INTERRA

Developer of Uniqueness

Interra Just Touch

Product Manual

PM230118091AEN

Contents

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1. Content of The Document

This document contains Interra's ITR32X–XXXX coded Just Touch device's electronic and all essential feature information for programming this product. Each subtitle has explained the characteristics of the device. Modifications of the product and special change requests are only allowed in coordination with product management.

2. Product Description

Interra ITR32X–XXXX Just Touch, is a wall–mounting room controller for on / off switching loads, dimming of lighting devices, control of motor drives, or other programmable switching and control functions. At the same time, Just Touch can be used as a secondary product that can act as a room probe or thermostat, at a section of the building or a room, an electronic digital temperature controller, heating, cooling, air conditioning control, and regulation. Just Touch is developed according to the KNX standard for use in house and building control systems. Just Touch thanks to integrated sensors can be used for heating, cooling, and air-conditioning and regulation and also can measure room temperature and relative humidity values directly. Just Touch can receive temperature, relative humidity, and CO2 concentration values from other bus devices via the KNX bus system. In Just Touch models with LCD, related to room controller function various information can be displayed visually.

Just Touch is equipped with a user interface to display room air conditions and modify the desired setpoint. Depending on the air conditioning infrastructure, the end-user can determine up to 5 different fan speed values manually or automatically, working at an integrated system. Just Touch's product range includes 9 different models, there are 3 models with LCD, and 6 models without LCD. In models with LCD, LCD is located vertically at the centre area of the product between the gangs. In models without LCD (except the 10-button model) the centre area is designed as a blank cover like the other buttons which got the same materials to provide a decorative fit. In the 10-button model without LCD, the centre area buttons are designed with the same materials as other button covers that provide a decorative fit with 2 separate buttons. All Just Touch models can be programmed with only one database.

Just Touch product can be attached to the ETS database file, and the model used in the project is selected on the same file hence it is aimed to program the devices in a flexible structure, and a simple system that is not complex is presented to the implementers.

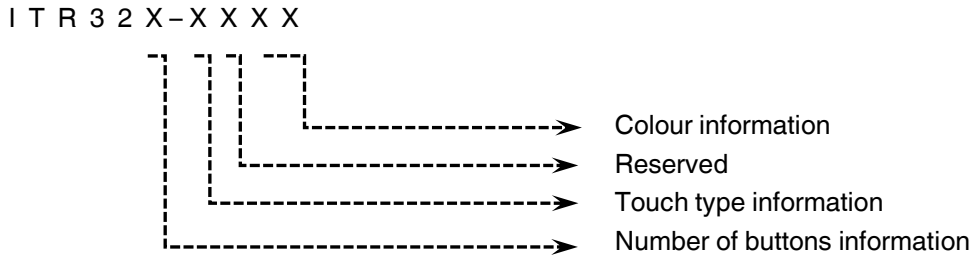
Just Touch is equipped with an integrated KNX bus communication module and is designed for wall installation on a flush mounting box. Several colour variations are available which can be combined to obtain different combinations. All RAL codes, except the standard ones, can be produced by users' request.

2.1. Technical Information

The following table shows the technical information of the Interra Just Touch.

Product Code	ITR32X–XXXX
Power Supply	KNX Power Supply
Power Consumption	0.6 W, 20 mA @30 V KNX Bus
Touch Buttons	Depending on the model (2, 4 and 10 buttons)
Sensors	Temperature Sensor (±0.2°C sens.) Humidity Sensor (±2 %RH C sens.)
Interfaces	320 RGB x 480 Dots TFT LCD display
Mode of Commissioning	S-Mode
Type of Protection	IP 20
Temperature Range	Operation (– 10°C …70 °C) Storage (– 25°C …100 °C)
Material	PC-ABS + Touch Layer
Colour	Buttons: Depends on the models Back Cover: Matte Black
Dimensions	90 x 90 x 97 mm (W x H x D)
Configuration	Configuration with ETS

2.2. Models And Variations



Models with Full Touch

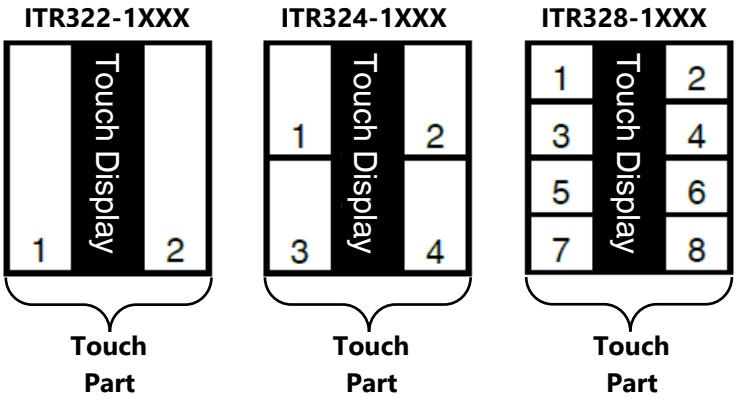


Fig. 1: View of 3 different models with Full Touch

Models with Acrylic Touch

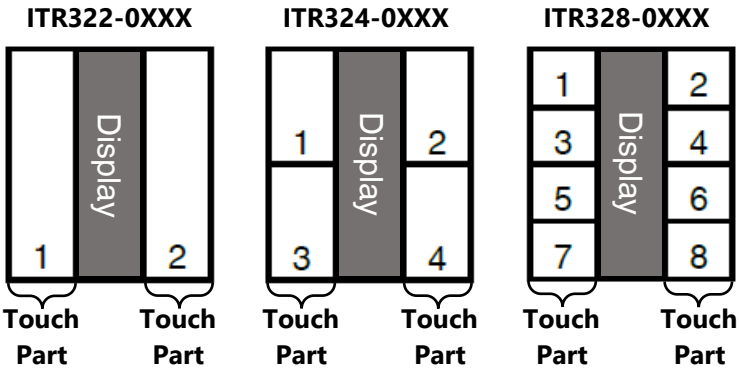


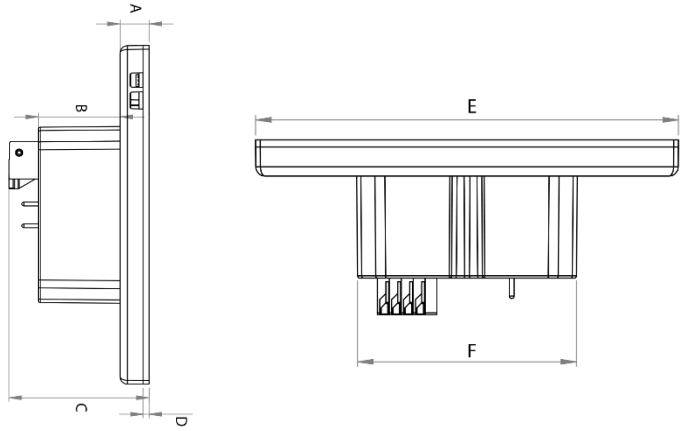
Fig. 2: View of 3 different models with Acrylic Touch

Materials and Colour Options

Material and colour options can be exclusively designed for special projects.

Glass
00 – Natural
01 – Black
02 – White

2.3 Dimensions



A	Tam Dokunmatik : 7.70 mm Akrilik Dokunmatik : 7.20 mm
B	22 mm
C	37 mm
D	Tam Dokunmatik: 1.5 mm Akrilik Dokunmatik: 1 mm
E	90 mm
F	47 mm

Fig. 3: Dimensions of the Just Touch

• All values given in the device dimensions are millimetres.

All of the Just Touch models, with Full Touch or with Acrylic Touch, have got the same dimensions.

2.4. Functional Descriptions

The prominent features of the Just Touch are the followings :

- All models can be programmable with only one database.
- Switching, toggle, dimming, shutter/blinds controls, predetermined scenes by users, value functions that can send presented values, 2 channels control functions, thermostat air conditioning functions, and step switching mode features are available.
- Scenes from 1 to 64 can be specified and these scenes can be implemented by request.
- Thermostat air conditioning functions can be used and switched between air conditioning modes.
- Room temperature regulation can be done with 2 – Points(Hysteresis), PWM or Continuous PI control options.
- Operating modes: comfort, standby, economy and building protection.
- Automatic switching between operating modes via KNX bus line.
- Temperature measuring through integrated sensors with the possibility of sending the value on the bus.
- Relative humidity measuring through integrated sensors with the possibility of sending value on the bus.
- Humidification and dehumidification control.
- LED configuration is available.
- Locking is available for all features.
- Ventilation control with continuous or 5 – speed regulation
- Internal or external conditions can be sent to the bus line within the operating modes.
- External – internal temperature, (measured, setpoint, outdoor values as ºC and ºF), operating mode, settings, CO2 concentration, fan control, humidity, and on/off features are displayed on LCDs.

2.5. Connection To The KNX Bus And Programmıng

The connection of the KNX bus line is made with the terminal block (black/red socket group) included in delivery and inserted into the slot of housing.

