas and depend on the programming of the device.

ⓘ Extensive functions are available for the operating elements. The scope of application can be found in this product manual.

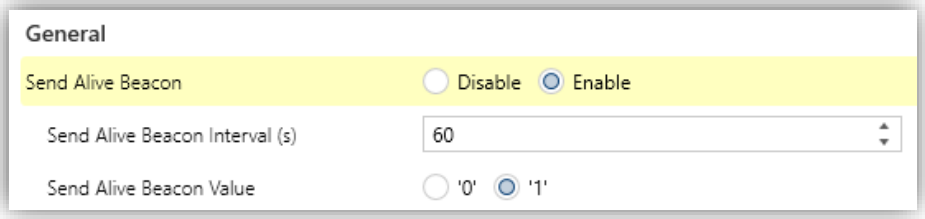
9 ETS parameters

The push button sensor is configured and set up using the standard KNX configuration tool ETS. You can download the ETS database for this device from the ETS online catalogue or from the Theben website.

9.1 General



Send Alive Beacon

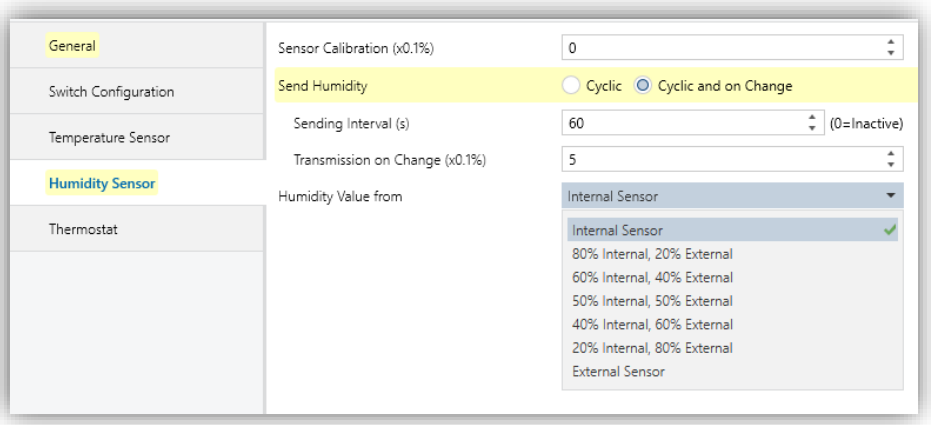


Parameter used to observe that the device and the application are running. It is disabled by default. When activated, Object "General – Alive Beacon" will send selected value with defined time interval. [0-65535 s]

Delay after bus voltage recovery
The parameter defines the behaviour of the switch after the bus power returns. The delay time determines the period between bus voltage recovery and the point after which telegrams can be sent. [0-65535 s].

9.1.1 Humidity sensor

Humidity sensor tab contains the following parameters.

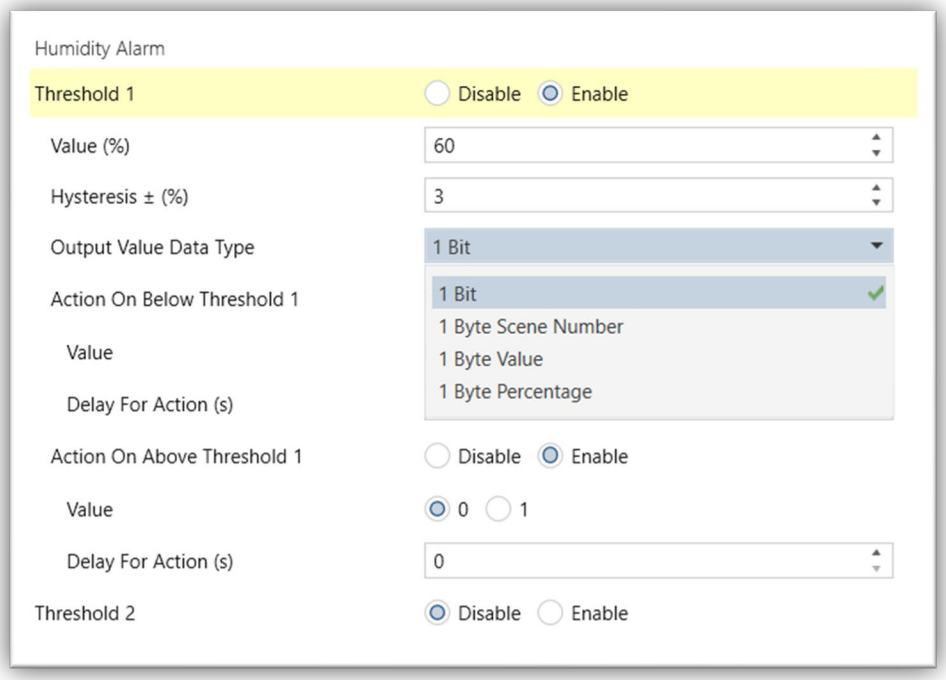


Sensor Calibration:
Measured humidity value can be shifted up or down by using sensor calibration value. [-32768...+32768]
Example: Assume that "10" is written to the sensor calibration box. Calculation: 10x 0.1 = 1 %, measured humidity percentage will be increased + 1%. If "-10" is written to the sensor calibration box.
Calculation: -10x 0.1 = - 1 %, measured humidity percentage will be decreased - 1%.

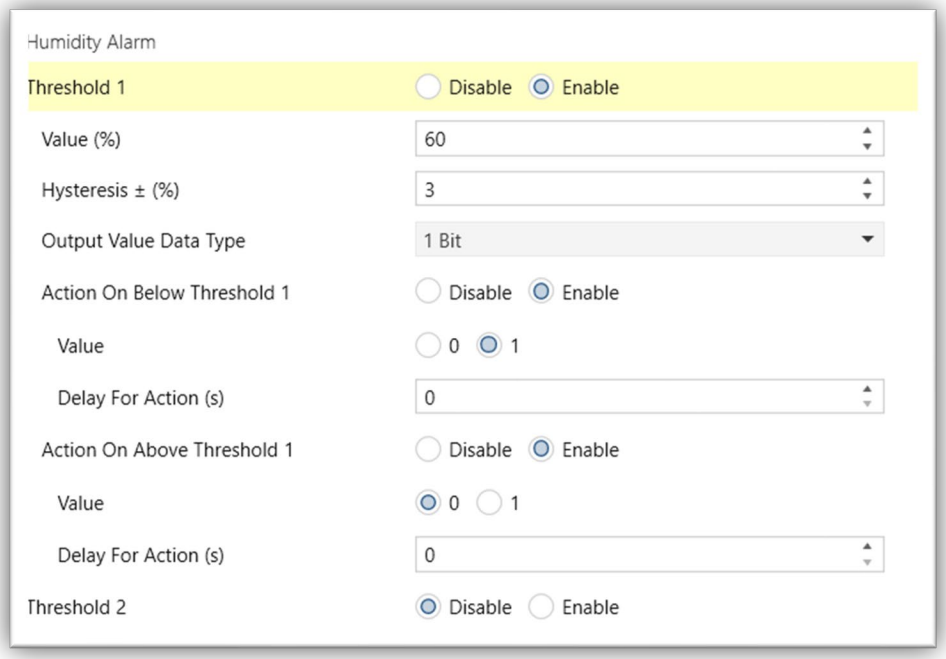
Send Humidity:
Object "Humidity – Internal Value" can be sent cyclically or by change of measured humidity.
Sending Interval time [0-65535 s]
Transmission on Change [0-255]

Humidity Value from:
Humidity value can be received by an external humidity sensor directly or partially according to selected percentage.

Humidity Alarm:

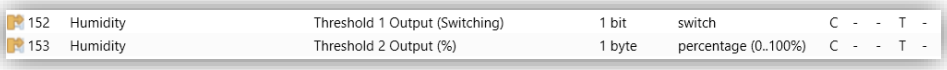


2 Thresholds can be defined.
When a threshold is enabled, "Humidity - Threshold x Output" object will appear. Value and hysteresis can be defined. Output data type can be selected as 1 Bit or 1 Byte.

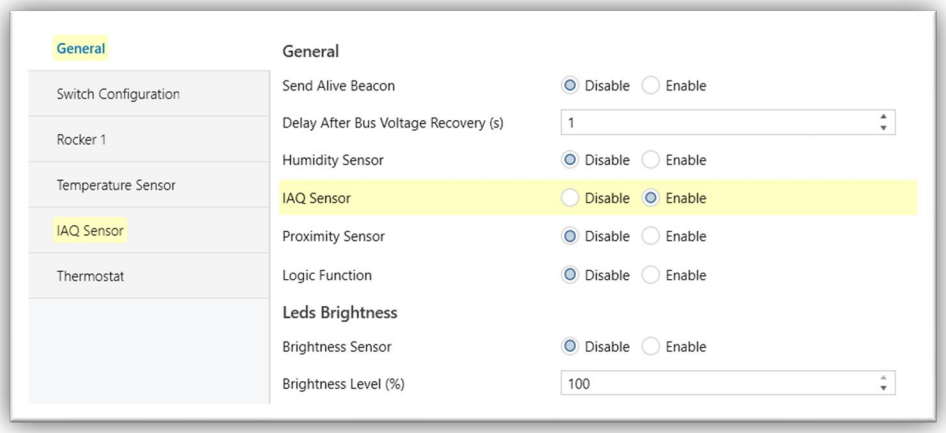


Action On Below Threshold:
When enabled, "Threshold x Output" object will transmit selected value to KNX bus when measured humidity value is less than entered "value (%) – hysteresis (%)". A delay can be set to transmit the value with "Delay For Action" parameter.
Example: Threshold value is %60 and Hysteresis is 3 %. When measured humidity value is less than 57 %, "Humidity - Threshold x Output" object will transmit selected value to KNX bus.

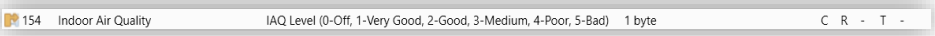
Action On Above Threshold:
When enabled, "Threshold x Output" object will transmit selected value to KNX bus when measured humidity value is greater than entered "value (%) + hysteresis (%)". A delay can be set to transmit the value with "Delay For Action" parameter.
Example: Threshold value is 60 % and Hysteresis is 3 %. When measured humidity value is greater than 63 %, "Humidity - Threshold x Output" object will transmit selected value to KNX bus.



9.1.2 IAQ (Indoor Air Quality) sensor



When enabled, "Indoor Air Quality – IAQ Level" object will appear.

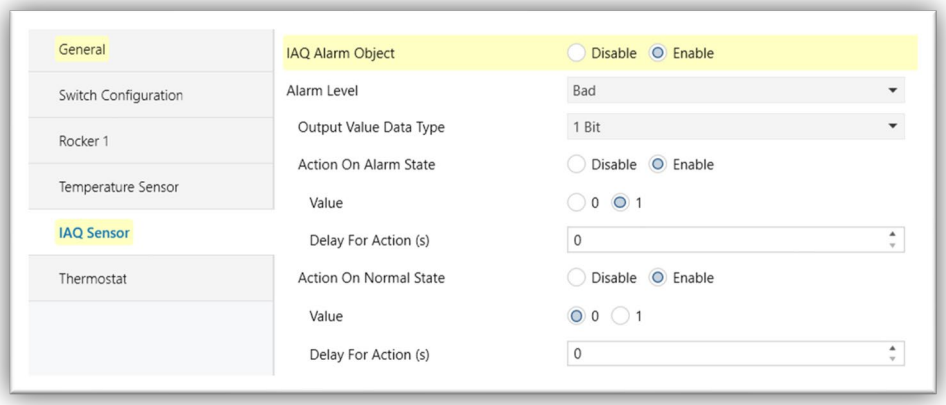


IAQ Levels:
Level 1 – Very Good (Telegram "1")
Level 2 – Good (Telegram "2")
Level 3 – Medium (Telegram "3")
Level 4 – Poor (Telegram "4")
Level 5 – Bad (Telegram "5")

The object transmits "0" telegram only when IAQ sensor stops working

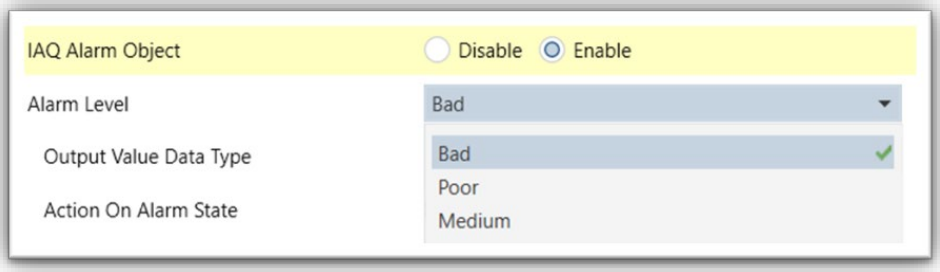
IAQ sensor tab contains following parameters.

IAQ Alarm Object:

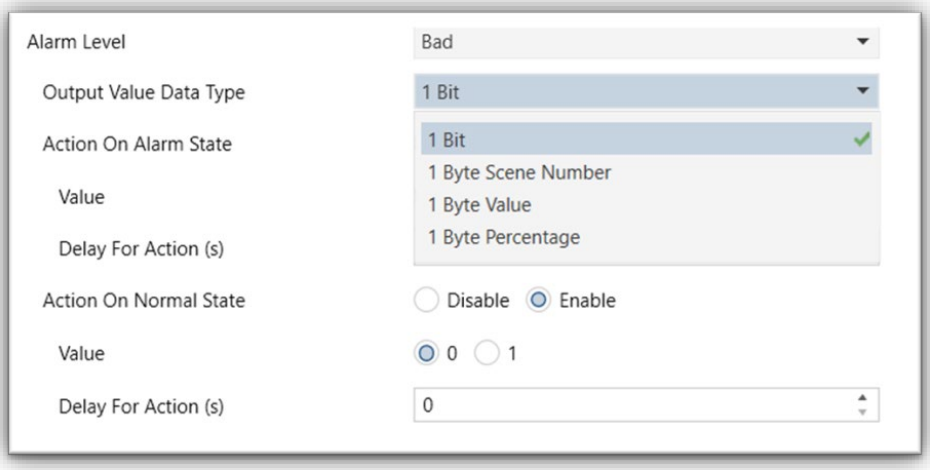


When enabled, "Indoor Air Quality – IAQ Alarm Output" object will appear.

Alarm Level:



Alarm level can be defined as Bad, Poor or Medium.



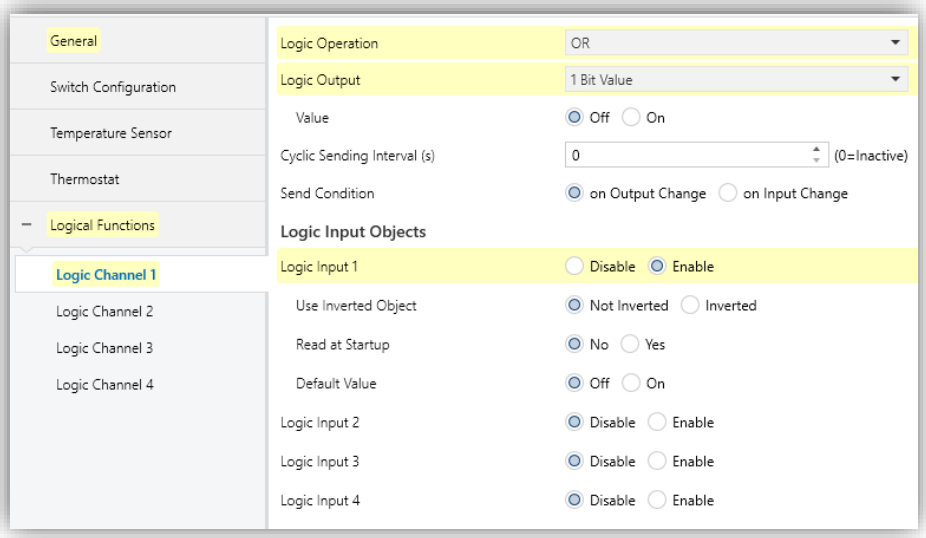
Output data type can be selected as 1 Bit or 1 Byte.

Action On Alarm State:
When enabled, "IAQ Alarm Output" object will transmit selected value to KNX bus when measured IAQ Level reaches selected alarm level. A delay can be set to transmit the value with "Delay For Action" parameter.

Action On Normal State:
When enabled, "IAQ Alarm Output" object will transmit selected value to KNX bus when measured IAQ Level is less than selected alarm level. A delay can be set to transmit the value with "Delay For Action" parameter.

9.1.3 Logic function

Logic function tab contains "Logic channels (4)" which are available with three different logic gates. [OR, AND, XOR]



Logic Operation: [OR, AND, XOR]
Logic Output: 1 bit
1 byte unsigned value
1 byte signed value
1 byte percentage
2 byte unsigned value
2 byte signed value
2 byte floating value

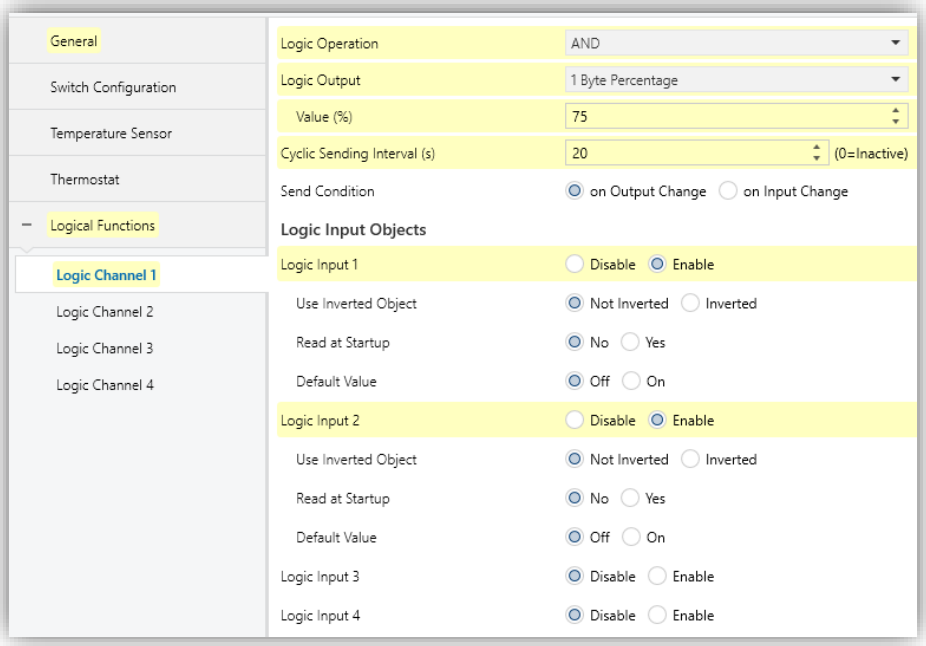
Send condition:
[On output change] Output object sends on output change.
[On input change] Output object sends on input change.

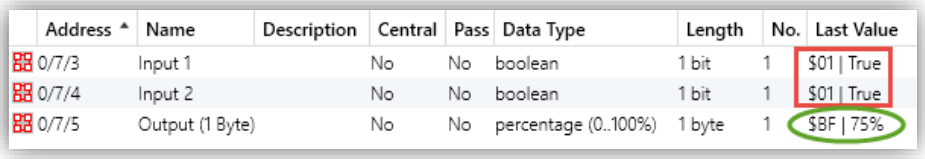
Logic Input Objects: [Logic input 1-4]
Each logic channel has a maximum of 4 logic input objects.

Logic input 1 [Use inverted Object]: Object value will be inverted before the processing in the logic gate.

Logic input 1 [Read at Start-up]: Object will be read out after switch is power return.
Logic input 1 [Default value]: Defines default value of the input object.

Example:
"Input 1" and "Input 2" objects are defined for "AND" logic operation. If both objects are "True" at the same time, then output object will send "1 byte percentage" 75 % value for every 20 seconds periodically.