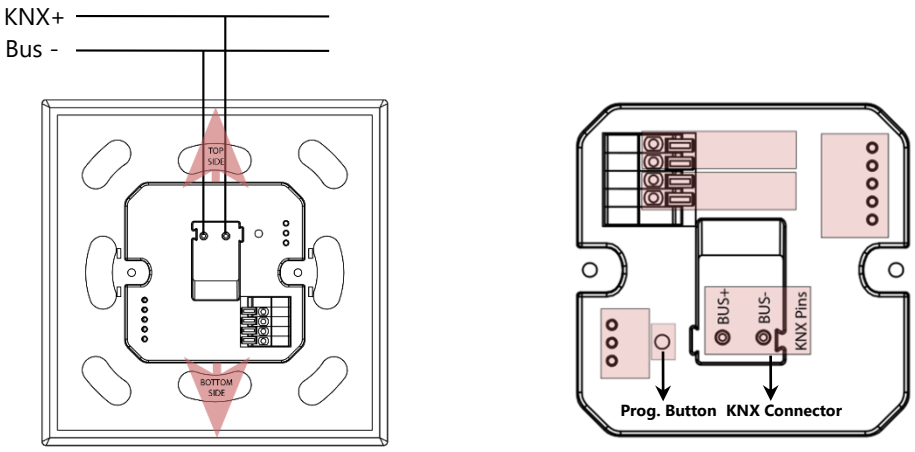


Fig. 4: Connection to KNX and Programming Button

After pressing the buttons on the top left and bottom left corner of the device simultaneously, the programming LED is activated by pressing the button in the bottom right corner and the LED's red light is on. Also, this can be done by pressing the programming button as another method. In these circumstances, the device is ready for programming.

3. Mounting

The Just Touch's mounting steps are described below. The procedures are described in 2 main sections: Mounting and demounting.

Mounting

The device is suitable for use in dry interior rooms and can only be mounted on a standard-sized round or square wall flush mounting box. The mounting steps are shown below.

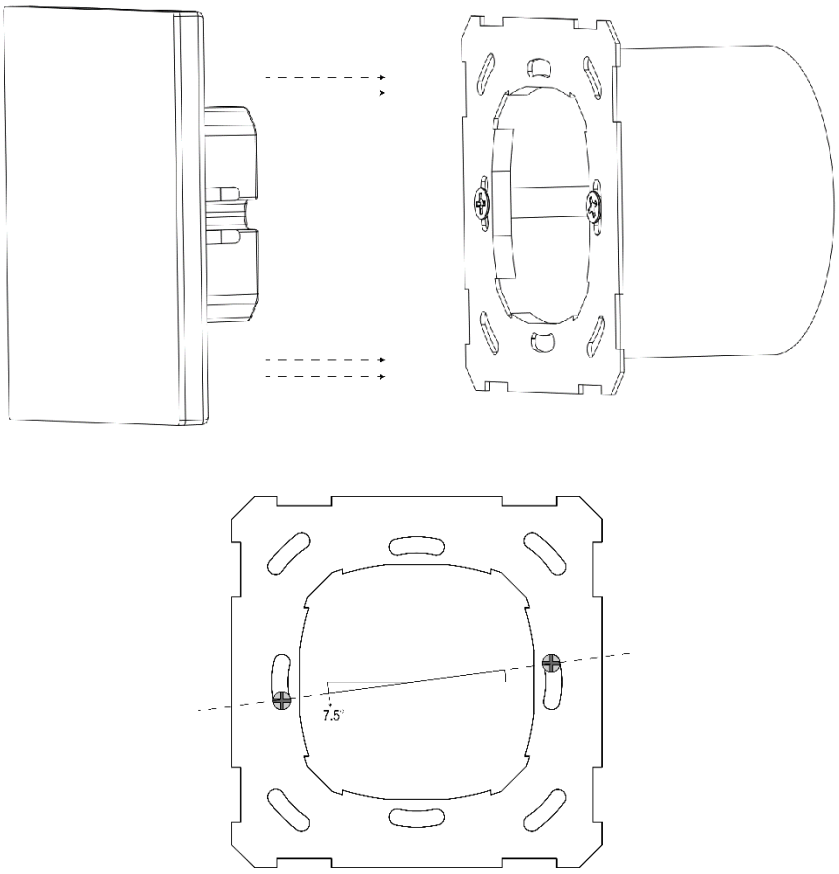


Fig. 5: Mounting the BCU to Flush Mounting Box

1-) First, the metal fastening apparatus is attached to the junction box with M3.5x20 mm screws with a maximum torque of 1.4 N.m.
2-) Second, KNX cable and input cables, if any, are attached to the relevant connectors on Interra Just Touch.

3-) Finally, the Just Touch is gently placed in the junction box with the top part (see Fig.4) facing up with holding the right and left sides of the Just Touch and the mounting process is completed.

4-) Finally, The BCU should be aligned by scales that are positioned decently, then tighten the guided screws.

Demounting of Application Board

1-) First, hold the Interra Just Touch from the right and left side and pull it back slightly

2-) Second, the KNX cable and, if any, input cables are removed over Interra Just Touch.

3-) Finally, the screws of the metal fastening apparatus are removed from the junction box with a maximum torque of 1.4 Nm. and the demounting process is completed.

4. ETS Parameters and Descriptions

4.1. General Page

When the Just Touch is attached to the project from the ETS program, a configuration setting must be made primarily before loading, depending on the model to be programmed. When entering the “GENERAL” in the parameter page, the configuration screen will appear shown above. As previously mentioned, all models can be configured via an ETS file thus the programmers can work flexibly.

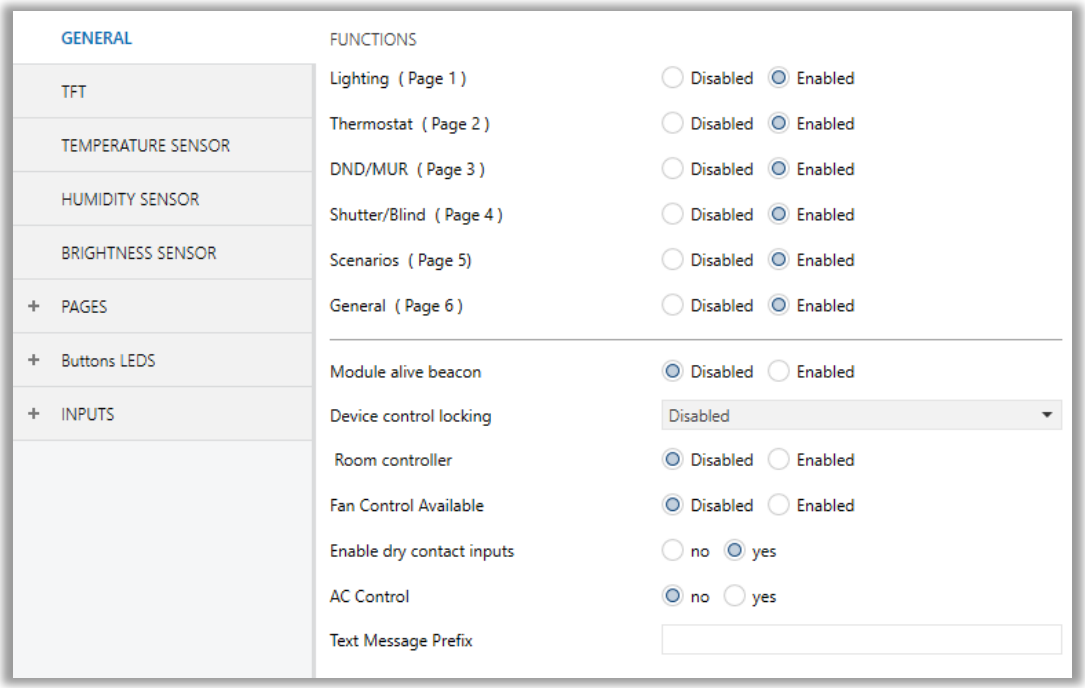


Fig. 6: General Parameter Configuration Page

According to the model of the device, the programmer can configure whether the LCD exists or not and the number of push buttons via corresponding tabs. To ensure that the models are selected correct and also to be able to program correctly, the iSwitch model appears on the screen as shown above.

For some reason, the user can able to program the device by choosing the wrong model without realizing it. A feature is available for the programmer to recognize its mistakes: When the programmer performs this operation, all of the push buttons’ LEDs on the Just Touch will start flashing. If the iSwitch model is a model with an LCD, there will be no display on the LCD. Thus, the programmer can easily recognize the fault it did and reconfigure the device with the correct one. Moreover, It is possible to select the action to be performed when the power cut occurs or the KNX bus line power is restored in which the device is connected to the related KNX bus line.

4.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Lighting (Page 1)	This parameter is used to enable/disable the page.	**Enabled** Disabled
Thermostat (Page 2)	This parameter is used to enable/disable the page.	**Enabled** Disabled
DND/MUR (Page 3)	This parameter is used to enable/disable the page.	**Enabled** Disabled
Shutter/Blind (Page 4)	This parameter is used to enable/disable the page.	**Enabled** Disabled
Scenarios (Page 5)	This parameter is used to enable/disable the page.	**Enabled** Disabled
General (Page 6)	This parameter is used to enable/disable the page.	**Enabled** Disabled
Module alive beacon	This parameter allows sending the value “true” periodically while the module is running.	**Disabled** Enabled
-> Interval (sec)[1]	This parameter determines the sending period of the “Module alive beacon” in seconds.	**3600** (1…65535)
Device control locking	This parameter determines whether the device lock is enabled with an additional locking object. **Disabled:** With this option, the device lock is disabled permanently. **Lock on value 0:** When a logic 0 value is sent to the device control locking object, the device will be locked. **Lock on value 1:** When a logic 1 value is sent to the device control locking object, the device will be locked.	**Disabled** Lock on value 0 Lock on value 1
Room controller[2]	This parameter is used to control the thermostat features. The settings for the room controller are described in detail in the related subtitles.	**Disabled** Enabled
Fan control available[3]	Whether to perform fan controls is set with this parameter.	**Disabled** Enabled

Enable dry contact inputs	This parameter is used to enable/disable the Inputs.	No **Yes**
AC Control	This parameter is used to enable/disable the AC Control.	**No** Yes
Text Message Prefix	This parameter is used to type a message prefix. The name can be consisting of 40 characters.	**14 Bytes allowed**

[*1] This parameter is only visible when the parameter “Module alive beacon” at the GENERAL parameter page is set to “Enabled”.

[*2] This parameter page is only visible when the function “Room controller” at the GENERAL parameter page is set to “Enabled”.

[*3] This Fan Indicator page is only visible when the function “Fan Control Available” at the GENERAL parameter page is set to “Enabled”.

4.2. TFT

This parameter can be used to adjust the brightness level of the display, to show the actual temperature, the outside temperature, the relative humidity, and the air quality level, to configure switching time between them, to show whether the horizontal lines will appear on the display, to control the display on/off status information.
There is an LCD located in the middle of the device, vertically positioned, 40 x 90 mm (G x Y) sized and configurable backlight intensity. The configuration settings made with the ETS software and the symbols of the following controls can be displayed on the screen.

Symbol	Meaning	Symbol	Meaning
	Heating (When the symbol is steady, it indicates that the device is in heating mode. If the heating system is active the heating symbol flashes.)		Cooling (When the symbol is steady, it indicates that the device is in cooling mode. If the cooling system is active the cooling symbol flashes.)
	Night mode		Comfort mode
	Protection mode		Standby mode
	Alarm indicator		Locking function
	Thermostat Control		Economy Mode

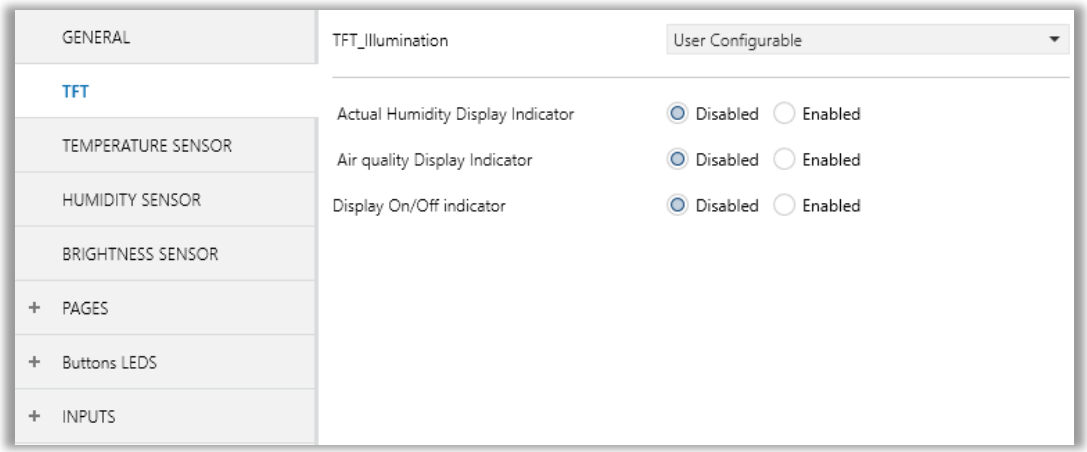


Fig. 7: TFT Configuration

4.2.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
TFT_Ullumination	The illumination of the display is controlled with this parameter. **Always off:** LCD illumination is always off. **Always on:** LCD illumination is always on. **Auto switch down:** The display is turned off or switches to a new illumination level after the set time(1...255 sec) elapsed.	**User Configurable** Adaptive Brightness Via Communication Object Always on Auto switch down
-> TFT Backlight intensity[1]	The backlight intensity of the LCD is configured with this parameter.	10%,20%, …,**90%**,100%
-> Timer (sec)[2]	The illumination time of the LCD is configured with this parameter.	1…**60**…255
-> Intensity after timer[2]	The illumination intensity of the LCD screen is determined after the time defined by this parameter is over.	10%…**30%**...100%
Actual Humidity Display Indicator	Whether the Humidity Display indicator is displayed on the LCD screen is determined by this parameter.	**Disabled** Enabled
Air quality Display Indicator	Whether the air quality is displayed on the LCD screen is determined by this parameter.	**Disabled** Enabled
Display On/Off indicator	Whether the On / Off indicator is displayed on the LCD screen is determined by this parameter.	**Disabled** Enabled
-> Polarity[*3]	The On / Off indicator's operation mode is determined by this parameter.	**1:On / 0:Off** 0:On / 1:Off

[*1] This parameter is only visible when the parameter "TFT_Illumination" at the GENERAL parameter page is set to "Via Communication Object" / "Always On" / "Auto switch down".

[*2] This parameter is only visible when the parameter "TFT_Illumination" at the GENERAL parameter page is set to "Auto switch down".

[*3] This parameter is only visible when the parameter "Display On/Off indicator" at the GENERAL parameter page is set to "Enable".

4.2.2. TFT – Fan Indicator

When the parameter “Fan control used for room controller” is set to “Disabled” for fan control at the “GENERAL” parameter page, a new subtitle is generated named “Fan Indicator” inside the TFT parameter page.

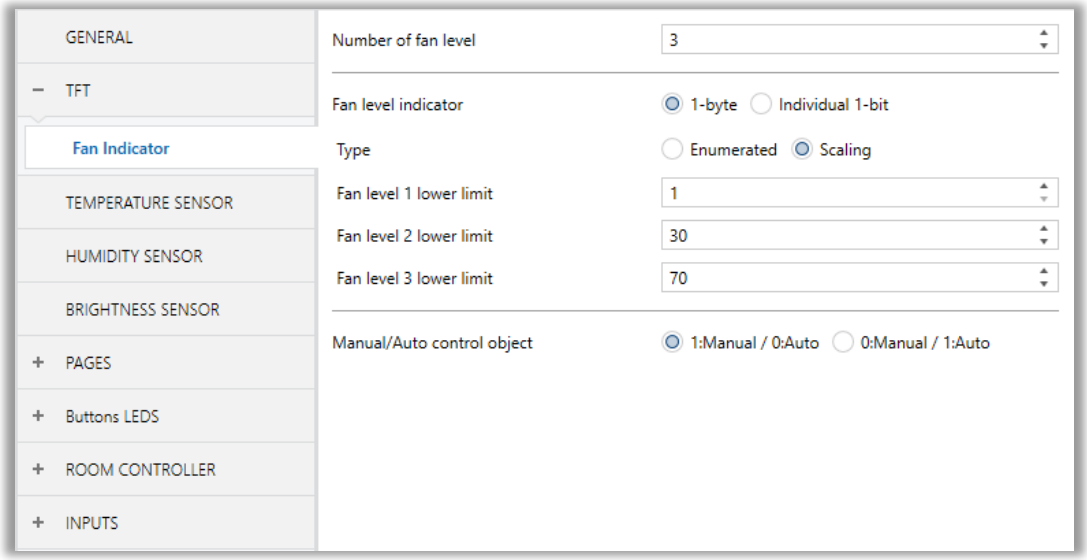


Fig. 8: Toggle Function Configuration

In this section, it is possible to make configurations such as the number of fan levels (from 1 to 5) that can be configured, fan level indicator data type can be determined, and fan operating speeds to work according to which limits. Above, The opening page is shown only when the parameter “Fan control available” is set to “Enabled. Additionally, the fan indicator is used only for visualization of the status information on the LCD screen.

4.2.2.1. Parameters List

PARAMETERS	DESCRIPTIONS	VALUES
Number of fan level	The number of fan levels is determined with this parameter.	1…**3**…5
Fan level indicator	This parameter determines the fan level indicator data type.	**1-byte** Individual 1-bit
-> Type[1]	This parameter determines the fan level indicator visualization method.	Enumerated **Scaling**
-> Fan level X lower limit[2,3]	The lower limit value of the Xth speed is determined with this parameter.	**1**…100
Manual / Auto control object	Manual or automatic fan speed control is selected with this parameter.	**1 : Manual / 0 : Auto** 0 : Manual / 1 : Auto

[*1] This parameter is only visible when the parameter “Fan level indicator” at the GENERAL parameter page is set to “1-byte”.

[*2] These parameters are only visible according to the selected “Number of fan level” parameter value.

[*3] This parameter is only visible when the parameter “Fan level indicator” at the GENERAL parameter page is set to “1-byte” and the parameter “Type” at the GENERAL parameter page is set to “Scaling”.

4.3. Temperature Sensor

An integrated temperature sensor provides to measure the temperature between –10 °C and +50 °C with 0,1 °C accuracy. The measured value can be restored to avoid significant environmental interventions such as proximity to heat sources, external wall mounting, chimney effect from the pipe that connected to the wall mounting box, and rising hot air.