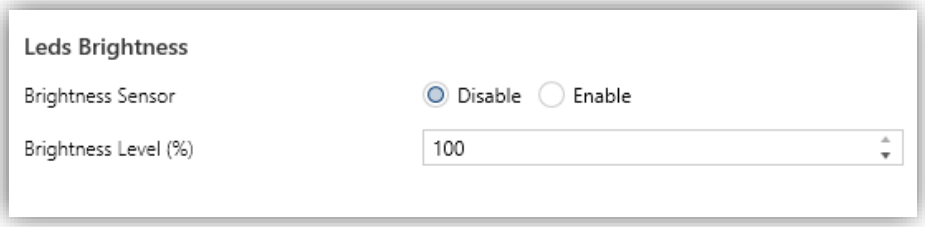




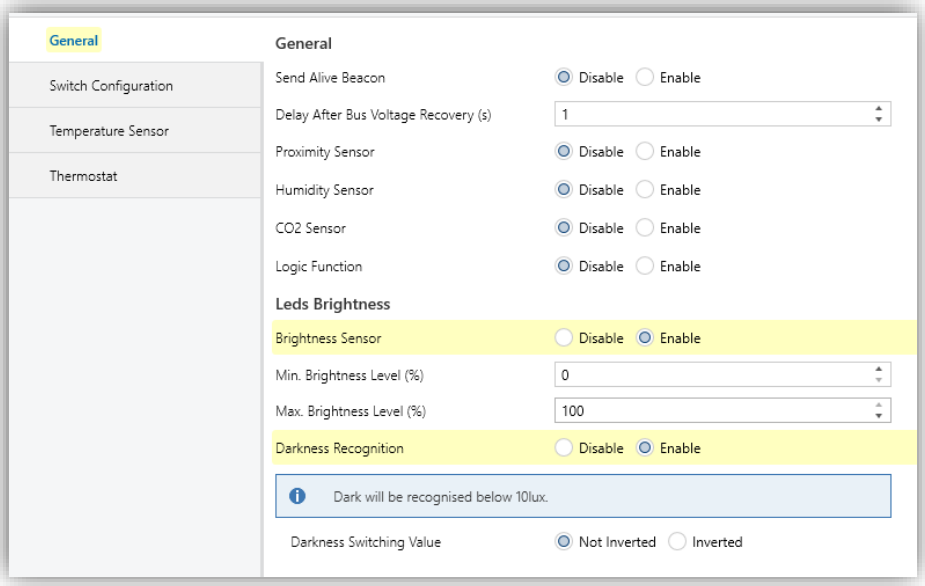
Address	Name	Description	Central	Pass	Data Type	Length	No.	Last Value
0/7/3	Input 1		No	No	boolean	1 bit	1	$01 | True
0/7/4	Input 2		No	No	boolean	1 bit	1	$01 | True
0/7/5	Output (1 Byte)		No	No	percentage (0..100%)	1 byte	1	$BF | 75%

9.1.4 LEDs brightness

Brightness Sensor [Disable]
Brightness level can be defined between 0 % - 100 % for LEDs when brightness sensor is disabled.



Brightness Sensor [Enable]
Push button sensor adjusts brightness of LEDs according to ambient light level which is measured by built-in light sensor.
"Brightness sensor" can be enabled under "General" parameter tab. Minimum and maximum brightness levels can be defined here. LEDs brightness will be adjusted between these two percentage levels.
Min Brightness Value can be defined between 0 % - 50 %.
Max Brightness Value can be defined between 50 % - 100 %.



Brightness calculation when Brightness sensors are enabled.

Maximum Brightness Value = **Max** possible values: [50-100]
Brightness value for darkness (min value) = **Min** possible values: [0-50] default=0
Ambient sensor value = **AS** [0-100 lux] 0=10 lux, 100=X lux

Actual brightness formula:

$$\boldsymbol{Actual\ Brightness = Min + \frac{(Max - Min)\ x\ AS}{100}}$$

Example 1: Max = 80, Min = 30, AS = 30

$$\boldsymbol{Actual\ Brightness = 30 + \frac{(80 - 30)\ x\ 10}{100} = 45\ \%}$$

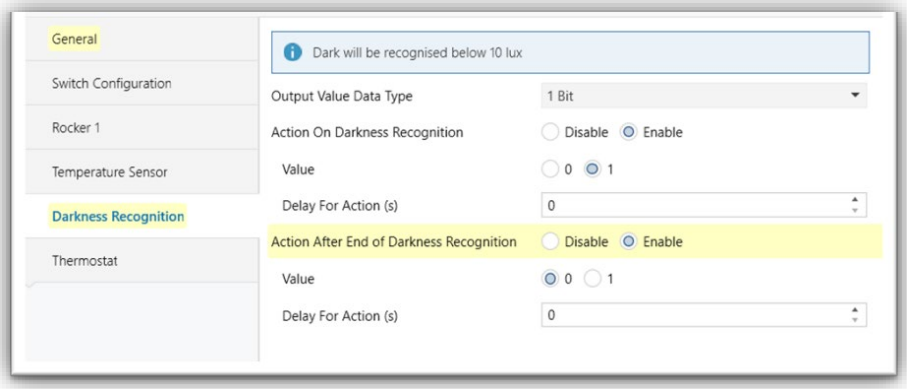
Example 2: Max = 80, Min = 30, AS = 70

$$\boldsymbol{Actual\ Brightness = 30 + \frac{(80 - 30)\ x\ 70}{100} = 65\%}$$

MBV [50-100]	Y [0-50]	AS [0-100]	actual brightness
80	30	0	30%
80	30	10	35%
80	30	20	40%
80	30	30	45%
80	30	40	50%
80	30	50	55%
80	30	60	60%
80	30	70	65%
80	30	80	70%
80	30	90	75%
80	30	100	80%

Table 1 – Change of Actual Brightness according to ambient light level

Darkness Recognition



Object "Darkness Output" can be activated by enabling "Darkness Recognition" parameter. If measured lux value is less than 10 lux, darkness will be recognised and transmitted via this object to KNX bus.
Output data type can be selected 1 Bit or 1 Byte.

Action On Darkness Recognition:
When enabled, "Darkness Output" object will transmit selected value to KNX bus when measured lux value is less than 10 lux. A delay can be set to transmit the value with "Delay For Action" parameter.

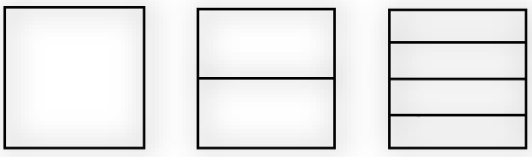
Action After End of Darkness Recognition:
When enabled, "Darkness Output" object will transmit selected value to KNX bus when measured lux value is greater than 10 lux. A delay can be set to transmit the value with "Delay For Action" parameter.

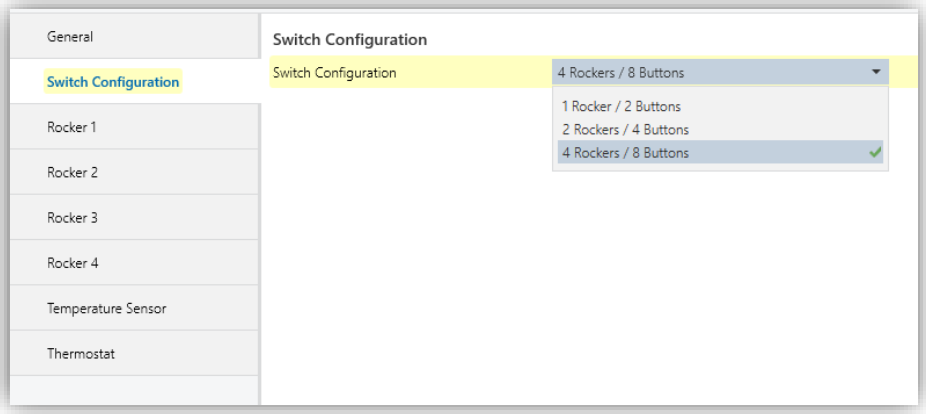
If "Brightness Sensor" is enabled at the same time with "Proximity Sensor", brightness value of LEDs will change accordingly to the formula below.

$$\boldsymbol{Actual\ Brightness} = (\boldsymbol{Min} + \frac{(\boldsymbol{Max} - \boldsymbol{Min})\ \boldsymbol{x}\ \boldsymbol{AS}}{\mathbf{100}})\ \mathbf{x}\ \frac{\boldsymbol{SDP} + (\mathbf{100} - \boldsymbol{SDP})\ \boldsymbol{x}\ \boldsymbol{PSV}}{\mathbf{100}}$$

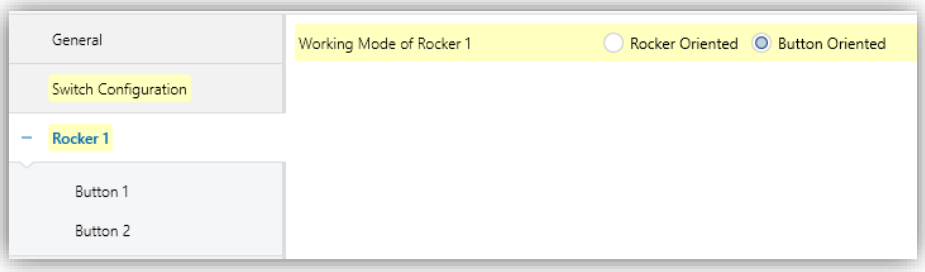
9.2 Switch configuration

➢ Select rocker count for push button sensor. [1, 2, 4]

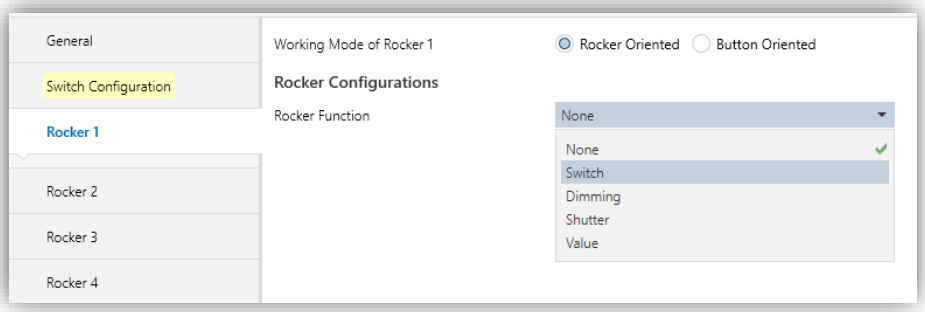




Two working modes are available for each rocker. [Rocker oriented, Button Oriented]

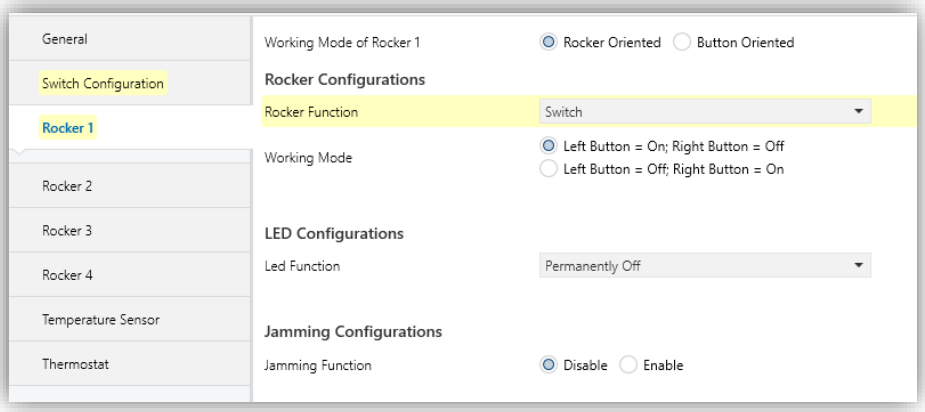


Rocker oriented functions: [Switch, Dimming, Shutter, Value]

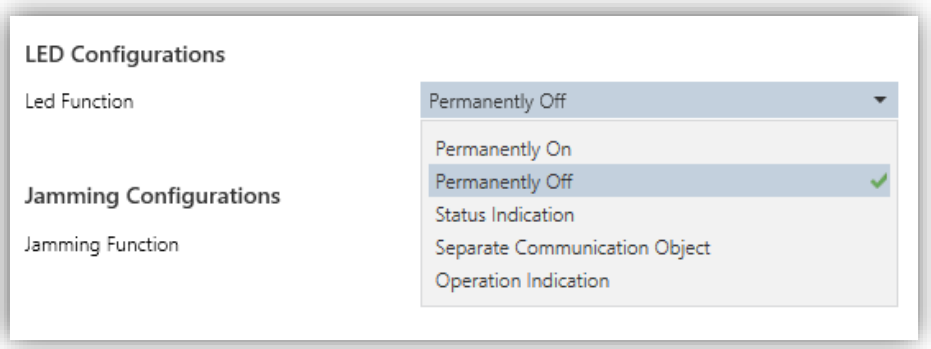


9.2.1 Rocker Oriented [Switch]

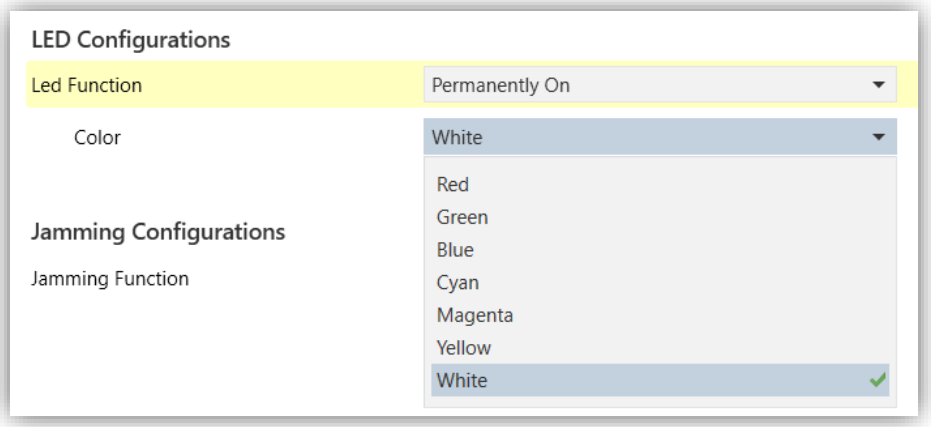
Working mode is selectable for left and right buttons. [Left Button = ON; Right Button=OFF]



Led configurations:
Available functions: Permanently OFF, Permanently ON, Status Indication, Separate Communication Object and Operation Indication.



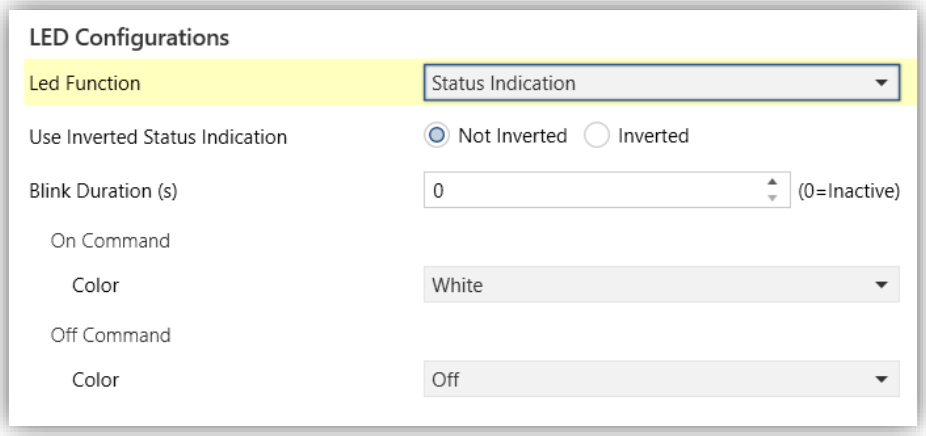
Led Function [Permanently ON]: LED is always ON for selected color. [Red, Green, Blue, Cyan, Magenta, Yellow, White]



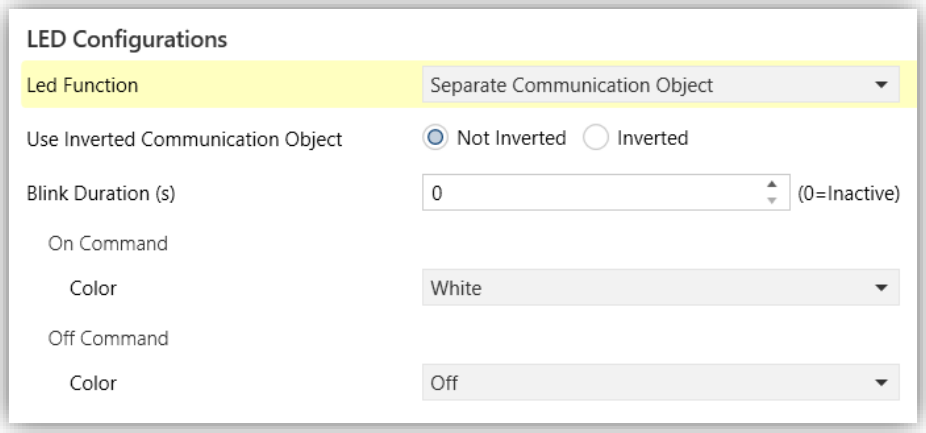
Led Function [Permanently OFF]: LED is always OFF.

Led Function [Status indication]: LED color will change according to status information.
On command [white] – OFF Command [Off]

Blink duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)

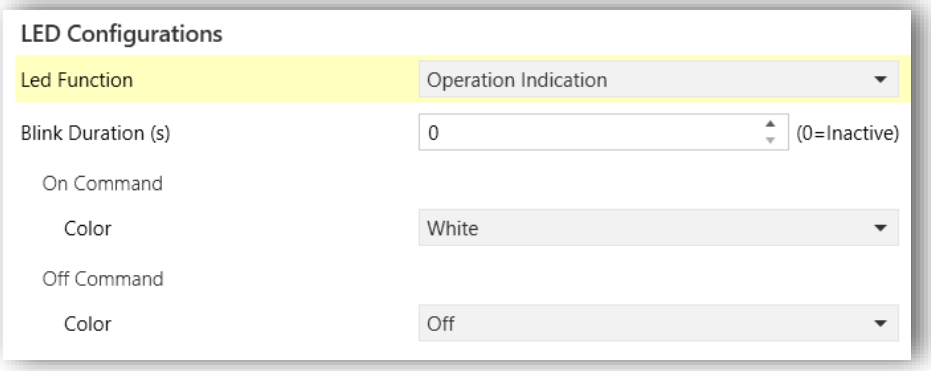


Led Function [Separate Communication Object]: LED color will change according to value received by LED status object.

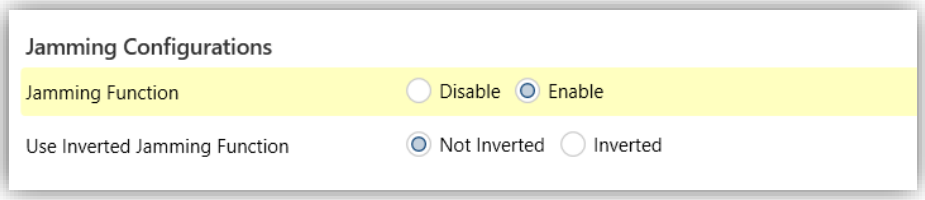


Led Function [Operation indication]: Status LED of rocker button will stay on color selected for "OFF command" until it is pressed. The pressed button will stay on color selected for "ON command" until it is released.

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)



Jamming Configurations
Jamming function is used to block to respective button or rocker via Object – "Rocker X - Jamming" by writing "true or false" data from the bus. Button will not work until it is enabled via jamming object.