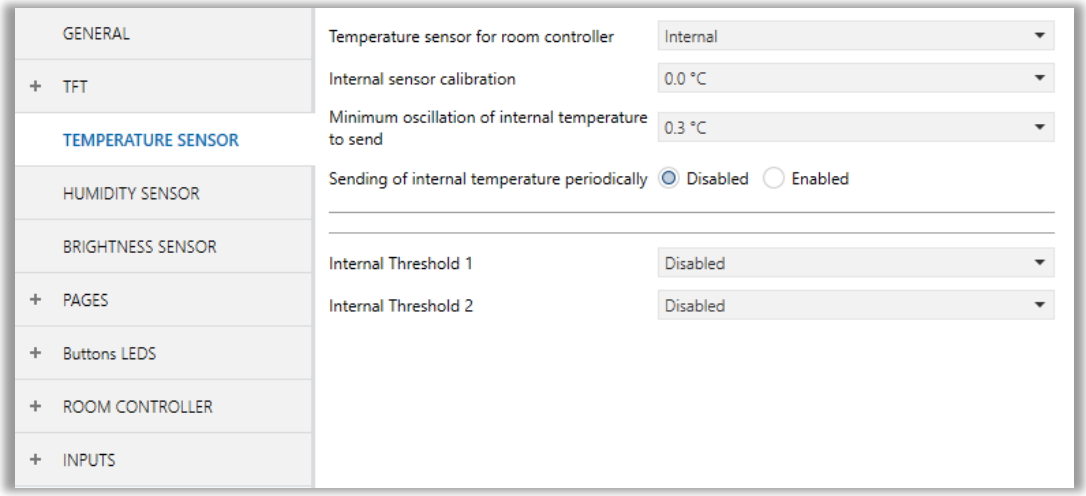


Fig. 9: Dimming Function Configuration

± 5 °C calibration interval or the weighted mean value between two different temperature information selected from below can be used.

- The value is measured by the integrated sensor.
- The measured value is by an external temperature sensor that is connected to the KNX bus line.

4.3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Temperature sensor for room controller	The connection type of the temperature sensor can be determined by this parameter.	**Internal** External Internal & External
-> Temperature Sensor State[1]	This parameter is used to select the external temperature sensor. **External KNX:** The external KNX temperature sensor will be used as temperature logic input. **KNX temperature:** The external Analog temperature sensor will be used as temperature logic input.	**External KNX** External Analog
-> NTC Resistance	This parameter is used to determine the resistance value of the NTC sensor to be used to measure the ambient temperature.	100…**10000**…50000
-> NTC Beta	This parameter is used to determine the NTC B value of the NTC sensor to be used to measure the ambient temperature.	1000…**3850**…5000
-> External sensor calibration	The external sensor calibration can be made by this parameter.	–6,0 … **0,0** … 6,0
-> Internal sensor calibration	The internal sensor calibration can be made by this parameter.	**0,0** (–6,0 … 6,0)
-> Weighting factor (Internal / External)[2]	Which weighted average ratio will be used for the temperature values taken from internal and external sensors can be determined by this parameter.	**100% / 0%,** 90% / 10%, 80% / 20%, 70% / 30%, 60% / 40%, 50% / 50%, 40% / 60%, 30% / 70%, 20% / 80%, 10% / 90%, 0% / 100%,

-> Minimum oscillation of internal temperature to send	This parameter determines the minimum value change to send the internal temperature information to the KNX bus line.	Disabled 0,1 … **0,3** … 5,0
Sending of internal temperature periodically	This parameter provides to send the internal temperature value periodically to the KNX bus line.	**Disabled** Enabled
-> Period of sending (sec)[3]	This parameter determines the sending period of the internal temperature information to the KNX bus line.	1…**100**…255
Internal threshold 1	The first internal threshold value property is activated by this parameter.	**Disabled** Low High
-> Lower limit (˚C)[4]	The lower limit of the first internal threshold is determined by this parameter.	–10…**5**…50
-> Higher limit (˚C)[4]	The higher limit of the first internal threshold is determined by this parameter.	–10…**30**…50
Internal threshold 2	The second internal threshold value property is activated by this parameter.	**Disabled** Low High
-> Lower limit (˚C)[4]	The lower limit of the second internal threshold is determined by this parameter.	–10…**5**…50
-> Higher limit (˚C)[4]	The higher limit of the second internal threshold is determined by this parameter.	–10…**30**…50

[*1] This parameter is only visible when the parameter “Temperature sensor for room controller” is set to “External” or “Internal & External”.

[*2] This parameter is only visible when the parameter “Temperature sensor for room controller” is set to “Internal & External”.

[*3] This parameter is only visible when the parameter “Sending of interval temperature periodically” is set to “Enabled”.

[*4] This parameter is only visible when the parameter “Internal threshold 1” or “Internal threshold 2” is set to “Low” or “High”.

4.4. Humidity Sensor

The integrated humidity sensor on the device provides the measurement of the relative humidity value in the ambience. The measured value allows you to perform upgraded room thermoregulation and to expand combinations for the safe operation of some type of terminal equipment used for cooling. The measured value can also be sent to the KNX bus line via a 2-byte communication object. The psychrometric values obtained from the temperature and humidity combination measurement such as dew–point temperature on the KNX bus line and the perceived temperature index (in summer mode only) can also be sent, with the calculation made by the thermostat.

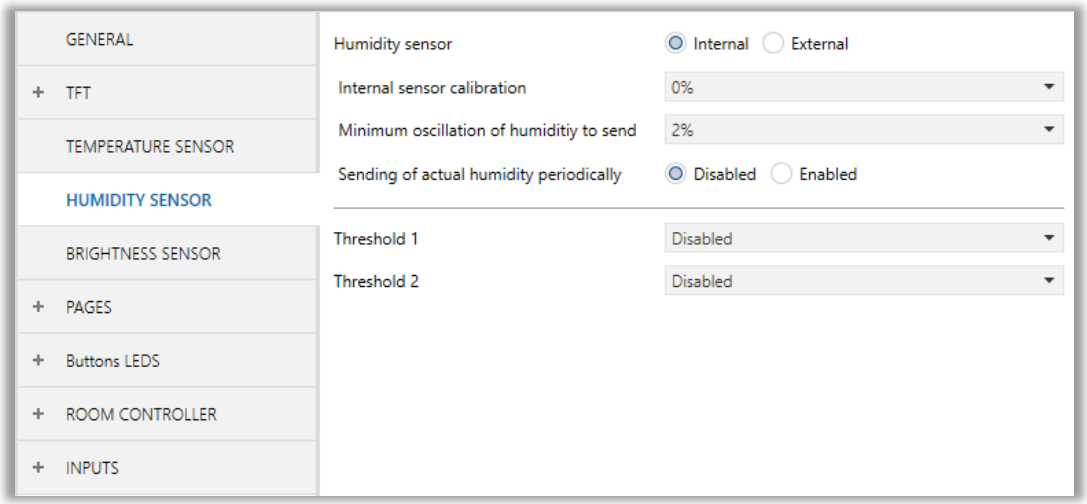


Fig. 10: Humidity Sensor Configuration Section

4.4.1. Parameter List

PARAMETER	DESCRIPTION	VALUES
Humidity sensor	This parameter determines whether the humidity sensor is external or internal.	**Internal** External
Internal sensor calibration	This parameter determines the percentage of internal sensor calibration.	–10%…**0%**...10%
Minimum oscillation of humidity to send (%)	This parameter determines the minimum oscillation value for the output object to send the humidity value.	Disabled, 1%, **2%**, 3%, 4%, 5%, 6%, 7%, 8%, 9%, 10%
Sending of actual humidity periodically	This parameter allows the periodically measured humidity to be sent. The periodic transmission time can be selected between the range of 1 to 255.	**Disabled** Enabled
Period of sending (sec)	This parameter determines the sending period of the humidity information to the KNX bus line.	1…**180**…255
Threshold 1	The first threshold value property is activated by this parameter.	**Disabled** High Low
-> Higher limit (%)	The higher limit of the first threshold is determined by this parameter.	0…**90**…100
-> Lower limit (%)	The lower limit of the first threshold is determined by this parameter.	0…**30**…100
Threshold 2	The second internal threshold value property is activated by this parameter.	**Disabled** High Low
-> Higher limit (%)	The higher limit of the second threshold is determined by this parameter.	0…**90**…100
-> Lower limit (%)	The lower limit of the second threshold is determined by this parameter.	0…**30**…100

4.5. Brightness Sensor

The integrated brightness sensor on the device provides the measurement of the relative brightness value in the ambience. The measured value allows you to perform upgraded room thermoregulation and to expand combinations for the safe operation of some type of terminal equipment used for cooling. The measured value can also be sent to the KNX bus line via a 2-byte communication object. The psychrometric values obtained from the temperature and humidity combination measurement such as dew–point temperature on the KNX bus line and the perceived temperature index (in summer mode only) can also be sent, with the calculation made by the thermostat.