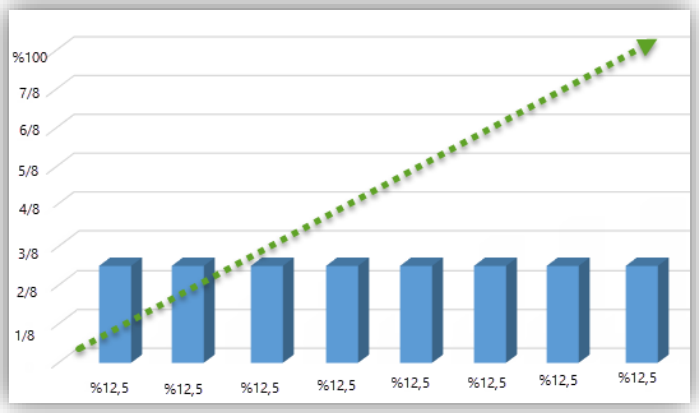


9.2.2 Rocker oriented (Dimming)

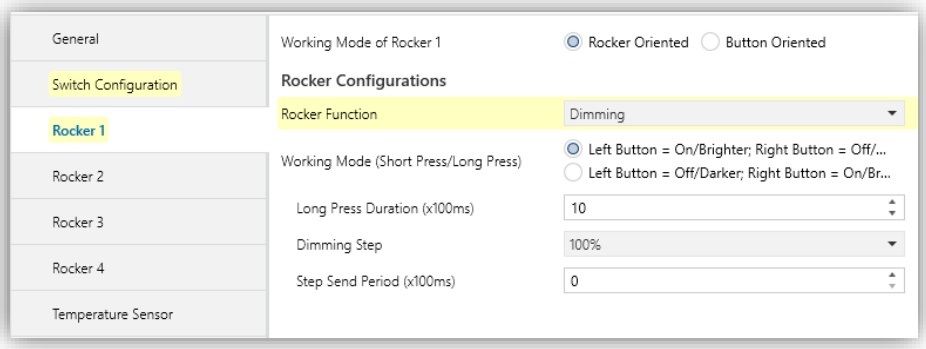
Working mode is selectable for left and right buttons. [Left Button = ON/Brighter; Right Button = OFF/Darker]

Long Press Duration (x100 ms): Long press duration can be changed. [0…**10**…65535]
As default; 100 ms x 10=1000 ms (1 second)
Switch will start to send dimming up/down commands after each press longer than "1 second".

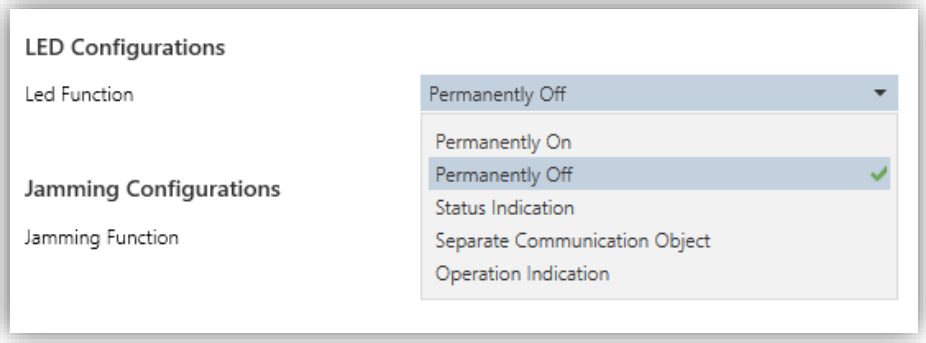
Dimming Step: Dimming step percentage can be changed to specify the maximum dimming step width of a dimming telegram. With a dimming message, you can dim by a maximum of X %. (100 % option represents "Start-stop" dimming function. Other percentage values correspond to "step dimming function")



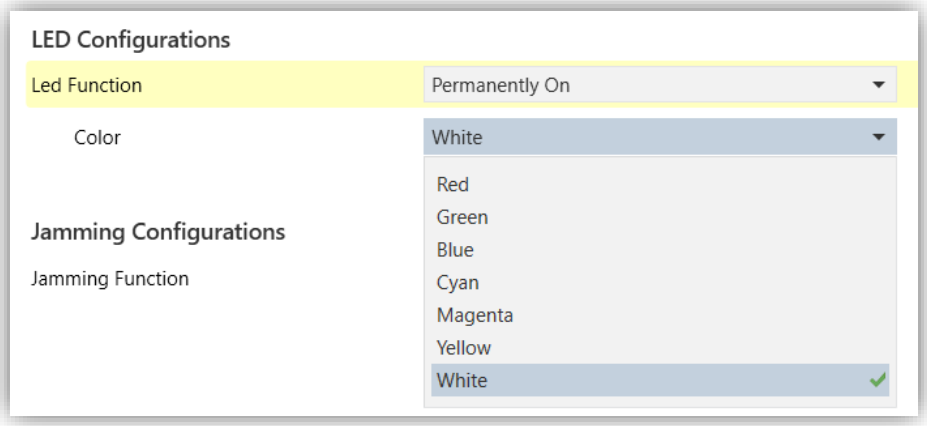
Step Send Period: Defines time interval between two dimming step commands.



Led configurations:
Available functions: Permanently OFF, Permanently ON, Status Indication, Separate Communication Object and Operation Indication.



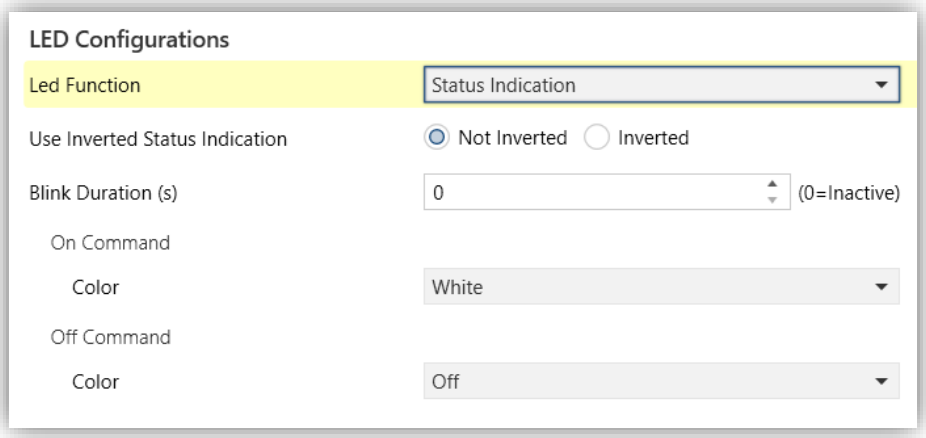
Led Function [Permanently ON]: LED is always ON for selected color. [Red, Green, Blue, Cyan, Magenta, Yellow, White]



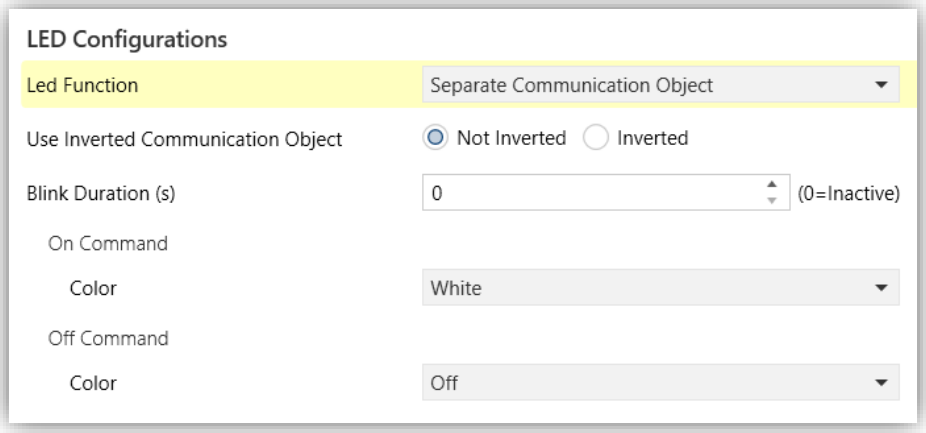
Led Function [Permanently OFF]: LED is always OFF.

Led Function [Status indication]: LED color will change according to status information. On command [white] – OFF Command [Off]

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)

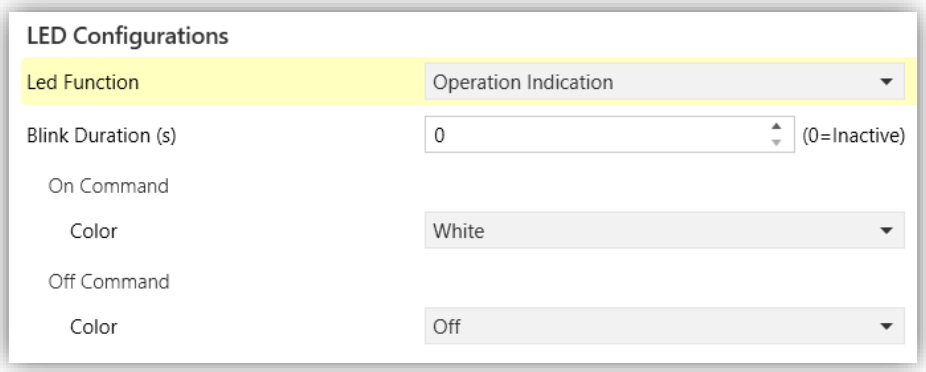


Led Function [Separate Communication Object]: LED color will change according to value received by LED status object.

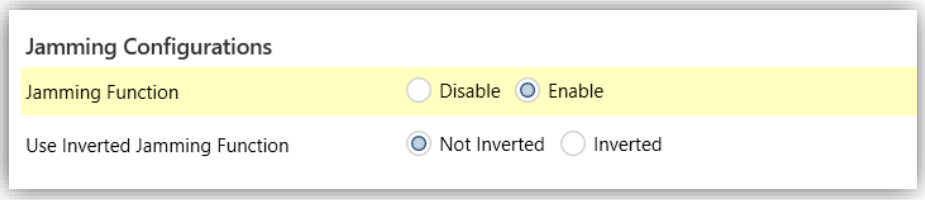


Led Function [Operation indication]: Status LED of rocker button will stay on color selected for "OFF command" until it is pressed. The pressed button will stay on color selected for "ON command" until it is released.

Blink duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)



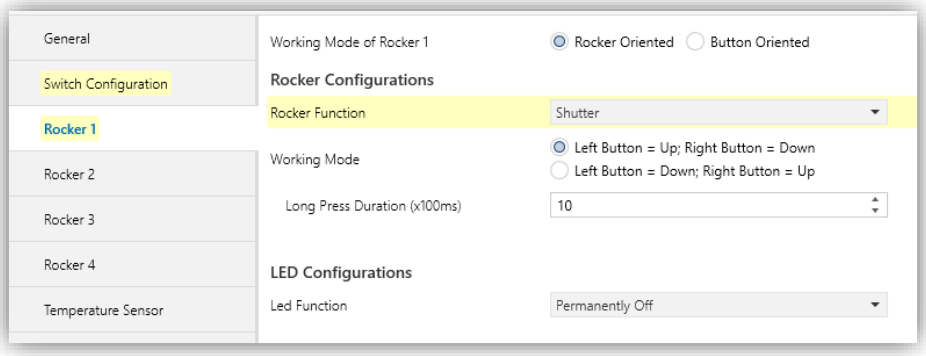
Jamming Configurations
Jamming function is used to block to respective button or rocker via Object – "Rocker X - Jamming" by writing "true or false" data from the bus. Button will not work until it is enabled via jamming object.



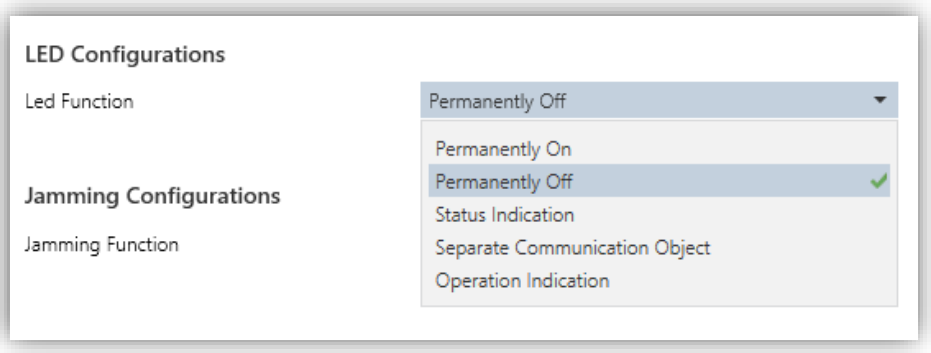
9.2.3 Rocket oriented (Shutter)

Working mode is selectable for left and right buttons. [Left Button = UP; Right Button = DOWN]

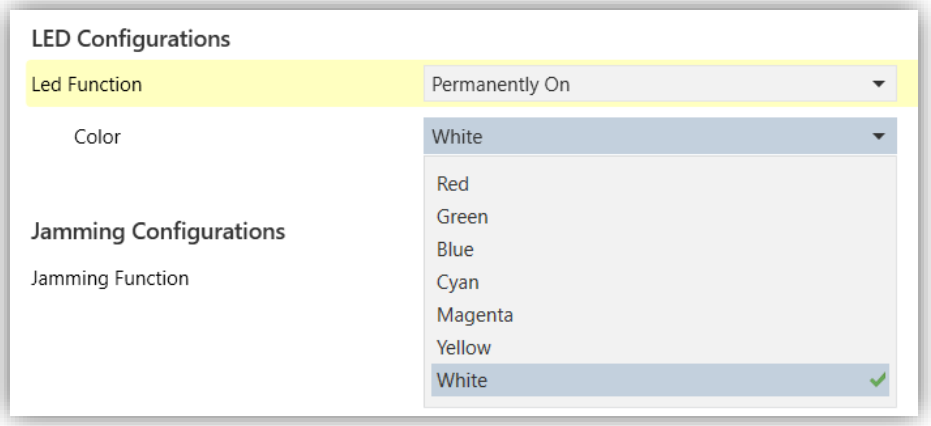
Long Press Duration (x100 ms): Long press duration can be changed. [0…**10**…65535]
As default; 100 ms x 10=1000 ms (1 second)
Switch will start to send move up/down commands after each press longer than "1 second".
Switch will send Step/Stop command on each short press,



LED Configurations:
Available functions: Permanently Off, Permanently On, Status Indication, Separate Communication Object and Operation Indication.



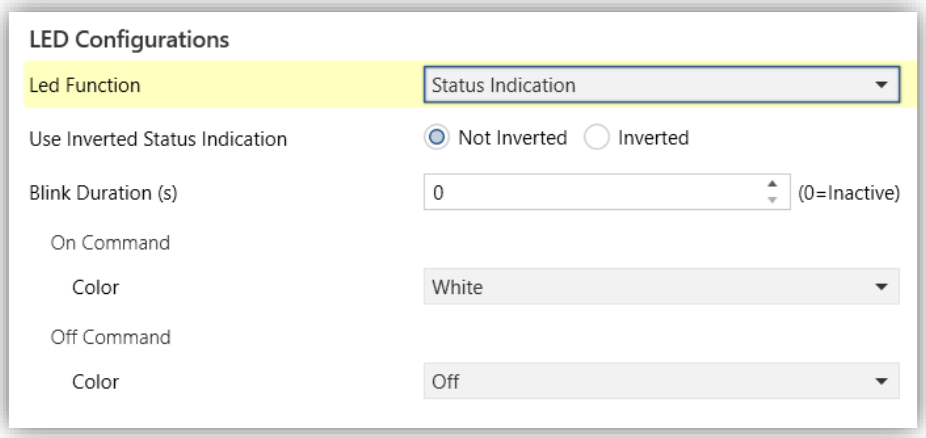
Led Function [Permanently ON]: LED is always ON for selected color. [Red, Green, Blue, Cyan, Magenta, Yellow, White]



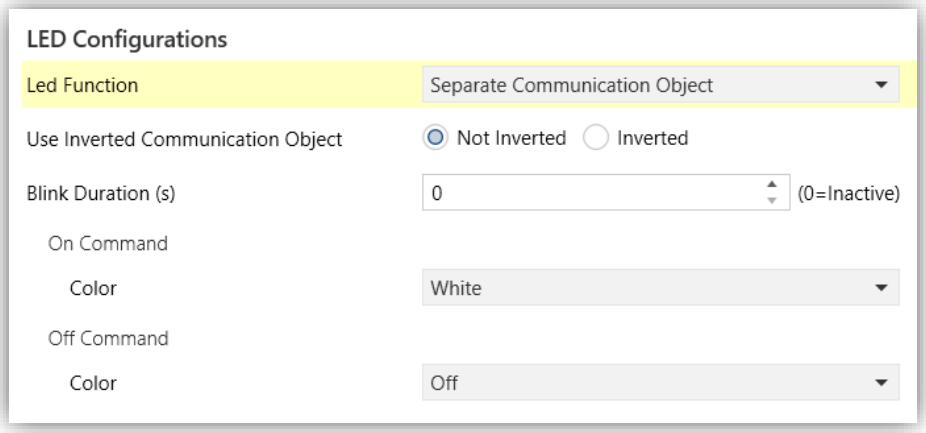
Led Function [Permanently OFF]: LED is always OFF.

Led Function [Status indication]: LED color will change according to status information. On command [white] – OFF Command [Off]

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)

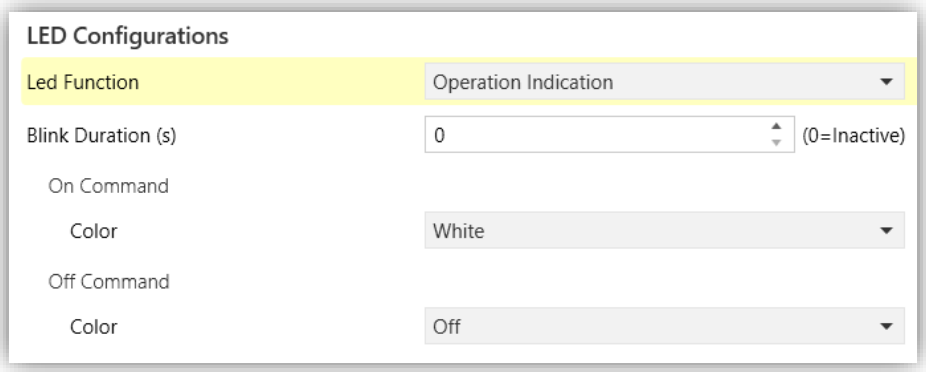


Led Function [Separate Communication Object]: LED color will change according to value received by LED status object.



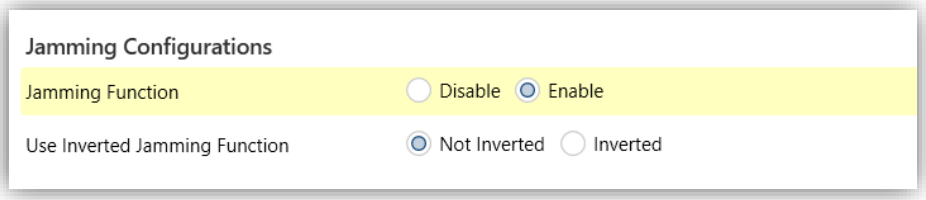
Led Function [Operation indication]: Status LED of rocker button will stay on color selected for "OFF command" until it is pressed. The pressed button will stay on color selected for "ON command" until it is released.

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)



Jamming Configurations

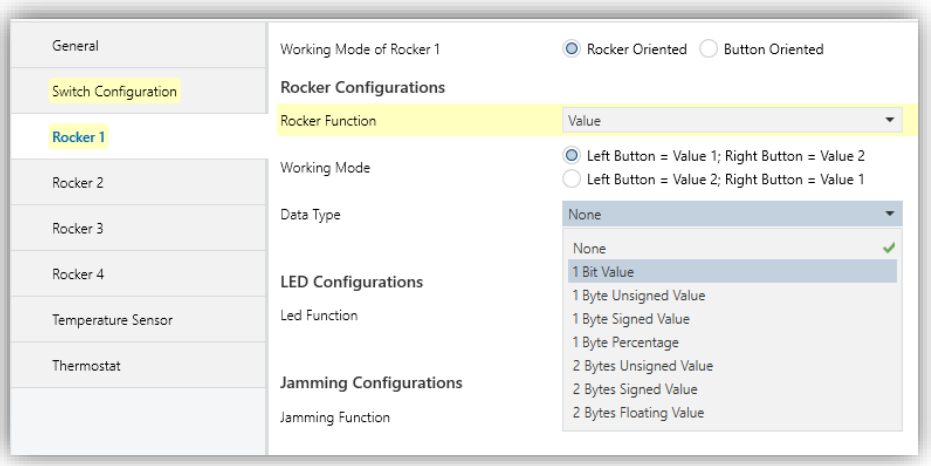
Jamming function is used to block to respective button or rocker via Object – "Rocker X - Jamming" by writing "true or false" data from the bus. Button will not work until it is enabled via jamming object.



9.2.4 Rocker oriented (Value)

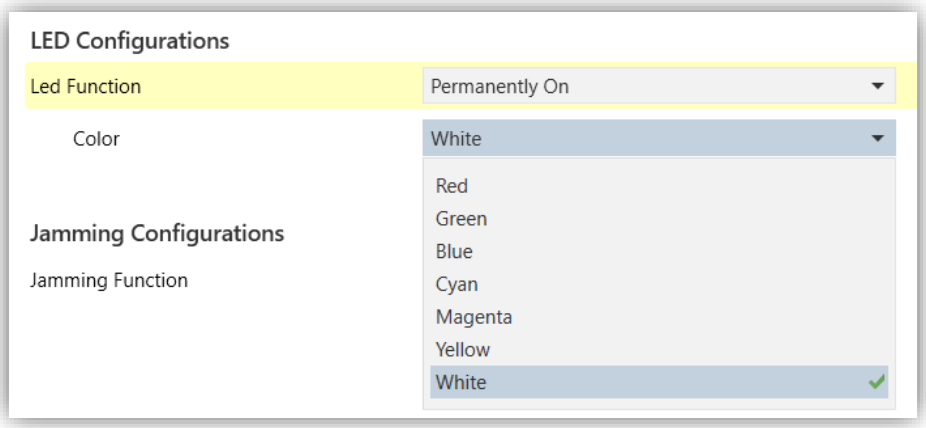
Working mode is selectable for left and right buttons. [Left Button = VALUE 1; Right Button = VALUE 2]

Selectable data types:
- 1 Bit Value
- 1 Byte Unsigned Value
- 1 Byte Signed Value
- 1 Byte Percentage
- 2 Byte Unsigned Value
- 2 Byte Signed Value
- 2 Bytes Floating Value



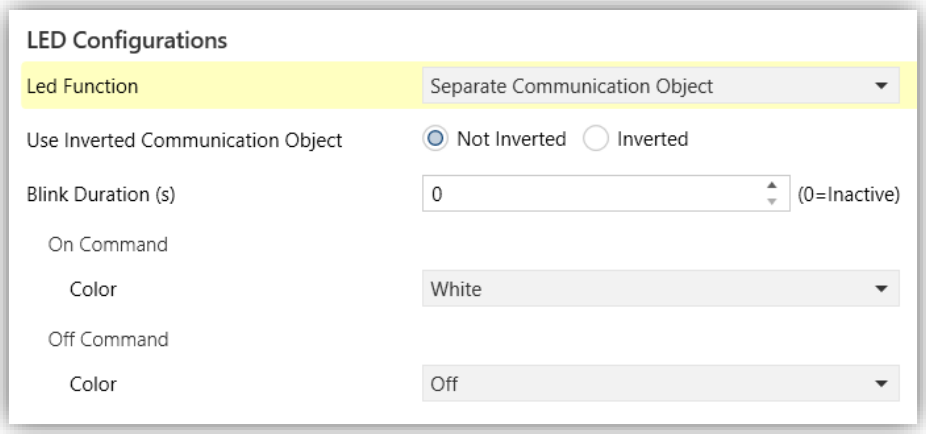
LED Configurations:
Available functions: Permanently OFF, Permanently ON, Status Indication, Separate Communication Object and Operation Indication.

Led Function [Permanently ON]: LED is always ON for selected color. [Red, Green, Blue, Cyan, Magenta, Yellow, White]



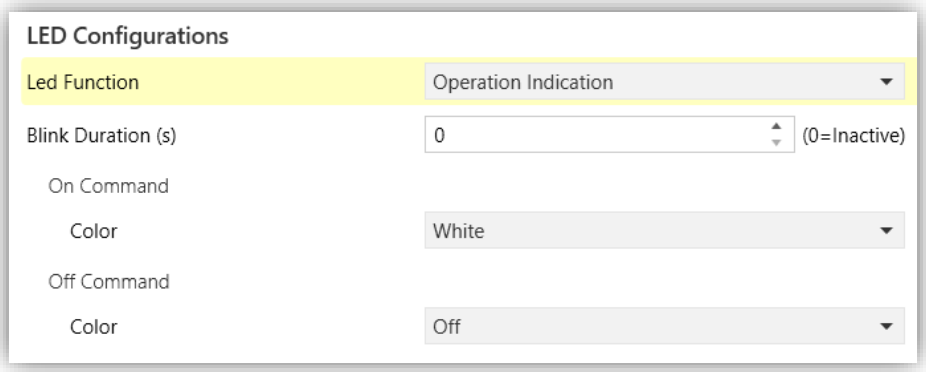
Led Function [Permanently OFF]: LED is always OFF.

Led Function [Separate Communication Object]: LED color will change according to value received by LED status object.



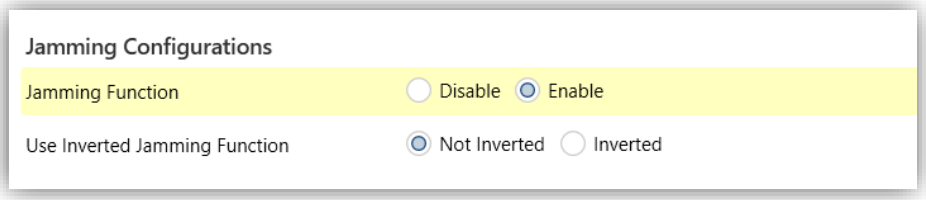
Led Function [Operation indication]: Status LED of rocker button will stay on color selected for "OFF command" until it is pressed. The pressed button will stay on color selected for "ON command" until it is released.

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)



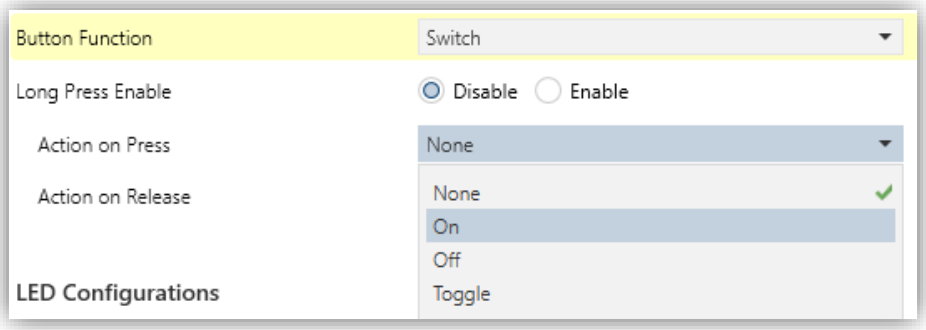
Jamming Configurations

Jamming function is used to block to respective button or rocker via Object – "Rocker X - Jamming" by writing "true or false" data from the bus. Button will not work until it is enabled via jamming object.

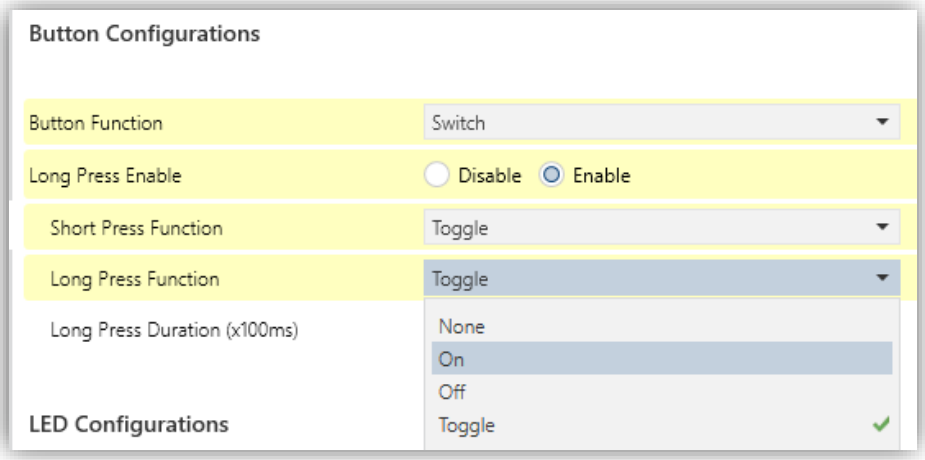


9.2.5 Button oriented (Switch)

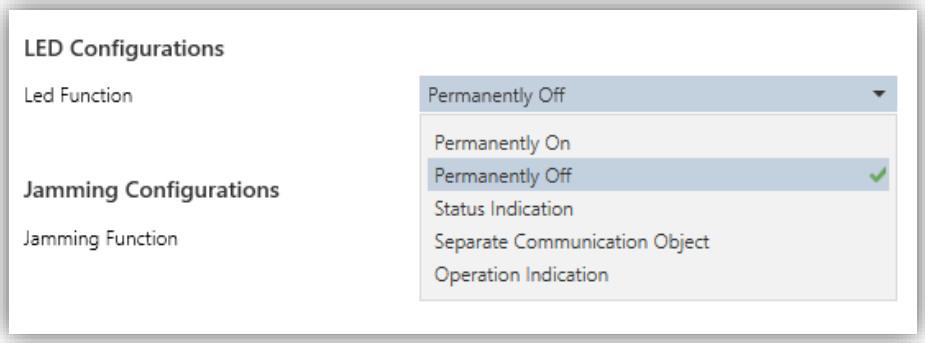
Action on press: [On, Off, Toggle] selected data will be sent to KNX bus for each press of button.
Action on release: [On, Off, Toggle] selected data will be sent to KNX bus for each release of button.



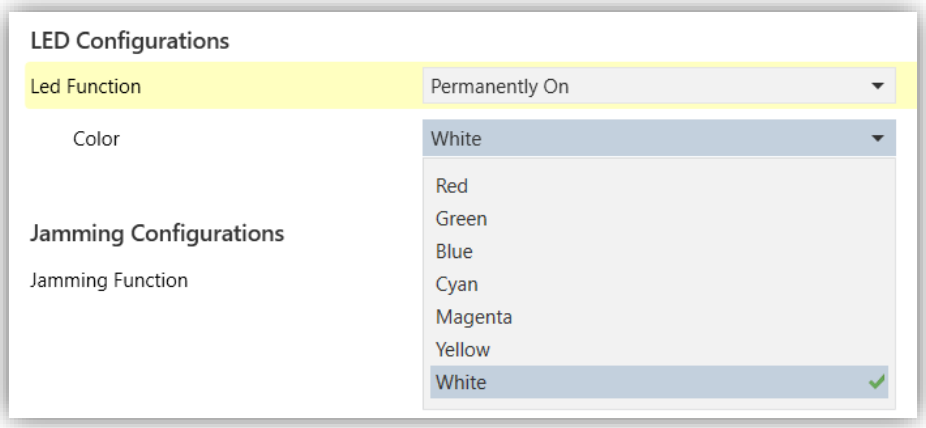
Long press function can be activated. Disabled as default.
ON, Off, Toggle commands can be sent separately using short and long press functions.



LED Configurations:
Available functions: Permanently OFF, Permanently ON, Status Indication, Separate Communication Object and Operation Indication.



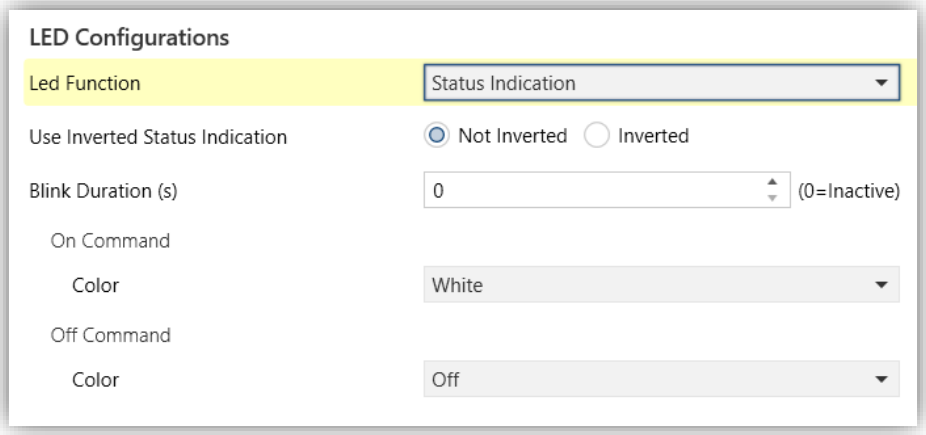
Led Function [Permanently ON]: LED is always ON for selected color. [Red, Green, Blue, Cyan, Magenta, Yellow, White]



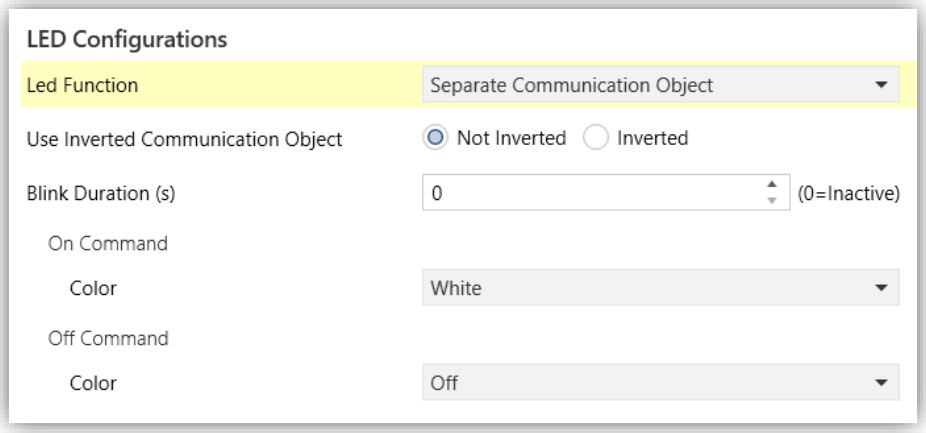
Led Function [Permanently OFF]: LED is always OFF.

Led Function [Status indication]: LED color will change according to status information. On command [white] – OFF Command [Off]

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)

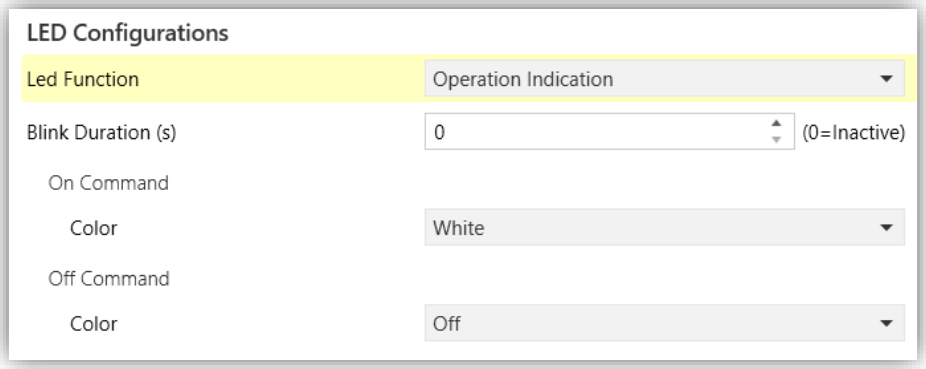


Led Function [Separate Communication Object]: LED color will change according to value received by LED status object.



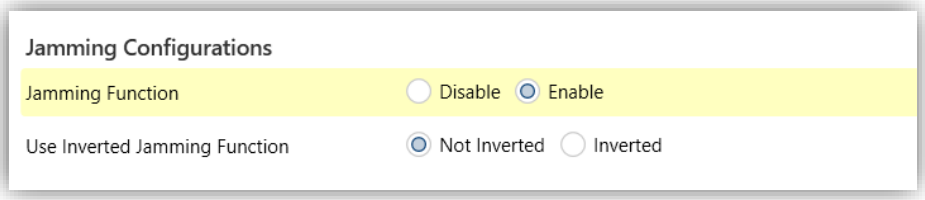
Led Function [Operation indication]: Status LED of rocker button will stay on color selected for "OFF command" until it is pressed. The pressed button will stay on color selected for "ON command" until it is released.

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)



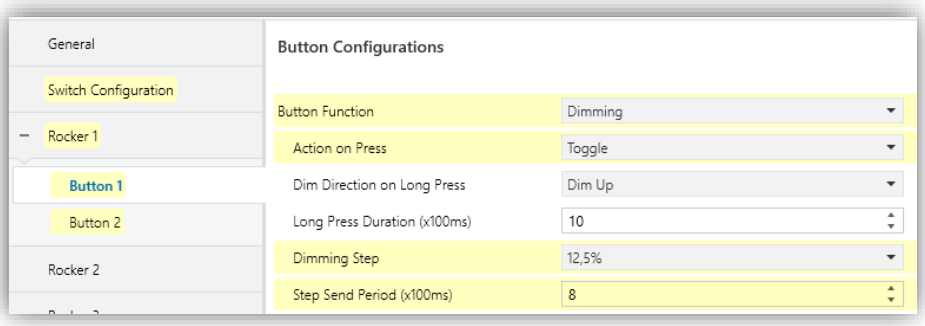
Jamming Configurations

Jamming function is used to block to respective button or rocker via Object – "Rocker X - Jamming" by writing "true or false" data from the bus. Button will not work until it is enabled via jamming object.



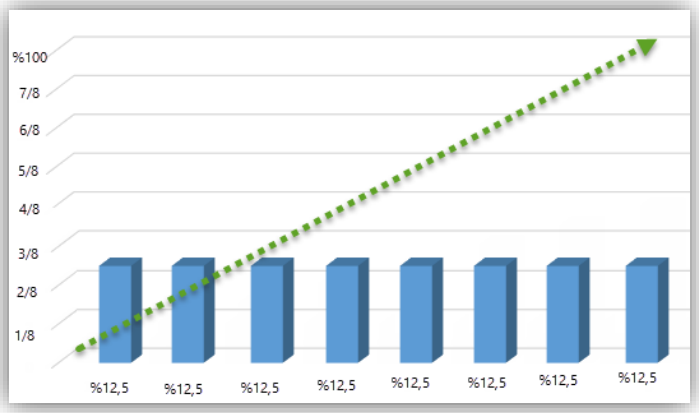
9.2.6 Button oriented (Dimming)

"Action on press" can be selected for ON, OFF, TOGGLE commands. Using Long press function, Dim direction is changeable for UP, DOWN, UP/DOWN commands.

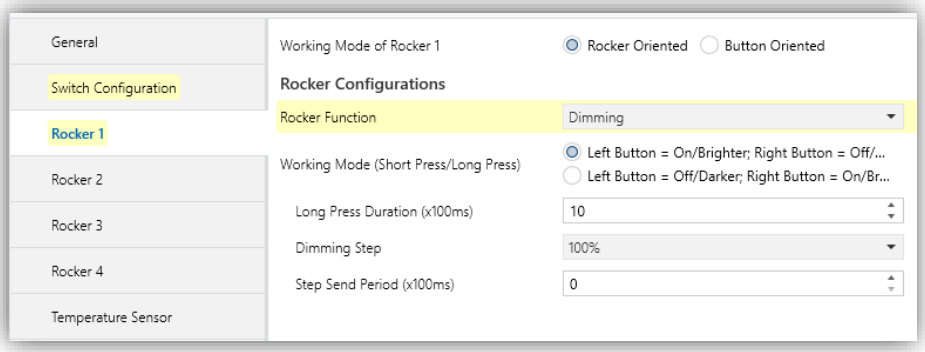


Long Press Duration (x100 ms): Long press duration can be changed. [0…**10**…65535]
As default; 100 ms x 10=1000 ms (1 second)
Switch will start to send dimming up/down commands after each press longer than "1 second".

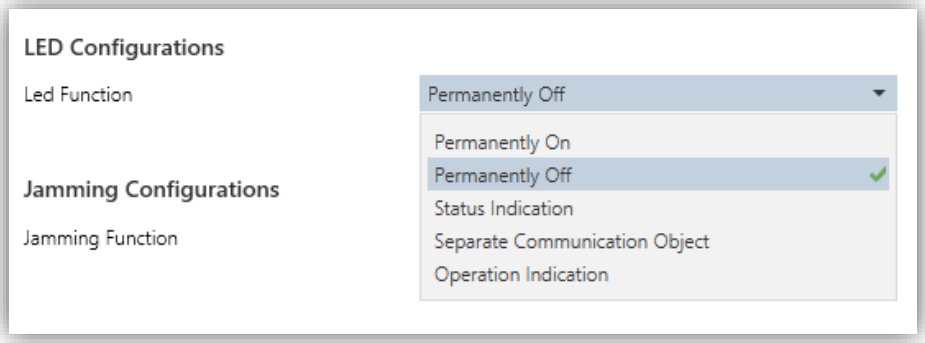
Dimming Step: Dimming step percentage can be changed to specify the maximum dimming step width of a dimming telegram. With a dimming message, you can dim by a maximum of X % (100 % option represents "Start-stop" dimming function. Other percentage values correspond to "step dimming function").