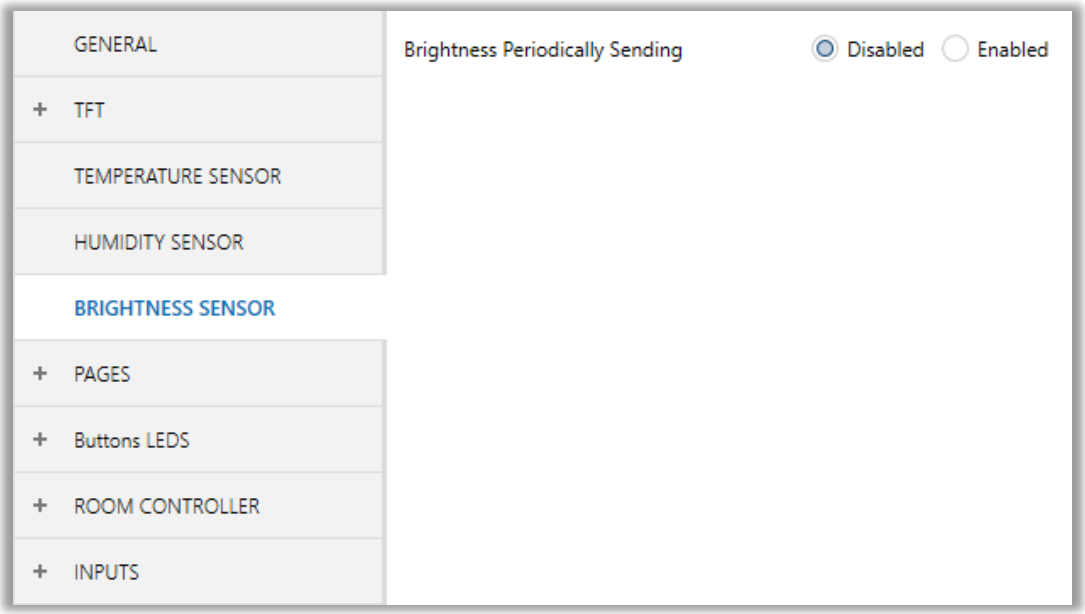


Fig. 11: Brightness Sensor Configuration

4.5.1. Parameters List

PARAMETER	DESCRIPTION	VALUES
Brightness Periodically Sending	This parameter is used to enable/disable sending periodically brightness.	**Disabled** Enabled
Brightness Sending Period	This parameter sets the sending period of the internal temperature value in seconds.	**1**…255

4.6. Pages

In this section you can name the pages and assign functions to the buttons for each page. Detailed information is given in the related sub-titles.

4.6.1. Pages Names

Page {X} Name could be customizable. In this section, The page name is customizable.

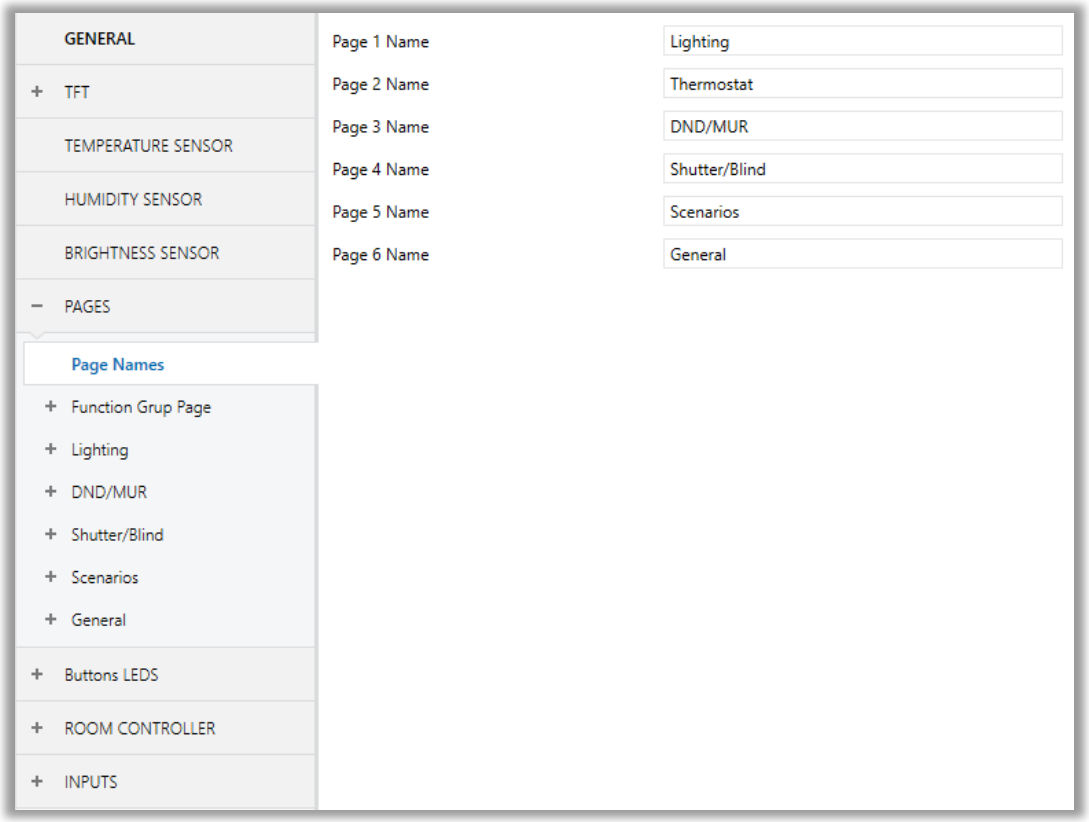


Fig. 12: Page Names Configuration

4.6.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Page 1,2,…,6 Name	This parameter is used to determine the Page name. Up to 14 characters can be typed in this parameter.	**14 bytes allowed**

4.6.2 Function Grup Page

In this section, the functions of the {X} button can be set here. Some functions have special cases. These situations should be noted. These situations are as follows:

- Page 2 should be selected for the Thermostat function.
- To use HSL, HSV, RGB and RGBW functions, just assign the relevant function to button 1.
- For Color Temperature (TW) and two-button Dimming functions, assign the relevant function only to the left buttons (1,3,5)

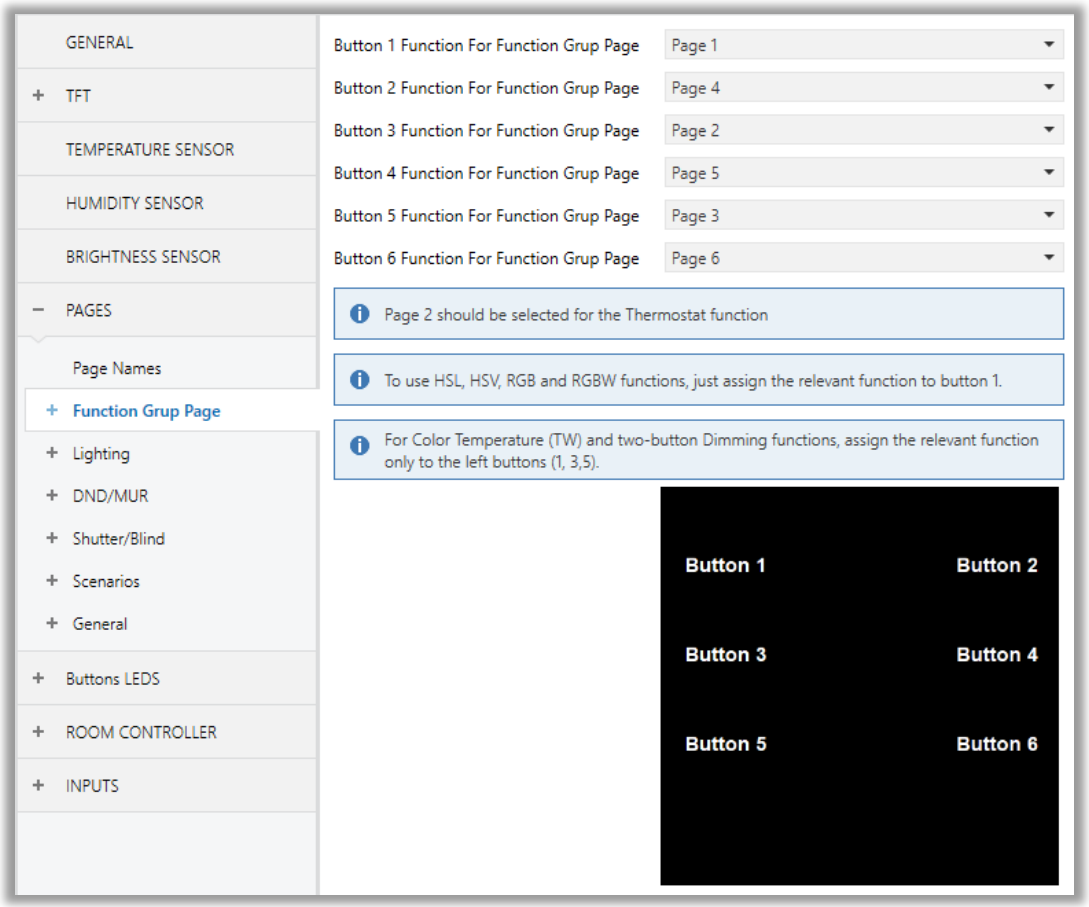


Fig. 13: Function Grup Page Configuration

4.6.2.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Button X Function For Function Grup Page	This parameter is used to determine the button x operation mode. If no function is selected, button x will not be used. For other choices, all functionalities are configured separately.	Disabled / Page 1 / Page 2 / Page 3 / Page 4 / Page 5 / Page 6 / Switching / Toggle / Dimming / Shutter/Blinds Function / Value / 2-Cahnnel Mode / Scene Function / Thermostat Extension Control / Step Switching/ HSL / HSV / RGB / RGBW / Color Temperature (TW)

4.6.3. Page N

It is also possible to define specific functions for the buttons here. The selected function contains its parameters. These parameters can adjust here.