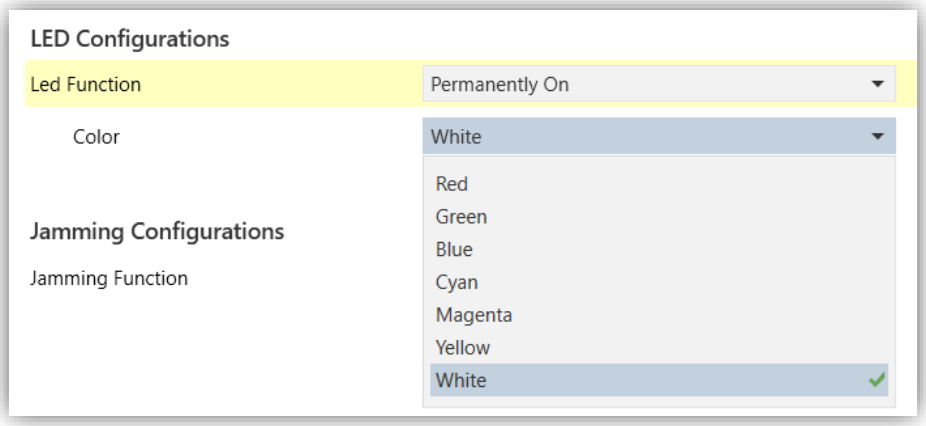
Step Send Period: Defines time interval between two dimming step commands. This interval is another parameter to change dimming speed of the lighting source.



LED Configurations:
Available functions: Permanently OFF, Permanently ON, Status Indication, Separate Communication Object and Operation Indication.



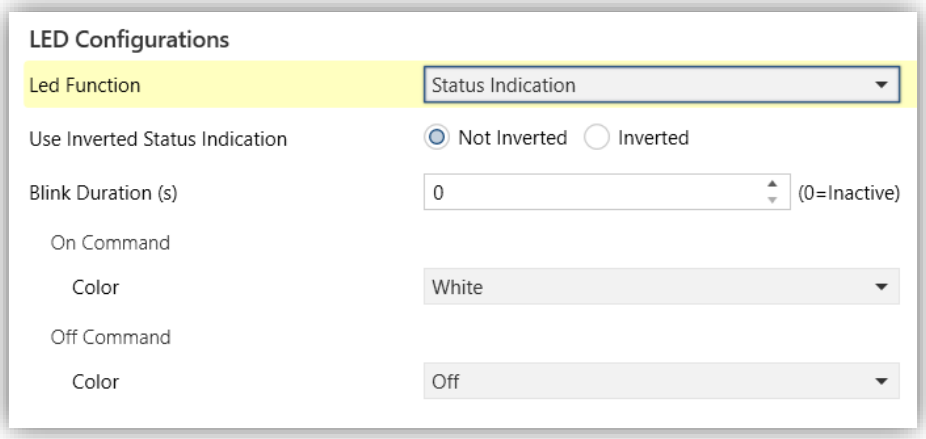
Led Function [Permanently ON]: LED is always ON for selected color. [Red, Green, Blue, Cyan, Magenta, Yellow, White]



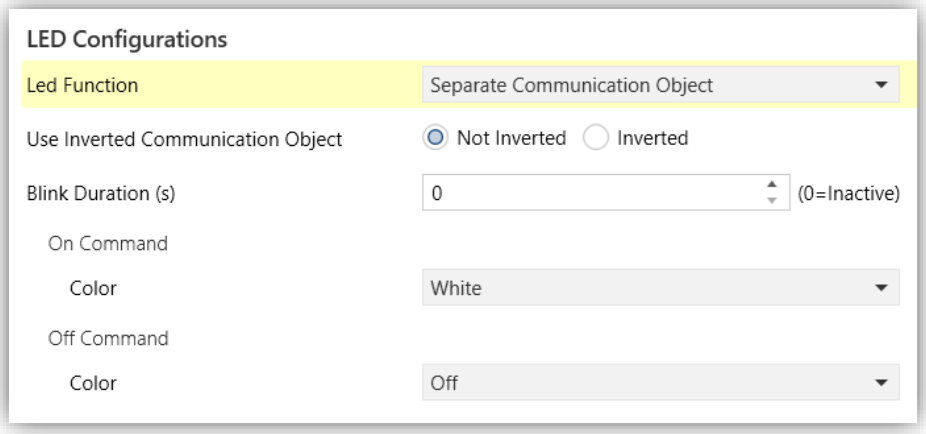
Led Function [Permanently OFF]: LED is always OFF.

Led Function [Status indication]: LED color will change according to status information. On command [white] – OFF Command [Off]

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)

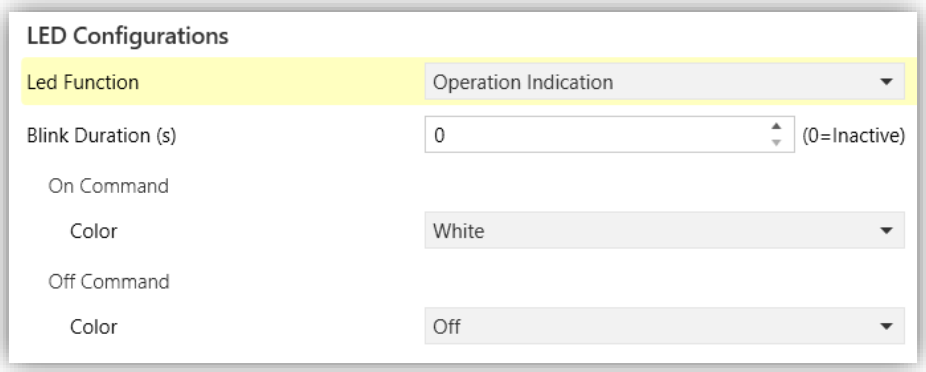


Led Function [Separate Communication Object]: LED color will change according to value received by LED status object.



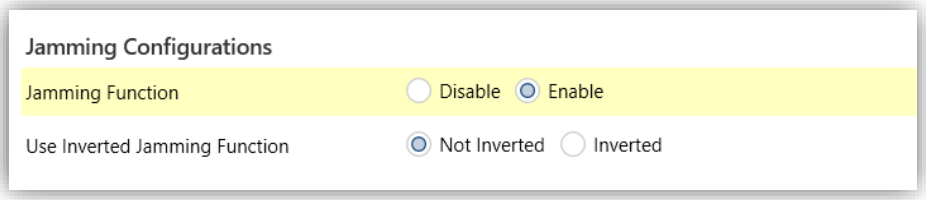
Led Function [Operation indication]: Status LED of rocker button will stay on color selected for "OFF command" until it is pressed. The pressed button will stay on color selected for "ON command" until it is released.

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)



Jamming Configurations

Jamming function is used to block to respective button or rocker via Object – "Rocker X - Jamming" by writing "true or false" data from the bus. Button will not work until it is enabled via jamming object.

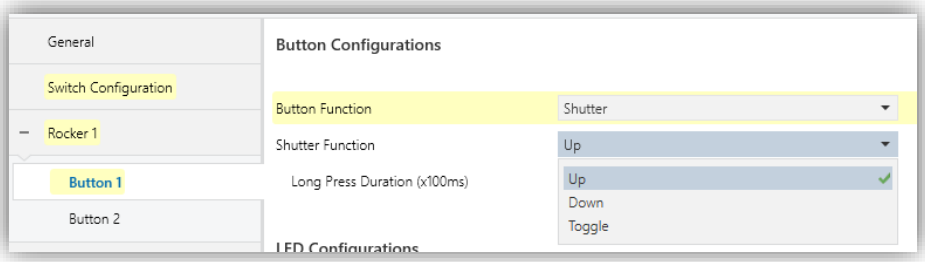


9.2.7 Button oriented (Shutter)

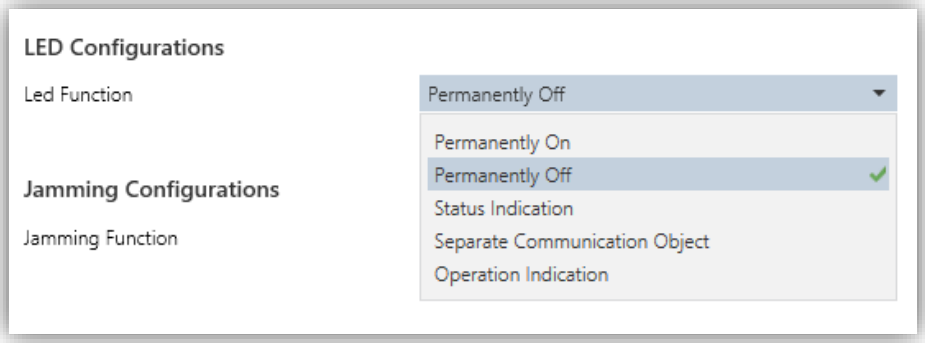
Shutter command can be selected for each long press [UP, DOWN, TOGGLE].

Switch will start to send [UP, DOWN, TOGGLE] commands after each press longer than "1 second". Switch will send Step/Stop command on each short press,

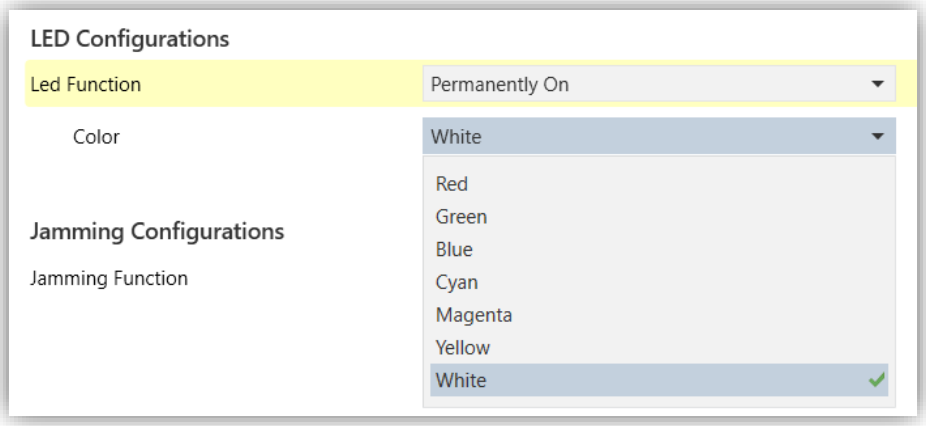
Long Press Duration (x100 ms): Long press duration can be changed. [0…**10**…65535] As default; 100 ms x 10 = 1000 ms (1 second)



LED Configurations:
Available functions: Permanently OFF, Permanently ON, Status Indication, Separate Communication Object and Operation Indication.



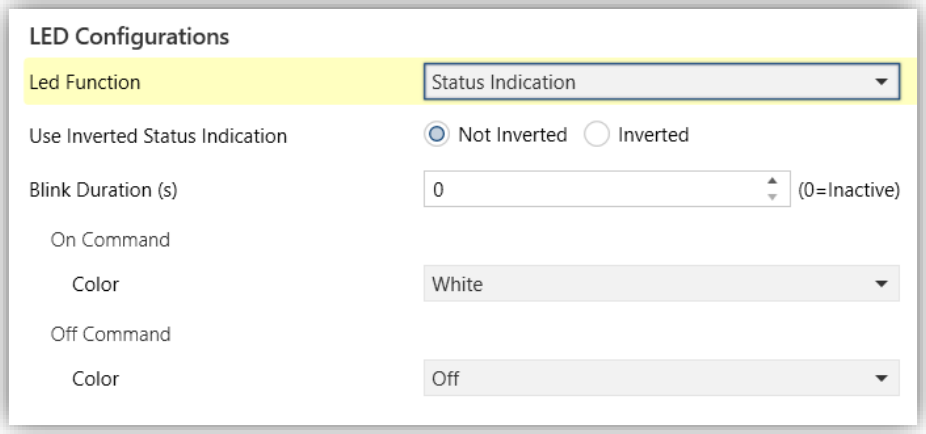
Led Function [Permanently ON]: LED is always ON for selected color. [Red, Green, Blue, Cyan, Magenta, Yellow, White]



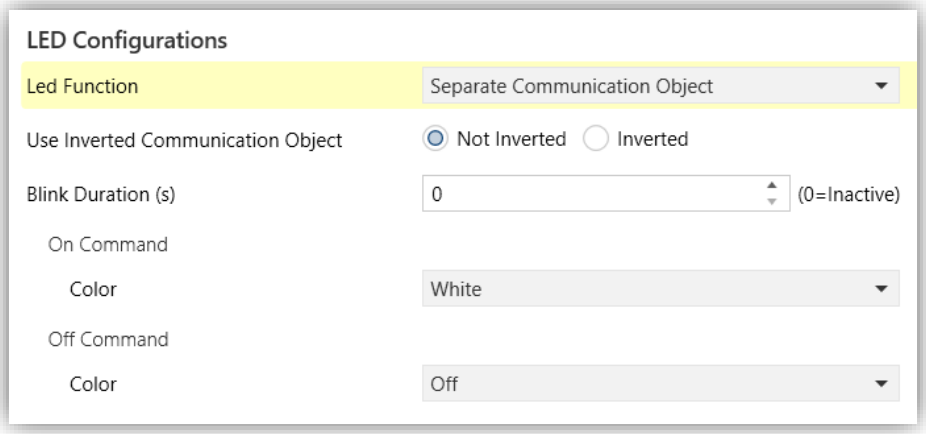
Led Function [Permanently OFF]: LED is always OFF.

Led Function [Status indication]: LED color will change according to status information.
On command [white] – OFF Command [Off]

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)

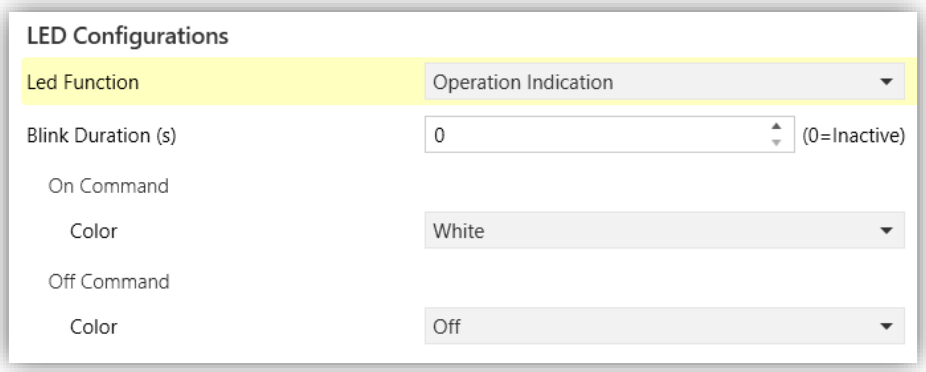


Led Function [Separate Communication Object]: LED color will change according to value received by LED status object.



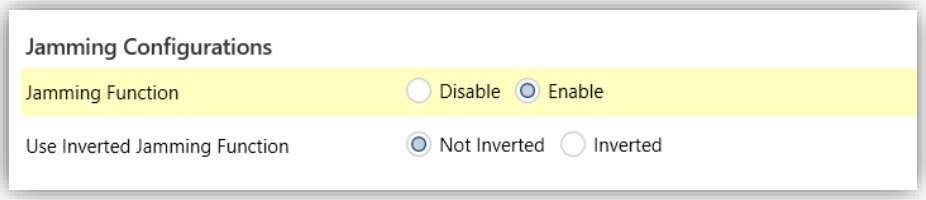
Led Function [Operation indication]: Status LED of rocker button will stay on color selected for "OFF command" until it is pressed. The pressed button will stay on color selected for "ON command" until it is released.

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)



Jamming Configurations

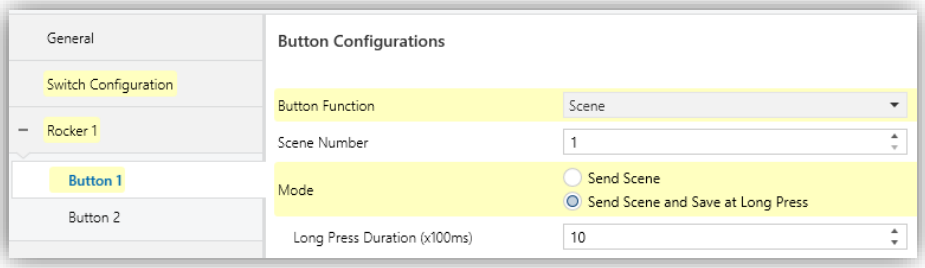
Jamming function is used to block to respective button or rocker via Object – "Rocker X - Jamming" by writing "true or false" data from the bus. Button will not work until it is enabled via jamming object.



9.2.8 Button oriented (Scene)

Scene number determines which scene (1...64) is to be recalled and stored. 64 different scenes can be managed by using single group address on different buttons.

Each short press will call the selected scene. Storing of the current scene can be triggered by long press action. Please check example group monitor record.



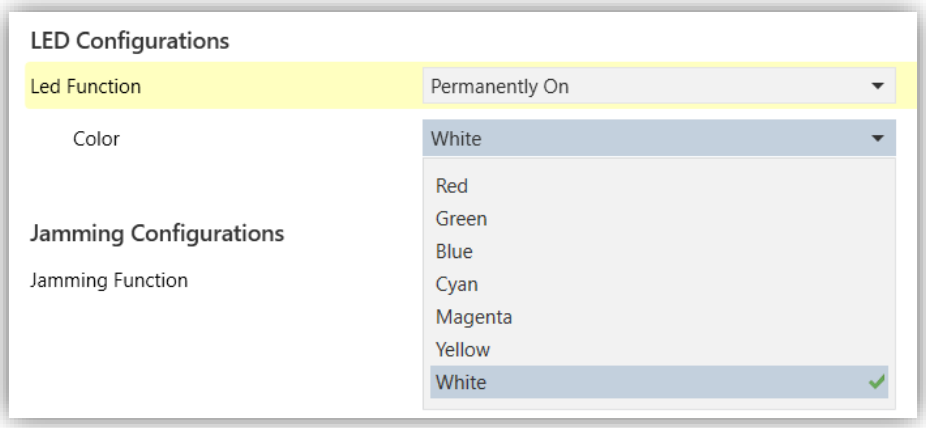
Example: Short press -> Button 1 is calling scene number 1.
Long press -> Button 1 is sending the "store scene command" for scene number 1.

#	Time	Destination A	Destinatior	Info	Type	DPT
1	10/03/2023 11:35:32.962	0/7/7	Scene	$00 | Activate #1	GroupValue_Write	18.001 scene control
2	10/03/2023 11:35:34.704	0/7/7	Scene	$80 | Learn #1	GroupValue_Write	18.001 scene control

Long Press Duration (x100 ms): Long press duration can be changed. [0...**10**...65535]
As default; 100 ms x 10=1000 ms (1 second)

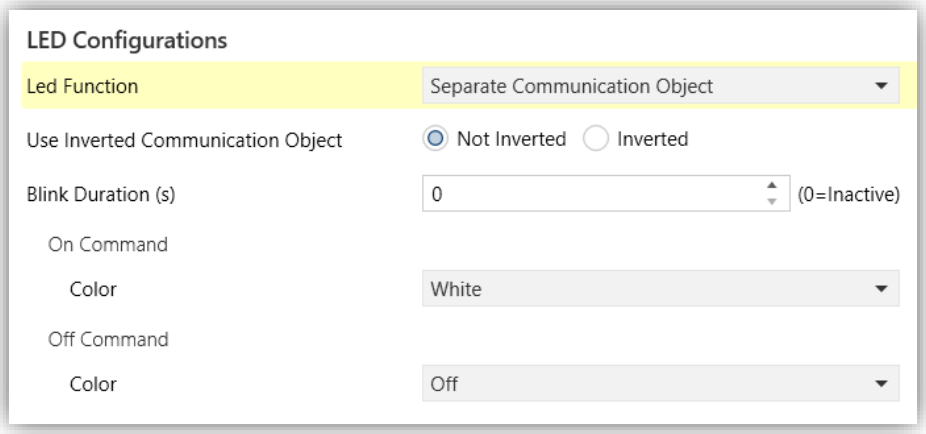
LED Configurations:
Available functions: Permanently OFF, Permanently ON, Status Indication, Separate Communication Object and Operation Indication.

Led Function [Permanently ON]: LED is always ON for selected color. [Red, Green, Blue, Cyan, Magenta, Yellow, White]



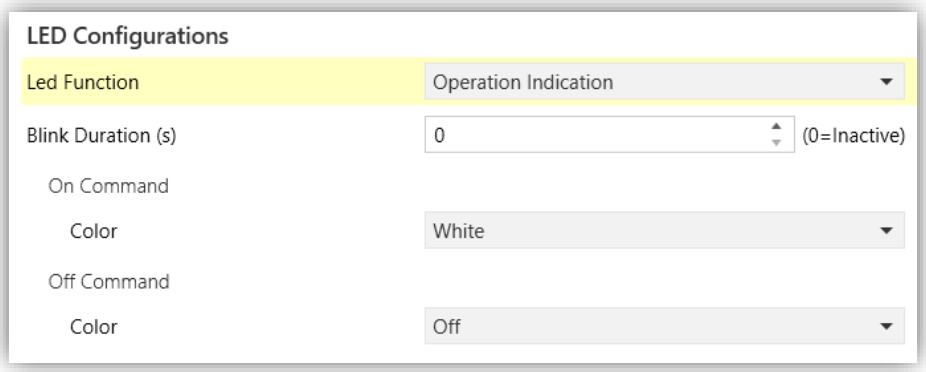
Led Function [Permanently OFF]: LED is always OFF.

Led Function [Separate Communication Object]: LED color will change according to value received by LED status object.



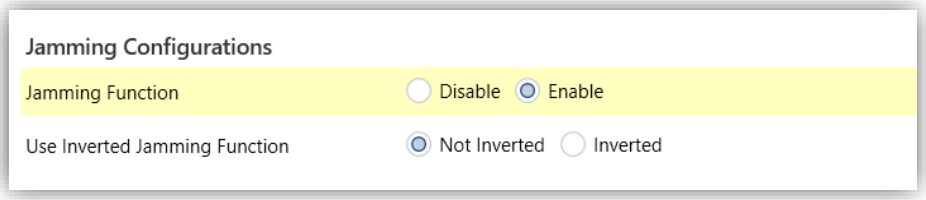
Led Function [Operation indication]: Status LED of rocker button will stay on color selected for "OFF command" until it is pressed. The pressed button will stay on color selected for "ON command" until it is released.

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)



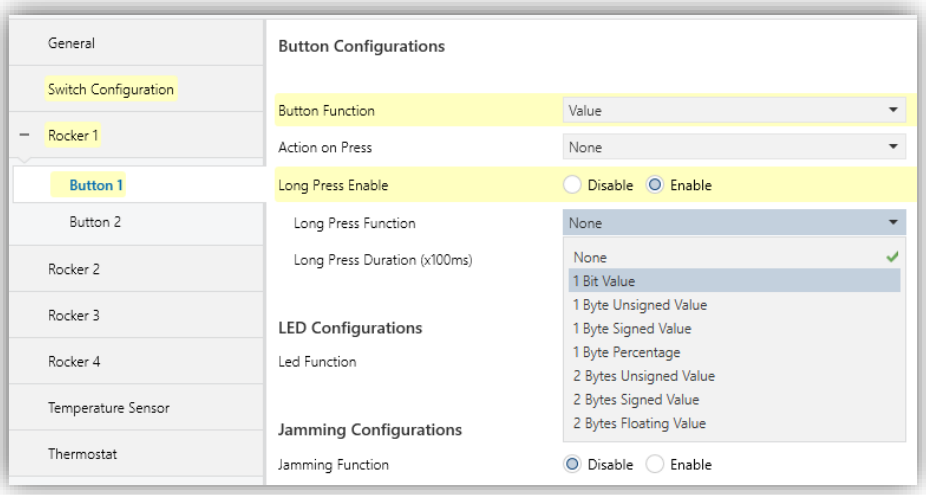
Jamming Configurations

Jamming function is used to block to respective button or rocker via Object – "Rocker X - Jamming" by writing "true or false" data from the bus. Button will not work until it is enabled via jamming object.



9.2.9 Button oriented (Value)

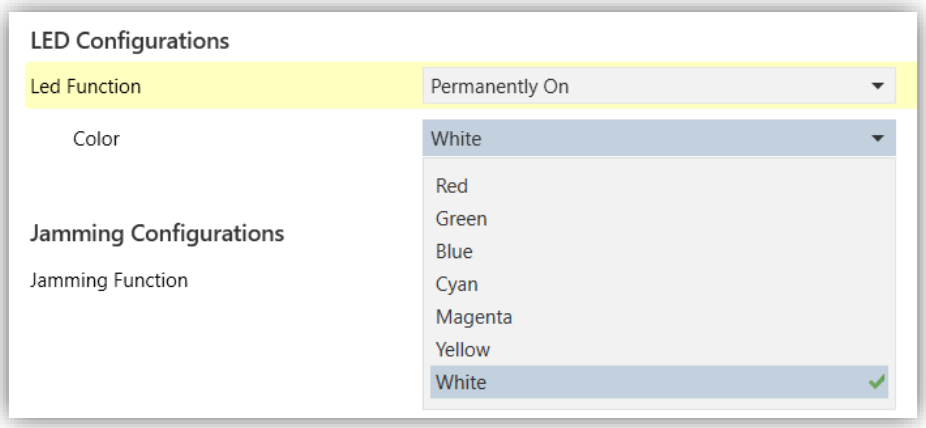
"Action on press" determines the data type for the short press. When the button is pressed, this type of data will be sent KNX bus via respective communication object.
Long press function can be enabled to send another data type by pressing longer to the same button.



Long Press Duration (x100 ms): Long press duration can be changed. [0…**10**…65535]
As default; 100 ms x 10=1000 ms (1 second)

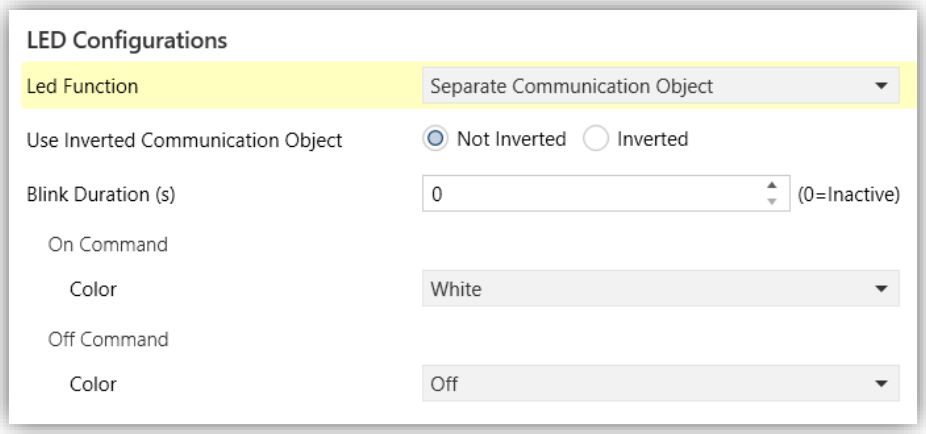
LED Configurations:
Available functions: Permanently OFF, Permanently ON, Status Indication, Separate Communication Object and Operation Indication.

Led Function [Permanently ON]: LED is always ON for selected color. [Red, Green, Blue, Cyan, Magenta, Yellow, White]



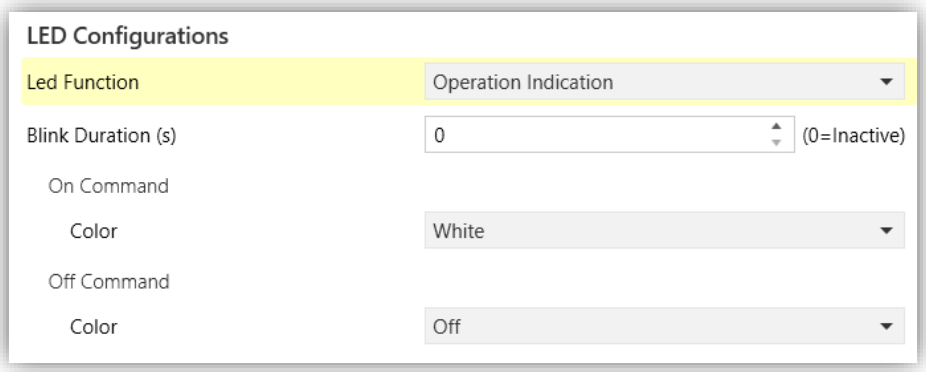
Led Function [Permanently OFF]: LED is always OFF.

Led Function [Separate Communication Object]: LED color will change according to value received by LED status object.



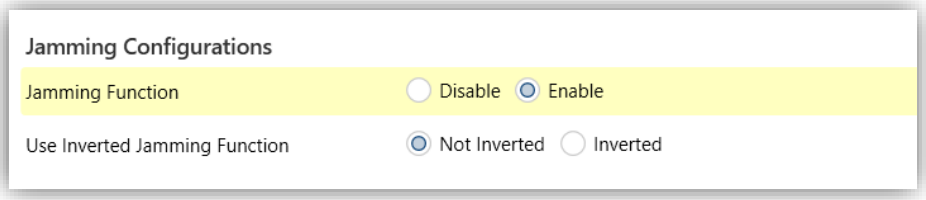
Led Function [Operation indication]: Status LED of rocker button will stay on color selected for "OFF command" until it is pressed. The pressed button will stay on color selected for "ON command" until it is released.

Blink Duration: Status LED of the pressed rocker button will blink for the time period selected at "Blink Duration(s)" parameter. (Blinking interval is fixed.)



Jamming Configurations

Jamming function is used to block to respective button or rocker via Object – "Rocker X - Jamming" by writing "true or false" data from the bus. Button will not work until it is enabled via jamming object.



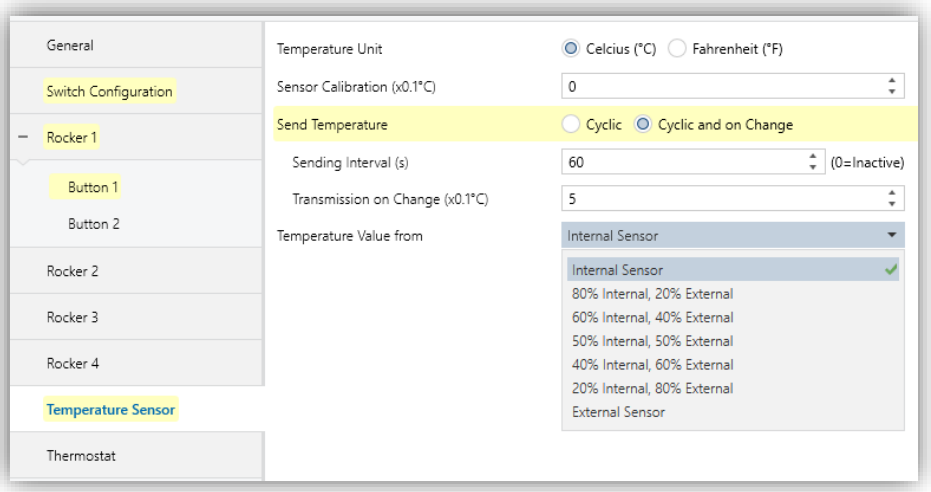
9.3 Temperature sensor

Temperature units can be selected as Celsius or Fahrenheit.

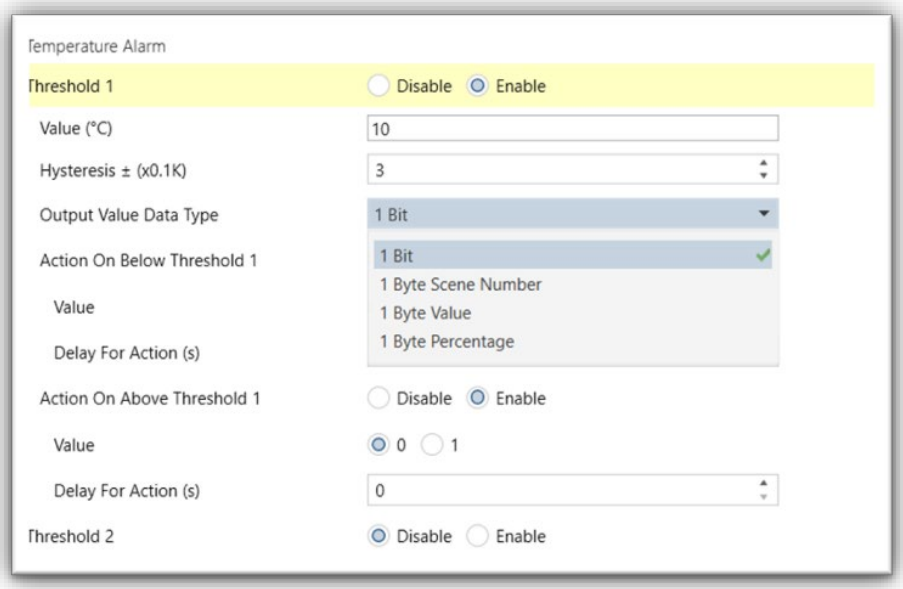
Sensor Calibration:
Measured temperature value can be shifted up or down by using sensor calibration value. [-32768...+32768]
Example: Assume that "10" is written to the sensor calibration box.
Calculation: 10x 0.1 = 1 Celsius, measured temperature will be increased "+ 1 °C". If "-10" is written to the sensor calibration box. Calculation: -10x 0.1 =- 1 Celsius, measured temperature will be decreased "-1 °C".

Send Temperature:
Object "Temperature – Actual Temperature" can be sent cyclically or by change of measured temperature.
Sending interval time [0...**60**...65535 s]
Transmission on change [0...**5**...255]

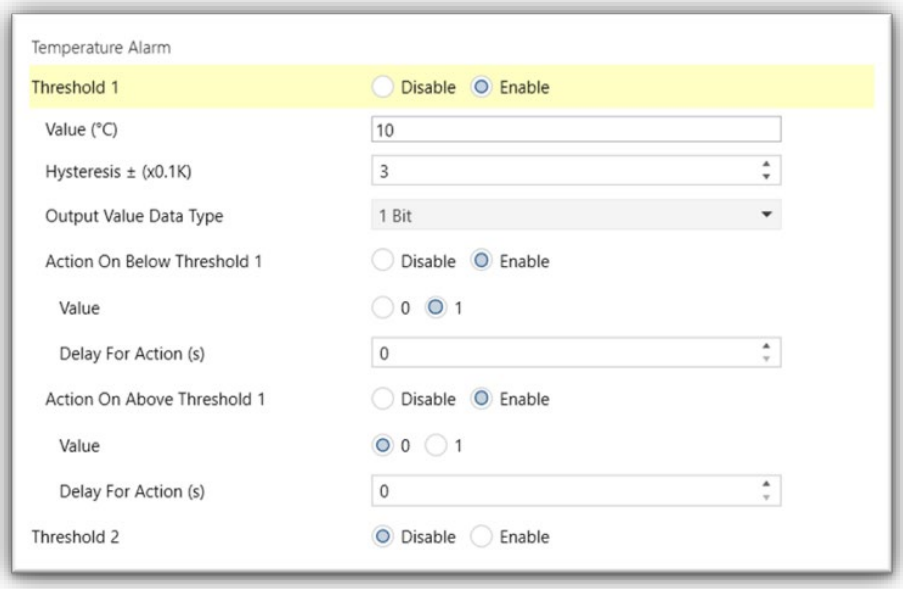
Temperature Value from:
Temperature value can be received from an external temperature sensor directly or partially according to selected percentage. Object "Temperature – External Value".



Temperature Alarm:



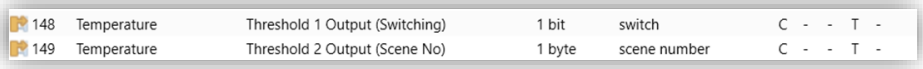
2 Thresholds can be defined.
When a threshold is enabled, "Temperature - Threshold x Output" object will appear. Value and hysteresis can be defined. Output data type can be selected as 1 Bit or 1 Byte.



Action On Below Threshold:
When enabled, "Threshold x Output" object will transmit selected value to KNX bus when measured temperature value is less than entered "value (°C) – hysteresis (0.1K)". A delay can be set to transmit the value with "Delay For Action" parameter.

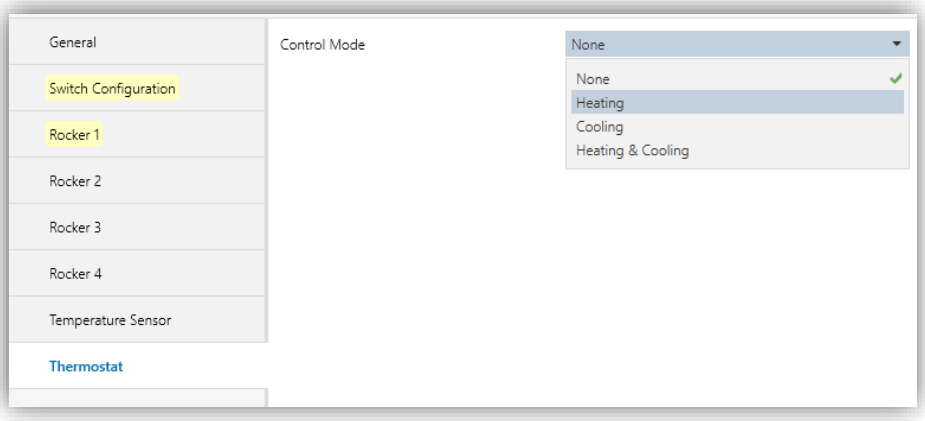
Example: Threshold value is 10 °C and Hysteresis is 0,3 °C. When measured value is less than 9,7 °C, "Temperature - Threshold x Output" object will transmit selected value to KNX bus.

Action On Above Threshold:
When enabled, "Threshold x Output" object will transmit selected value to KNX bus when measured temperature value is greater than entered "(°C) + hysteresis (0.1K)". A delay can be set to transmit the value with "Delay For Action" parameter.
Example: Threshold value is 10 °C and Hysteresis is 0,3 °C. When measured temperature value is greater than 10,3 °C, "Temperature - Threshold x Output" object will transmit selected value to KNX bus.



9.4 Thermostat

Control mode of thermostat can be selected for Heating, Cooling, and Heating & Cooling together.

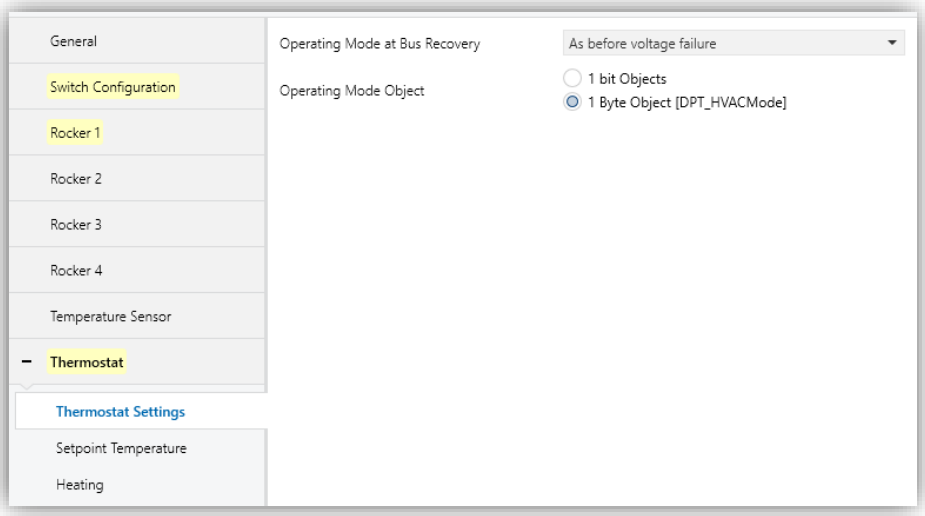


9.4.1 Thermostat settings

Operating Mode at Bus Recovery:
The parameter defines the behavior of the thermostat after the bus power return. Operating mode can be changed to the following options after a power return:

- As before voltage failure
- Comfort
- Standby
- Night
- Protection

Each operating mode has a different temperature setpoint.
Please check Setpoint temperature

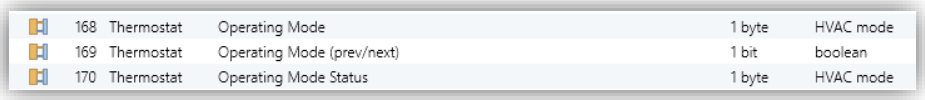


Operating Mode Object:
Parameter determines the data type of operating mode objects. Data type of operating mode objects can be used as "1 bit" with separate objects for each operating mode or "1 byte" for all modes. As default,

1 Byte Object [DPT_HVACMode]

Object 168 "Thermostat – Operating Mode" can be used to change between different modes.