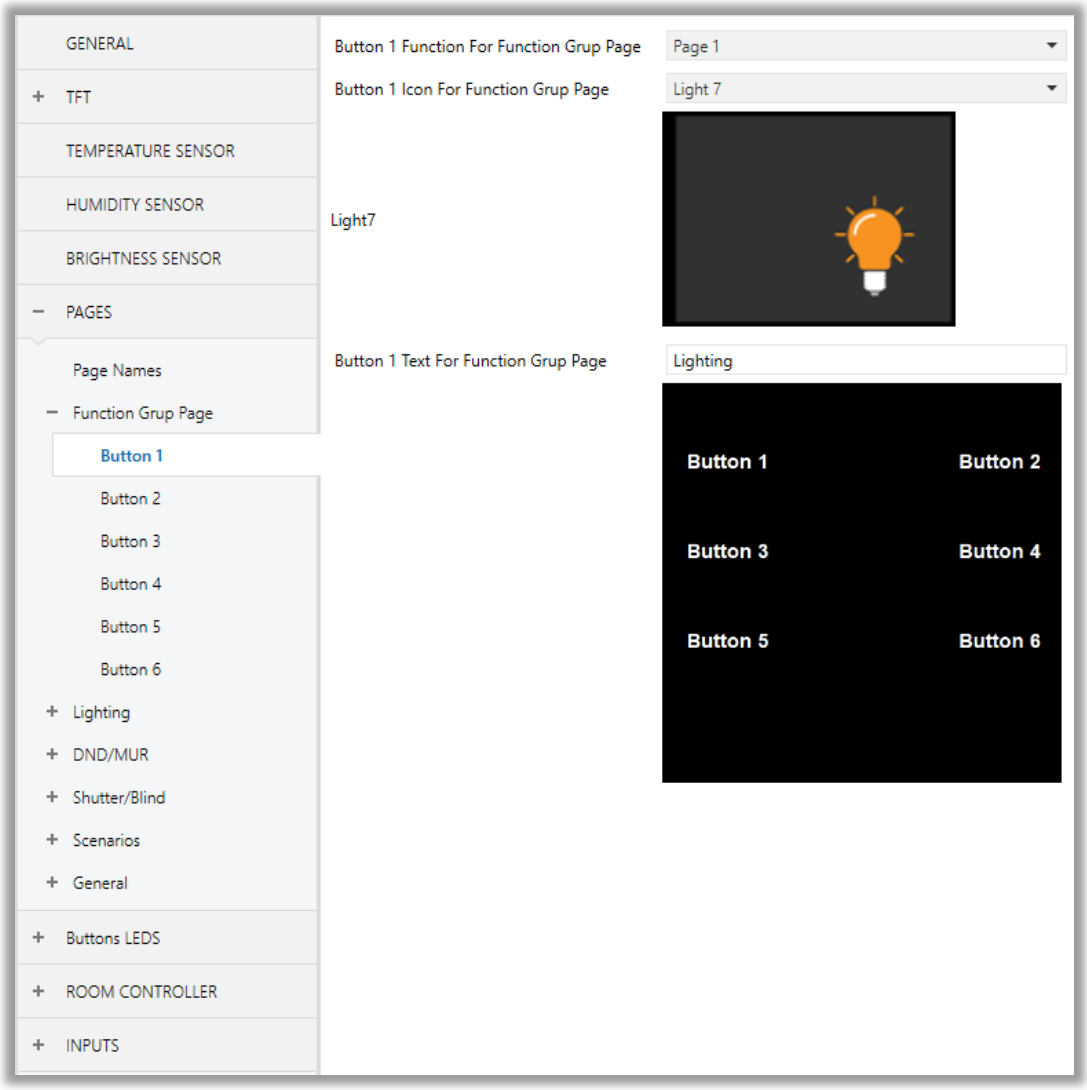


Fig. 14: Function Grup Page – Button X Configuration

4.6.3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Button X Function For Function Grup Page	This parameter is used to determine the button x operation mode. If no function is selected, button x will not be used. For other choices, all functionalities are configured separately.	Disabled / **Page 1** / … / Page 6 / Switching / Toggle / Dimming / Shutter/Blinds Function / Value / 2-Channel Mode / Scene Function / Thermostat Extension Control / Step Switching/ HSL / HSV / RGB / RGBW / Color Temperature (TW)
Button X Icon For Function Grup Page	This parameter is used to configure the up or down operation of the shutter/blinds function.	Bellboy / Cinema / ColorTemperature (TW) / Dimmer / DND 1 / DND 2 / Electric / Elevator / Emergency / Exit / Garage / General / HSL / Light 1 / … / Light 7 / Morning / Economy / On/Off / Plug / Reception / Reservation / RGB / RGBW / Scene / Shutter 1 / … / Shutter 7 / Taxi / Thermostat / Water / Welcome
Button X Text For Function Grup Page	This parameter is used to determine the Button name. Up to 14 characters can be typed in this parameter.	14 Bytes

4.6.4. Lighting / DND/MUR / Shutter/Blind / Scenarios / General

In this section, functions can be given to buttons for each selected page. Detailed explanations of the functions have been made in the relevant sub-titles.

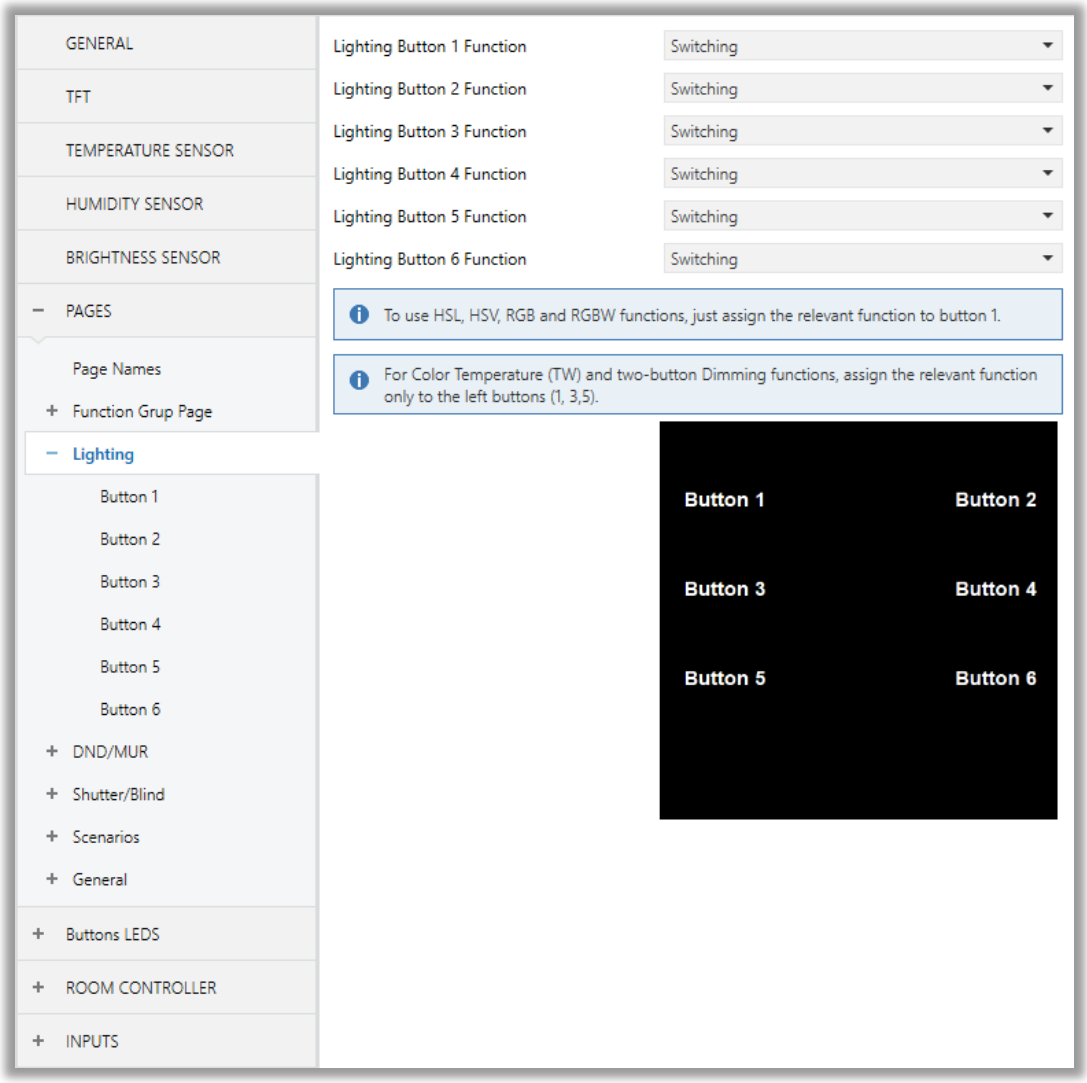


Fig. 15: Lighting Configuration

4.6.4.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Button X Function	This parameter is used to determine the button x operation mode. If no function is selected, button x will not be used. For other choices, all functionalities are configured separately.	Disabled / Switching / Toggle / Dimming / Shutter/Blinds Function / Value / 2-Channel Mode / Scene Function / Thermostat Extension Control / Step Switching/ HSL / HSV / RGB / RGBW / Color Temperature (TW)

4.6.5. Button X

In this section, the function for each button can also be selected from here. In addition, the Icon and Button Texts of the Buttons can be adjusted here.