$01 – Komfort [20.102 DPT_HVAC]
$02 – Standby [20.102 DPT_HVAC]
$03 – Economy [20.102 DPT_HVAC]
$04 – Protection [20.102 DPT_HVAC]

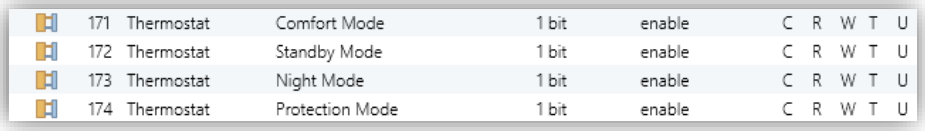


168	Thermostat	Operating Mode	1 byte	HVAC mode
169	Thermostat	Operating Mode (prev/next)	1 bit	boolean
170	Thermostat	Operating Mode Status	1 byte	HVAC mode

Object 169 "Thermostat – Operating Mode (prev/next)" can be used to change operating modes one by one via writing "True/False".
True= Next
False= Previous

Object 170 "Thermostat – Operating Mode Status" will give status of operating mode after change.

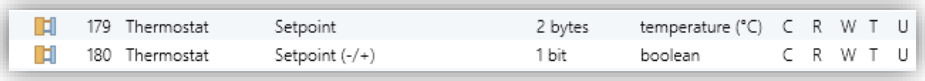
1 bit Object [DPT_Enable];



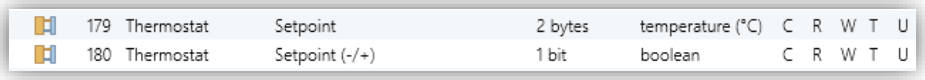
171	Thermostat	Comfort Mode	1 bit	enable	C	R	W	T	U
172	Thermostat	Standby Mode	1 bit	enable	C	R	W	T	U
173	Thermostat	Night Mode	1 bit	enable	C	R	W	T	U
174	Thermostat	Protection Mode	1 bit	enable	C	R	W	T	U

9.4.2 Setpoint temperature

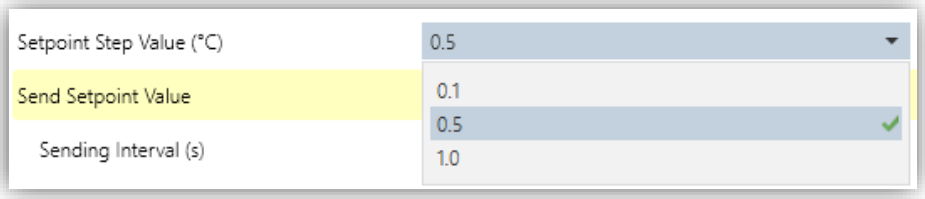
Min. Setpoint Value: [4…**16**…40]
Defines the minimum temperature setpoint value for the thermostat function. Any temperature value lower than Min. Setpoint Value cannot be written or selected on following objects.



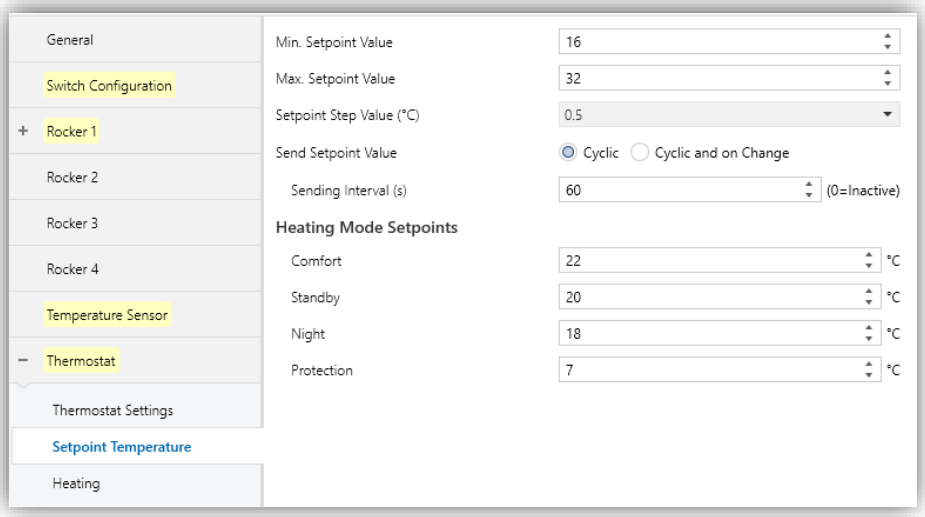
Max. Setpoint Value: [4…**32**…40]
Defines the maximum temperature setpoint value for the thermostat function. Any temperature value higher than Max. Setpoint Value cannot be written or selected on the following objects.



Setpoint Step Value: [0.1…**0.5**…1]
Increase/Decrease value of current setpoint by writing "True/False" to Object 180 "Thermostat – Setpoint (-/+)".



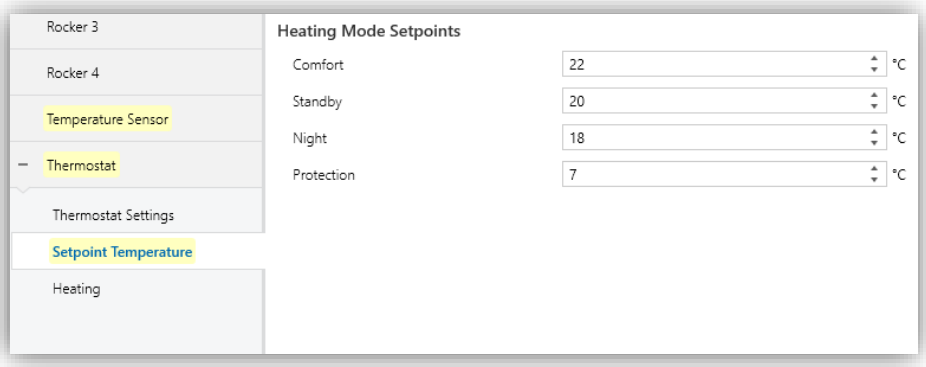
Send Setpoint Value (°C): [Cyclic…Cyclic on change]
Current setpoint can be sent cyclically or by change of measured temperature via Object "Thermostat – Setpoint Indication".
Sending interval (s) [0…**60**…65535 s] 0 = Inactive



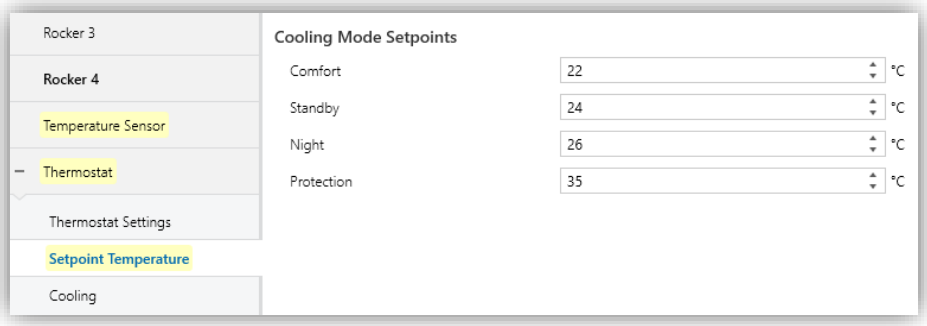
Heating Setpoints:
Thermostat has "4" operating modes; "Comfort Mode, Standby Mode, Night Mode and Protection Mode". Each operating mode has their own predefined setpoint temperature.

Changeover of operating modes can be achieved through "Operating Mode" communication objects which are explained in Thermostat settings.

Push button sensor starts with "Comfort Mode" as default after download.

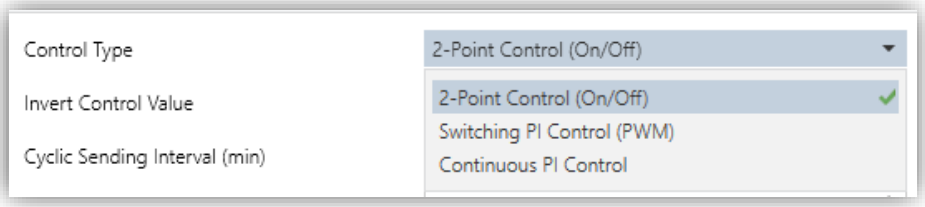


Cooling setpoints:

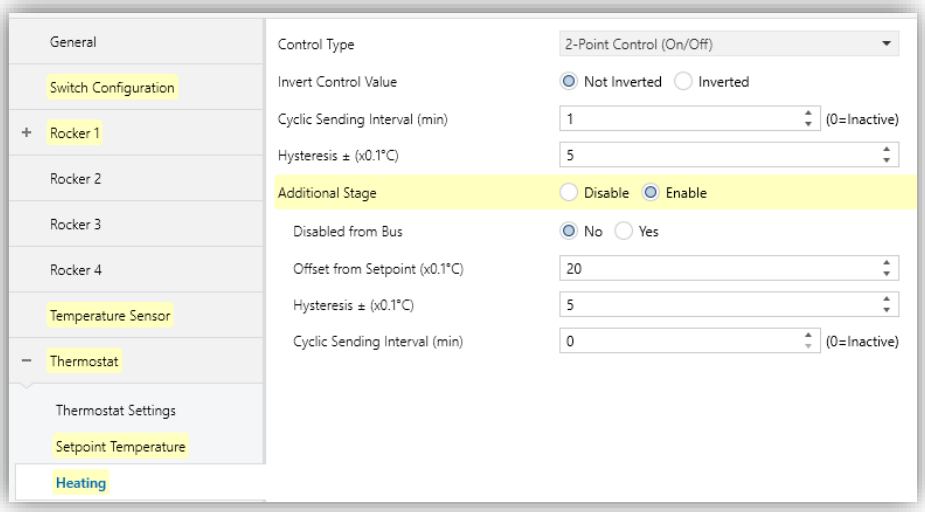


9.4.3 Heating

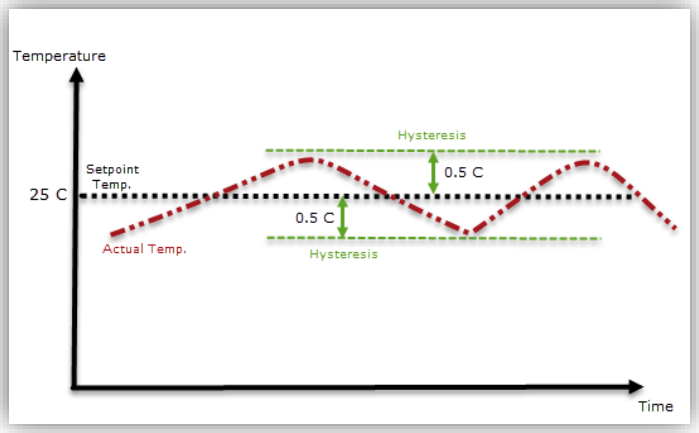
Control Type: [2-Point Control (On/Off), Switching PI Control (PWM), Continuous PI Control]



Heating - Control Type: [2-Point Control ON/OFF]



Operates as a simple switch around the setpoint temperature using hysteresis values. "Hysteresis" prevents the output value from oscillation and give larger margin to turning heat or cool on and off. If the system is more an active system, hysteresis values should be given larger and more inactive values.

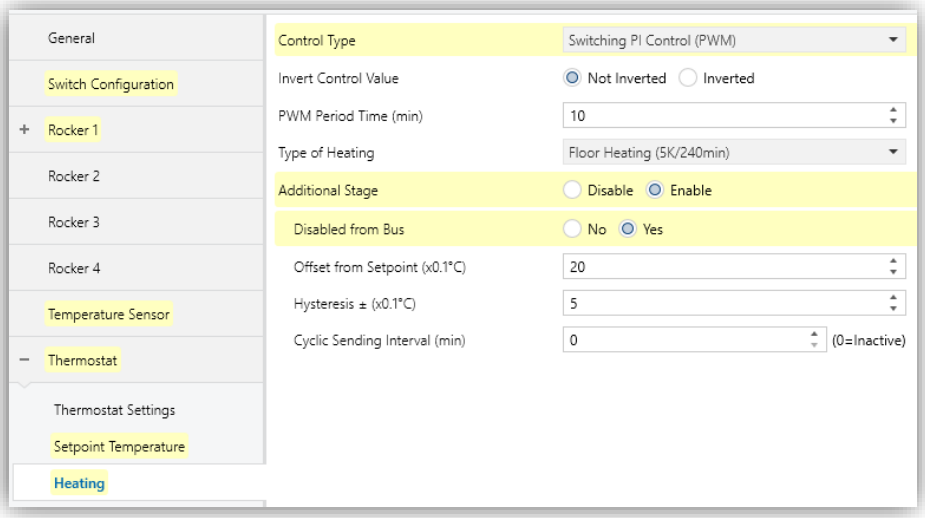


Invert Control Value: Output value can be used inverse.

Cyclic Sending Interval (min): [0…**1**…255]
Determines cyclic sending period of Object "Thermostat - Heating Control Value".

Hysteresis +/- (x 0.1 °C): [0…**5**…255]
Determines Hysteresis value to control Heating Control Value Output more accurately. "Hysteresis" prevents the output value from oscillation and give larger margin to turning heat or cool ON and OFF. If the system is more an active system, hysteresis values should be given larger and more inactive values.

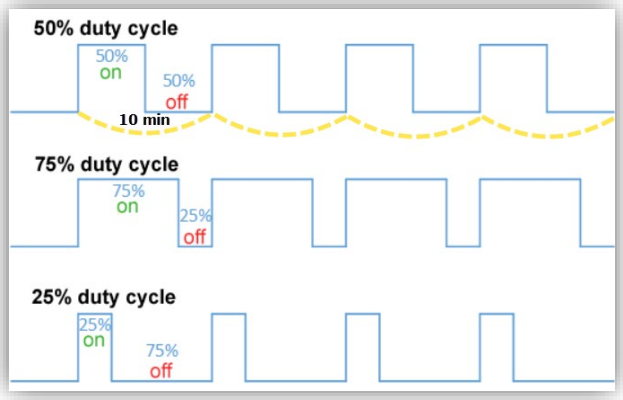
Heating - Control Type: [Switching PI Control PWM]



PI algorithm is used to calculate control signals. After calculation, the control signal is converted into a pulse-interval signal. This means PWM cycle is divided into "1 bit ON/OFF" output commands based on control value. The PWM period and type of heating should be selected according to the room used and type of heating.

Invert Control Value: Output value can be used inverse.

PWM Period Time (min): [1…**10**…255]
Defines PWM period time. If control value is calculated %50. Then control value will be ON for 5 minutes and OFF for second 5 minutes.
Please check following graphic.



Type of Heating: Multiple heating types with preset parameters are available to the user.

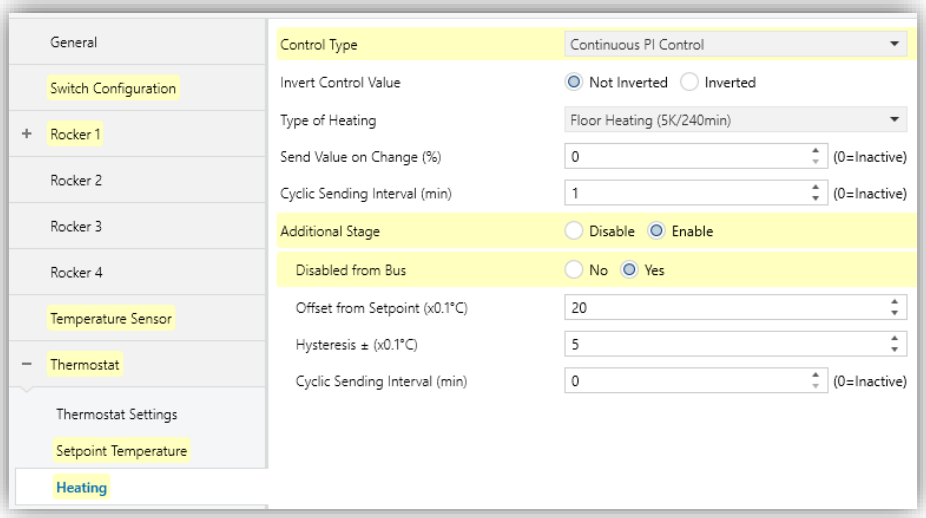
- Floor Heating (5K/240)
- How Water Heating (5K/150)
- Electrical Heating (4K/100)
- Fan coil (4K/90)
- User Defined

If the required heating type is not available, individual parameters can be specified in the "User Defined" configuration.

Proportional Range (x0.1 °C): [10...**50**...100]
Defines the proportional range of control. The parameter changes the control speed of the controller.

Integration Time (min): [0...**240**...255]
Defines the reset time of controller. Integration Time has the effect of moving the room temperature slowly toward and ultimately reaching the setpoint value. Depending on the type of system used, parameter needs to have different values. In general, the more inactive the overall system is, the greater time is needed.

Heating - Control Type: [Continuous PI Control PWM]



PI algorithm is used to calculate control signals and adjusts its output value between 0 % and 100 % to match the difference between the actual temperature and the setpoint temperature and enables an accurate regulation of the room temperature to the setpoint value.
PI values should be selected compatible with the room and the type of heating system that needs to be controlled. Default PI values are defined as the most common heating types. User-defined values can be used for different rooms and different types of heating for better performance. Using default values as a reference point and adjusting these values according to system might increase controller performance.

Invert Control Value: Output value can be used inverse.
Type of Heating: Multiple heating types with preset parameters are available to the user.

- Floor Heating (5K/240)
- How Water Heating (5K/150)
- Electrical Heating (4K/100)
- Fan coil (4K/90)
- User Defined

If the required heating type is not available, individual parameters can be specified in the "User Defined" configuration.

Send Value on Change (%): [**0**...100] 0 = inactive
Heating control value will be sent on change of percentage via Object "Temperature – Heating Control Value".

Cyclic Sending Interval (min): [0...**1**...255]
Determines cyclic sending period of Object "Thermostat - Heating Control Value".

HEATING - Additional Stage

Additional Stage: [Disable...Enable]
Additional Heating Control objects can be enabled if an extra Heating/Cooling Control Value is needed on top of main Heat/Cool Control Value.
Object "Thermostat – Additional Heating Control Value" is created when parameter is enabled.

Disable from Bus: Object "Thermostat – Additional Heating Control Value" can be disable any time while writing True/False to Object "Thermostat – Additional Heating Controller Disable".

Offset from Setpoint (x 0.1 °C): [1...**20**...255]
Defines a separate setpoint value based on main Setpoint temperature for Object "Thermostat – Additional Heating Control Value". Thus, Additional Heating Source will be activated/deactivated depending on the new temperature setpoint.
Example: Assume that a room has two types of different heating sources. (Main heating source, additional heating source)
Setpoint temperature is 24 degrees for the "Heating Control Value" (main heating source.)
If "Offset from Setpoint" parameter is default value; 20 x 0.1 C° =2 °C.
In this scenario, the setpoint for heating is set to 24 °C. When the temperature falls below 22 °C, additional heating should be switched on so that the room heats up again rapidly.

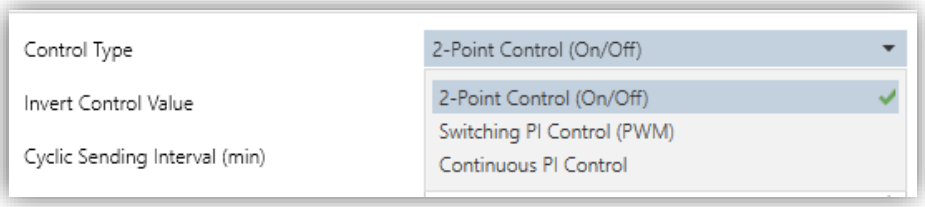
Hysteresis +/- (x 0.1 °C): [0...**5**...255]
Determines Hysteresis value to control Additional Heating Control Value Output more accurately. "Hysteresis" prevents the output value from oscillation and give larger margin to turning heat or

cool ON and OFF. If the system is more an active system, hysteresis values should be given larger and more inactive values.

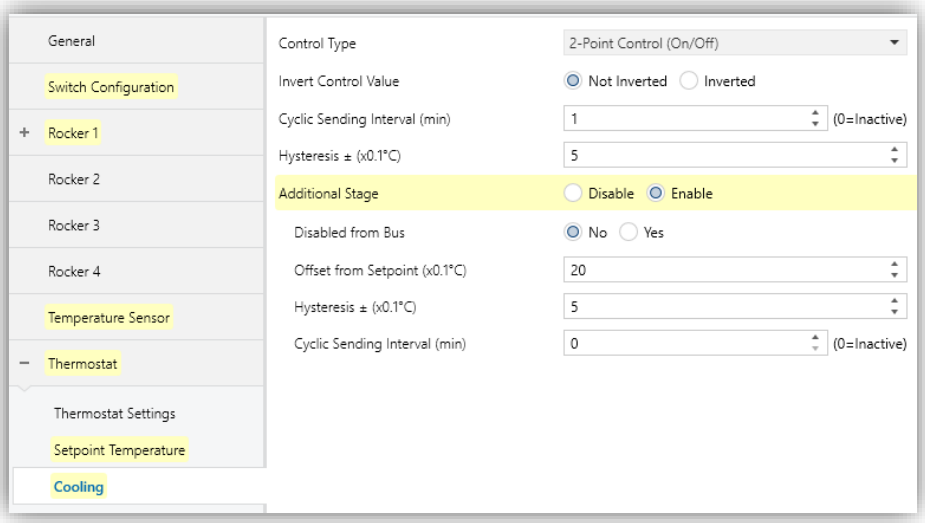
Cyclic Sending Interval (min): [**0**...255]
Determines cyclic sending period of Object "Thermostat - Additional Heating Control Value".

9.4.4 Cooling

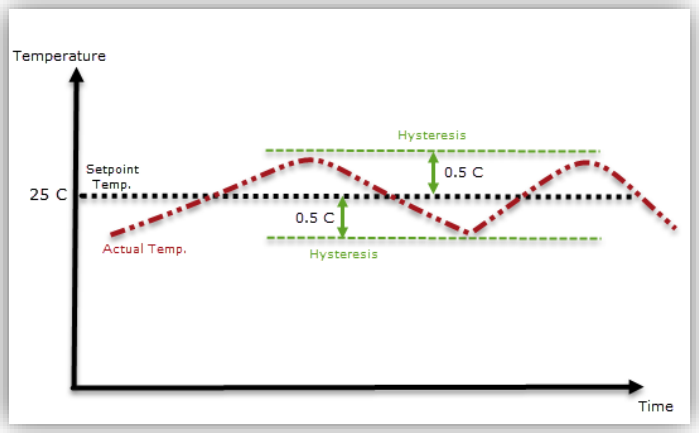
Control Type: [2-Point Control (On/Off), Switching PI Control (PWM), Continuous PI Control]



Cooling - Control Type: [2-Point Control ON/OFF]



Operates as a simple switch around the setpoint temperature using hysteresis values. "Hysteresis" prevents the output value from oscillation and give larger margin to turning heat or cool on and off. If the system is more an active system, hysteresis values should be given larger and more inactive values.

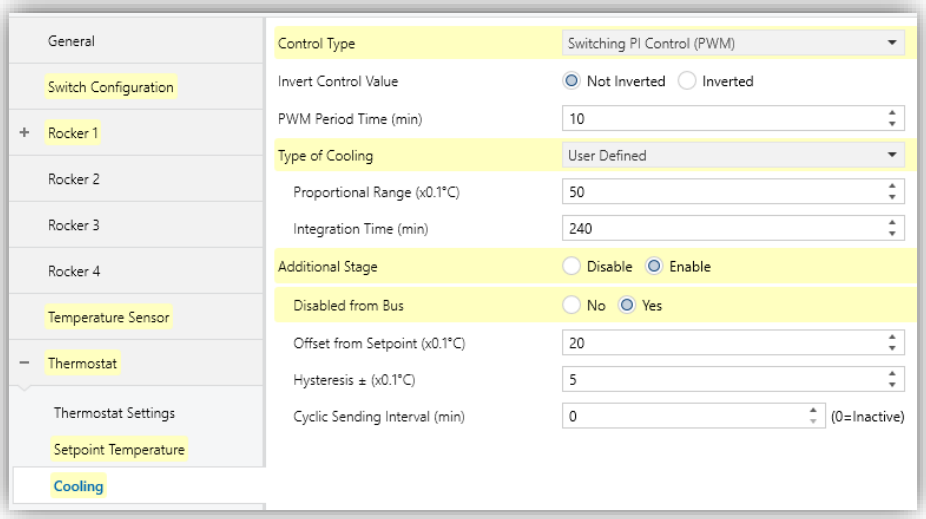


Invert Control Value: Output value can be used inverse.

Cyclic Sending Interval (min): [0…**1**…255]
Determines cyclic sending period of Object "Thermostat - Heating Control Value".

Hysteresis +/- (x 0.1 °C): [0…**5**…255]
Determines Hysteresis value to control Cooling Control Value Output more accurately. "Hysteresis" prevents the output value from oscillation and gives larger margin to turning heat or cool ON and OFF. If the system is more an active system, hysteresis values should be given larger and more inactive values.

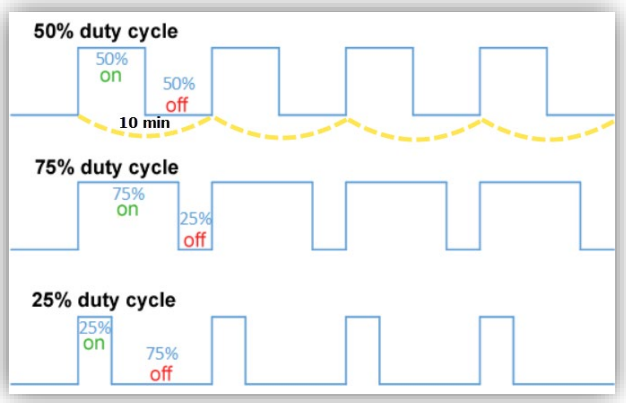
Cooling - Control Type: [Switching PI Control PWM]



PI algorithm is used to calculate control signals. After calculation, the control signal is converted into a pulse-interval signal. This means PWM cycle is divided into "1 bit ON/OFF" output commands based on control value. PWM period and type of cooling should be selected according to the room used and type of cooling source.

Invert Control Value: Output value can be used inverse.

PWM Period Time (min): [1…**10**…255]
Defines PWM period time. If control value is calculated 50 %. Then control value will be ON for 5 minutes and OFF for second 5 minutes.
Please check the following graphic.



Type of Cooling: Multiple cooling types with preset parameters are available to the user.

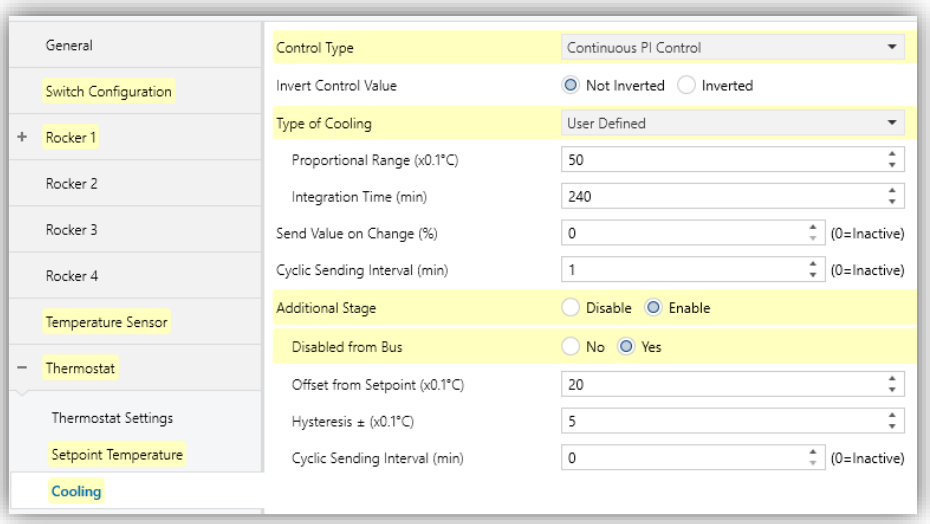
- Cooling Ceiling (5K/240)
- Fan coil (4K/90)
- User Defined

If required cooling type is not available, individual parameters can be specified in the "User Defined" configuration.

Proportional Range (x0.1 °C): [10…**50**…100]
Defines the proportional range of control. The parameter changes the control speed of the controller.

Integration Time (min): [0…**240**…255]
Defines the reset time of controller. Integration Time has the effect of moving the room temperature slowly toward and ultimately reaching the setpoint value. Depending on the type of system used, parameter needs to have different values. In general, the more inactive the overall system is, the greater time is needed.

Cooling - Control Type: [Continuous PI Control PWM]



PI algorithm is used to calculate control signals and adjusts its output value between 0 % and 100 % to match the difference between the actual temperature and the setpoint temperature and enables an accurate regulation of the room temperature to the setpoint value. PI values should be selected compatible with the room and the type of heating system that needs to be controlled. Default PI values are defined as the most common cooling types.
User-defined values can be used for different rooms and different cooling types for better performance. Using default values as a reference point and adjusting these values according to system might increase controller performance.

Invert Control Value: Output value can be used inverse.
Type of Heating: Multiple heating types with preset parameters are available to the user.

- Cooling Ceiling (5K/240)
- Fan coil (4K/90)
- User Defined

If the required cooling type is not available, individual parameters can be specified in the "User Defined" configuration.

Send Value on Change (%): [**0**...100] 0 = inactive
Cooling control value will be sent on change of percentage via Object "Temperature – Cooling Control Value".

Cyclic Sending Interval (min): [0...**1**...255]
Determines cyclic sending period of Object "Thermostat – Cooling Control Value".

COOLING - Additional Stage

Additional Stage: [Disable...Enable]
Additional Cooling Control object can be enabled if an extra Cooling Control Value is needed on top of main Cooling Control Value.
Object "Thermostat – Additional Cooling Control Value" is created when parameter is enabled.

Disable from Bus: Object "Thermostat – Additional Cooling Control Value" can be disable any time while writing True/False to Object "Thermostat – Additional Cooling Controller Disable".

Offset from Setpoint (x 0.1 °C): [1...**20**...255]
Defines a separate setpoint value based on main Setpoint temperature for Object "Thermostat – Additional Cooling Control Value". Thus, Additional Cooling Source will be activated/deactivated depending on new temperature setpoint.
Example: Assume that a room has two types of different cooling sources. (Main cooling source, additional cooling source)
Setpoint temperature is 24 degrees for the "Cooling Control Value" (main cooling source.)
If "Offset from Setpoint" parameter is default value; 20 x 0.1 C° =2 °C.
In this scenario, the setpoint for cooling is set to 24 °C. When the temperature rises above 26 °C, additional cooling should be switched on so that the room cools off again rapidly.

Hysteresis +/- (x 0.1 °C): [0...**5**...255]
Determines Hysteresis value to control Additional Cooling Control Value Output more accurately. "Hysteresis" prevents the output value from oscillation and give larger margin to turning heat or cool ON and OFF. If the system is more an active system, hysteresis values should be given larger and more inactive values.

Cyclic Sending Interval (min): [**0**...255]
Determines cyclic sending period of Object "Thermostat - Additional Cooling Control Value".

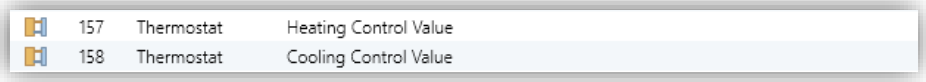
9.4.5 Heating and cooling

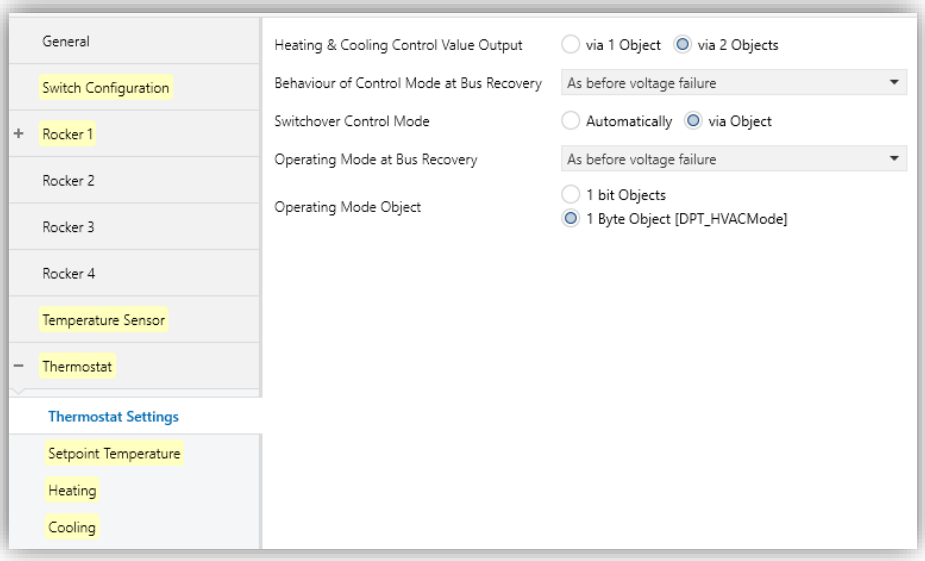
The control mode of thermostat can be selected for Heating, Cooling, and Heating & Cooling.
If Heating & Cooling control mode is selected parameter tabs of "Heating" and "Cooling" will be same. But parameter tabs of "Thermostat Settings" and "Setpoint Temperature" will have some additional parameters. Please check below.

THERMOSTAT SETTINGS

Heating & Cooling Control Value Output: Output value for Heating and Cooling can be sent via same object or 2 separate objects.
If "via 1 Object" option is selected Object "Thermostat – Heating/Cooling Control Value" will be activated.

If "via 2 Objects" option is selected Object "Thermostat – Heating Control Value" and Object "Thermostat – Cooling Control Value" will be activated.

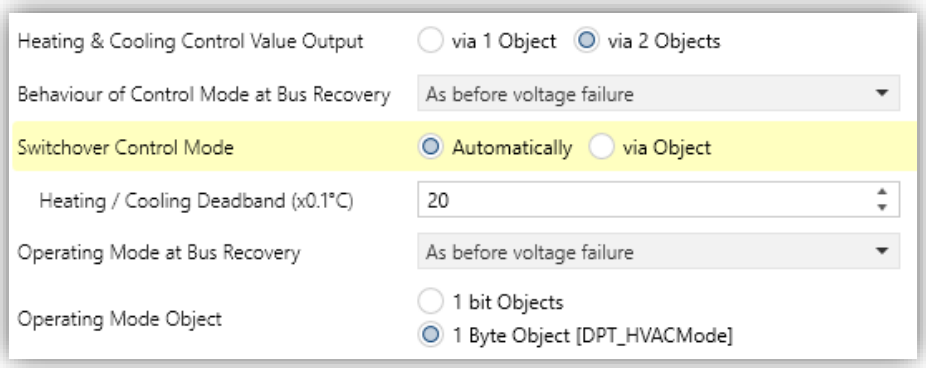




Behavior of Control Mode at Bus Recovery:
The parameter defines the behavior of the control mode after the bus power returns. Control mode can be changed to following options after a power return:

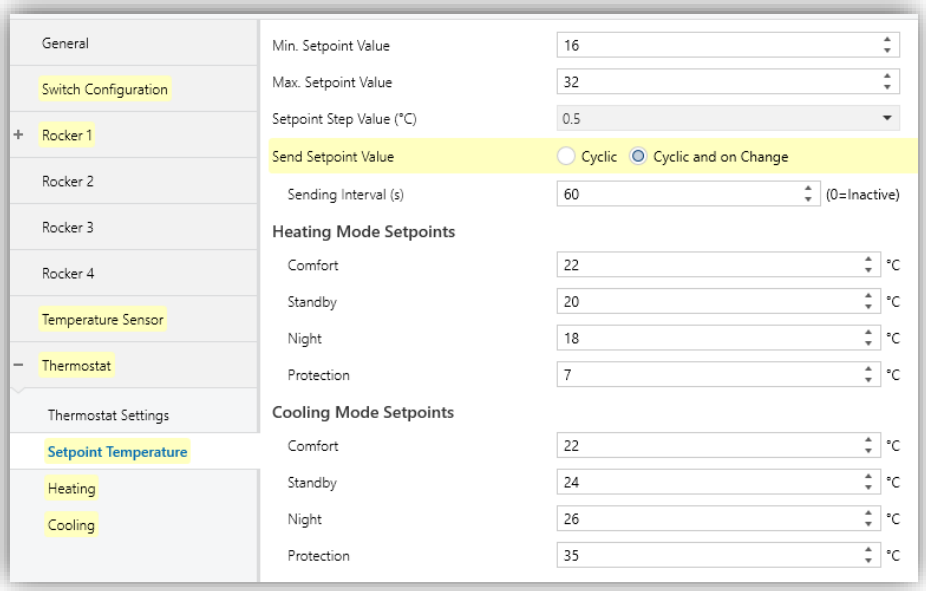
- As before voltage failure
- Heating
- Cooling

Switchover of Control Mode: [Automatically, via Object]
Parameter makes it possible to switch between the heating and cooling mode of the device. Automatically: The device switches automatically between heating and cooling and to the associated setpoint according to defined "Deadband". Object "Thermostat – Heat/Cool Status" will transmit the status after switchover.



Heating Cooling Deadband (x 0.1 °C): [0…**20**…255]
Deadband defines the range between setpoint temperature and measured temperature. If the deadband is exceeded, switchover will be applied.

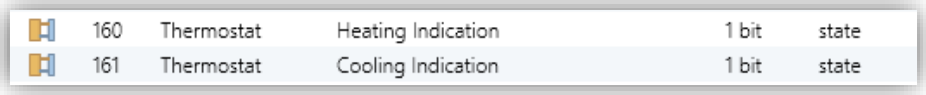
Via Object:
Switchover can be applied "via Object" manually using Object "Thermostat – Heat/Cool Switchover".
$01= Heating [1.100 DPT_cooling/heating]
$00= Cooling [1.100 DPT_cooling/heating]



Heating/Cooling Object Description

Heating / Cooling Indication

Object "Thermostat – Heating Indication" defines a state for recent heating command. It indicates that heating sources are recently having an active command to heat. In same way, Object "Thermostat – Cooling Indication" defines a state for recent cooling command. It indicates that cooling source is recently having an active command to cool.



Example: Heating mode is active. Setpoint Temperature 22 °C, Actual Temperature 21 °C. Heating control value is sending ON command to heat source and "heating indication" is instantly informing about heating command.

10:59:52.375	1.5.8	0/7/3	GroupValue_Write	Setpoint Indication	0C 4C | 22 °C
10:59:52.398	1.5.8	0/7/6	GroupValue_Write	Actual Temperature	0C 6A | 22.6 °C
11:00:26.114	1.5.8	0/7/4	GroupValue_Write	Heating Control Value	$00 | Off
11:00:52.635	1.5.8	0/7/3	GroupValue_Write	Setpoint Indication	0C 4C | 22 °C
11:00:52.658	1.5.8	0/7/6	GroupValue_Write	Actual Temperature	0C 6A | 22.6 °C
11:01:05.541	15.15.241	0/7/18	GroupValue_Write	External Value	0C 1A | 21 °C
11:01:07.700	1.5.8	0/7/6	GroupValue_Write	Actual Temperature	0C 1A | 21 °C
11:01:08.299	1.5.8	0/7/4	GroupValue_Write	Heating Control Value	$01 | On
11:01:08.320	1.5.8	0/7/23	GroupValue_Write	Heating Indication	$01 | Active

10 Contact

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