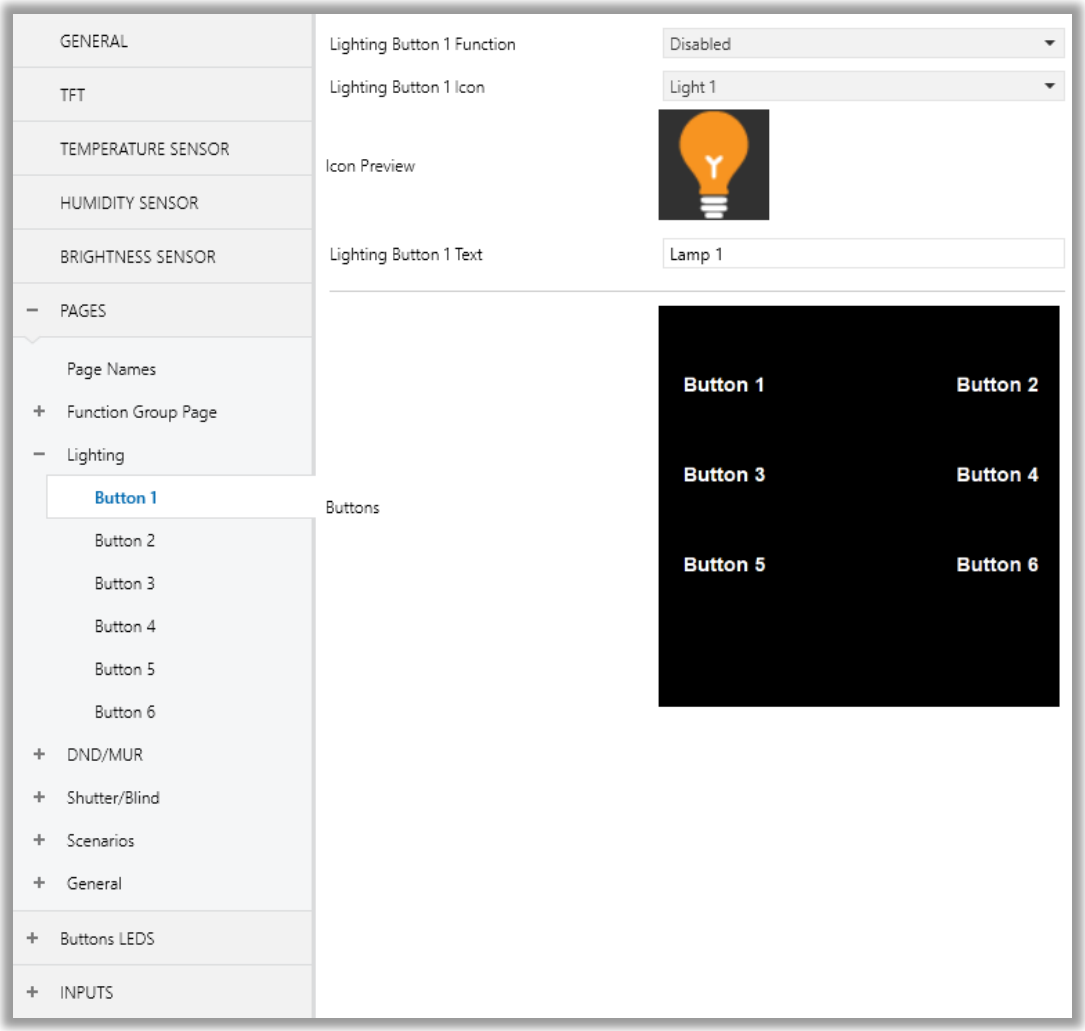


Fig. 16: Lighting Configuration

4.6.5.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Button X Function	This parameter is used to determine the button x operation mode. If no function is selected, button x will not be used. For other choices, all functionalities are configured separately.	Disabled / Page 1 / … / Page 6 / **Switching** / Toggle / Dimming / Shutter/Blinds Function / Value / 2-Cahnnel Mode / Scene Function / Thermostat Extension Control / Step Switching/ HSL / HSV / RGB / RGBW / Color Temperature (TW)
Button X Icon	This parameter is used to select for the button x icon.	Bellboy / Cinema / ColorTemperature (TW) / Dimmer / DND 1 / DND 2 / Electric / Elevator / Emergency / Exit / Garage / General / HSL / Light 1 / … / Light 7 / Morning / Economy / On/Off / Plug / Reception/ Reservation / RGB / RGBW / Scene / Shutter 1 / … / Shutter 7 / Taxi / Thermostat / Water / Welcome
Button X Text	This parameter is used to determine the Button x name. Up to 14 characters can be typed in this parameter.	**14 Bytes allowed**

4.6.6. Switching

This function is used to perform the switching operation. Depending on the settings configured in the switching process, when the button is pressed or released, the ON or OFF values are generated. After each operation, a telegram is sent to the KNX bus line. Telegram is generated based on the configured settings.

If you want to configure the push button with the “switching” function choose it from the parameter page and then a new object will appear under the device object list on the left side. This object’s name is “switching”. General configurations are made via this object. When the “switching” function is enabled, it is added to the object list of the device. After assigning the group address to this object, attention should be paid to the type of data it uses. It is a good technique to use default data types.

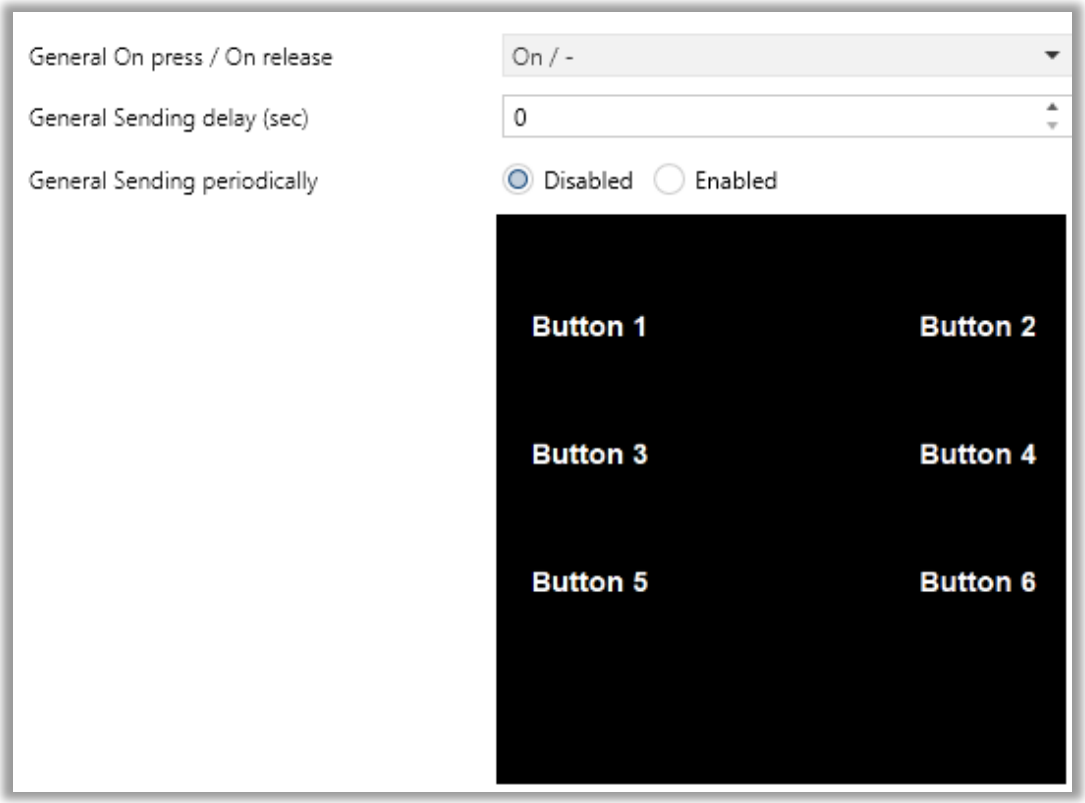


Fig. 17: Switching Configuration Section

4.6.6.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
On press / On release	This parameter determines how the push buttons will work with the switching control function. **On / – :** When pressed to push button ON value will be sent, when released nothing will be sent. **Off / – :** When pressed to push the button OFF value will be sent, when released nothing will be sent. **– / On:** When pressed to push button nothing will be sent, when released ON value will be sent. **– / Off:** When pressed to push button nothing will be sent, when released OFF value will be sent.	**On / –** Off / – – / On – / Off
Sending delay (sec)	When an event occurs, this parameter allows configuring telegram sending time to the bus line. Values are entered in seconds. Entering the "0" value means that the telegram is sent to the bus a line without delay.	**0**…255
Sending periodically	This parameter is used to periodically send the commands to the bus line.	**Disabled** Enabled
Period of sending (sec)[1]	This parameter determines sending periods of the commands to the bus line.	0…**180**…255

[*1] This parameter is only visible when the parameter "Sending periodically" is set to "Enabled".

4.6.7. Toggle

While the Toggle function is selected, every time the button is pressed, the value ”1” or “0” value is sent to the bus line via the object of the push button. If the first time the button is pressed and the “1” value is sent, when the button is pressed next time the value “0” will be sent. Every press to push button the output value is always changed to “1” or “0” and they will be sent to the bus line. The current values of the object can be updated by the devices at the same KNX bus line. There is a push-button status object to prevent sending wrong commands to the bus line. 4 different objects can be programmed with the toggle function. These objects are shown below.

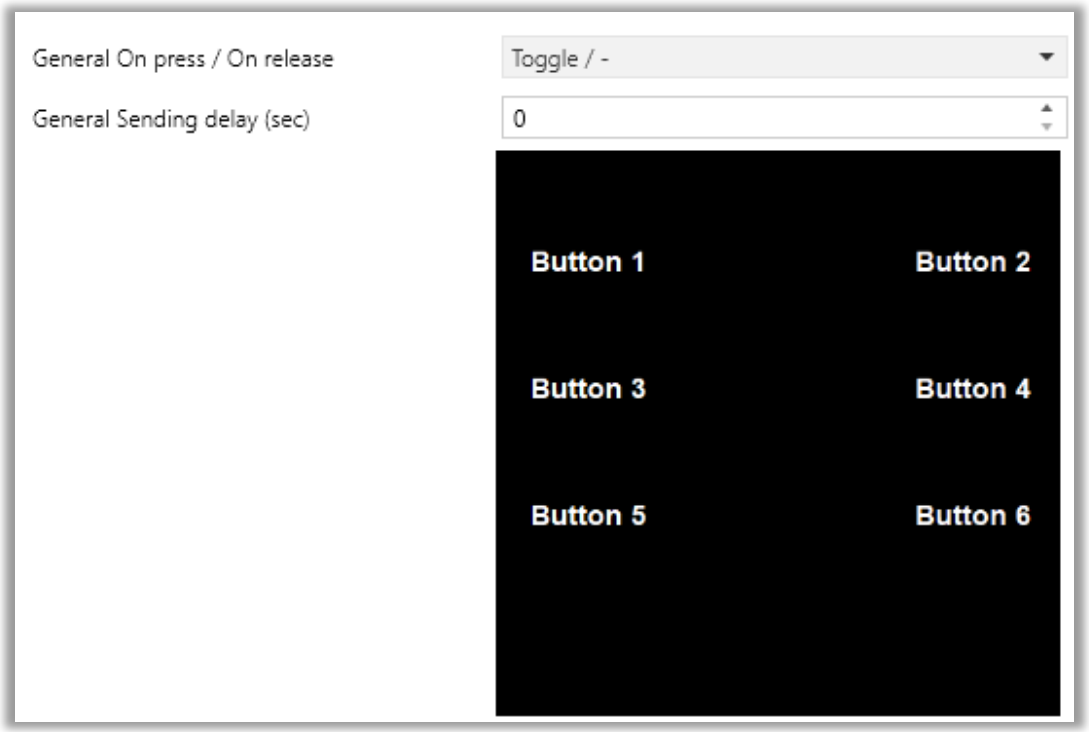


Fig. 18: Function Grup Page Button X – Toggle Configuration

4.6.7.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
On press / On release	This parameter determines how the push buttons will work with the toggle control function. **Toggle / – :** When pressed to the push button, inverted values of the current ones will be sent. **– / Toggle:** When the push button is released, inverted values of the current ones will be sent. **Toggle / Toggle:** When pressed to the push button, inverted values of the current ones will be sent. After that, when the push button is released, inverted values of the updated ones will be sent.	**Toggle / –** – / Toggle Toggle / Toggle
Sending delay (sec)	When an event occurs, this parameter allows configuring telegram sending time to the bus line. Values are entered in seconds. Entering the “0” value means that the telegram is sent to the bus a line without delay.	**0**…255

4.6.8. Dimming

This feature enables increasing or decreasing of lighting circuit's lighting level. There are 2 different objects for each function and they are controlled by button pressing times. Pressing a short time to the push button, the on or off value(1 bit) is sent via the "On / Off" object. If the push button is pressed longer time, this action is interpreted as a dimming function and a value(4 bit) is sent via the "dimming" object. The minimum time to detect the long-press action is configured via parameter. When the button is released after a long press, the "stop" telegram is sent to the bus line and dimming control is over. Dimming control can be done by 1 button toggle or 2 button up / down control modes.

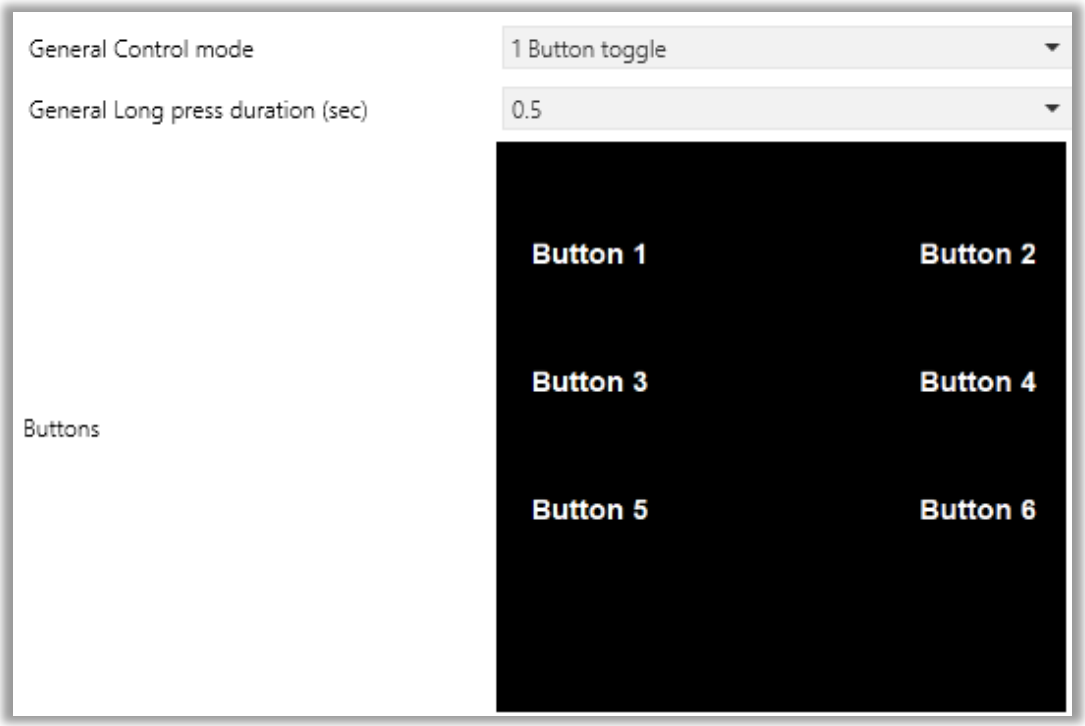


Fig. 19: Function Grup Page Button X – Dimming Configuration

Dimming control by 1 button; At this option, 1 push-button is used for dimming control. Short presses are always interpreted as recursive ON or OFF toggle (function described above) control events. When long press action occurs, for each time-pressed to button, "up" or "down" values(4 bit) are sent via dimming object the to bus line. If the first-time long-press is sent at the "up" command, the next one's value is sent inverted as "down". There is a push-button status object to prevent sending wrong commands to the bus line and the current values of the object can be updated by the devices at the same KNX bus line. This object must be connected to the actuator's status parameter via a related group address.

Dimming control by 2 buttons; At this option, 2 push-button is used for dimming control. Each command executes the parameters described as "up" and "down" via the "direction" parameter. If a push button is configured as "up", each short press sends an "ON" command to the bus line. As long as the same button is pressed, a 4-bit value is sent to increase the lighting level via a "dimming" object. If a push button is configured as "down", each short press sends the "OFF" command to the bus line. As long as the same button is pressed, a 4-bit value is sent to decrease the lighting level via a "dimming" object. 5 different objects can be programmed with a dimming function.

4.6.8.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Control mode	This parameter is used for configuring the dimming function as “1 button toggle” or “2 buttons up/down” control modes. **1 Button toggle:** When the push button is pressed for a short time, an inverted value is sent to the bus line instead of the current one via the “On / Off” object. If the push button is pressed a long time, an “up” or “down” telegram is sent via a “dimming” object. After a long press action, when the button is released, a “stop” telegram is sent to the bus line. **2 Buttons up / down:** When the push button is pressed for a short time, the “ON” value corresponds to the “UP” direction parameter or the “OFF” value corresponds to the “DOWN” direction parameter. Its value is sent via the “ON / OFF” object. **:** When the push button is pressed for a long time, a dimming telegram is sent via a “dimming” object. After a long press action, when the button is released, a “stop” telegram is sent to the bus line. **2 Buttons percentage:** When the push button is pressed for a long time, appear dimming slider. Percentage dimming is done with the slider	**1 Button toggle** 2 Buttons up / down 2 Buttons percentage
-> Direction	This parameter determines the behaviour of the push button’s when the “the 2 buttons dimming” object is selected. **Up:** When the push button is pressed short time, “the ON” value is sent via “the On / Off” object. When the push button is pressed for a long time, “the UP” value is sent via “the Dimming” object. **Down:** When the push button is pressed short time, the “OFF” value is sent via the “On / Off” object. When the push button is pressed a long time, “the DOWN” value is sent via “the Dimming” object.	Up **Down**
Long press duration	This parameter determines the minimum value to detect long-press action.	0.4 sec **0.5 sec** 0.6 sec 0.7 sec 0.8 sec 0.9 sec 1.0 sec

4.6.9. Shutter / Blinds

A shutter/blinds circuit can be controlled up – down or on-off methods with a “slat angle/stop” object courtesy of this feature. Each function has 2 different “up / down” and “slat angle/stop” objects. At the control of the shutter/blinds circuit, a short press of the button a sends “step movement” telegram and a long press of the button sends a “nonstop movement” of the telegram to the bus line. A shutter/blinds circuit is controlled by “1 button toggle” or “2 buttons up/down” control modes.

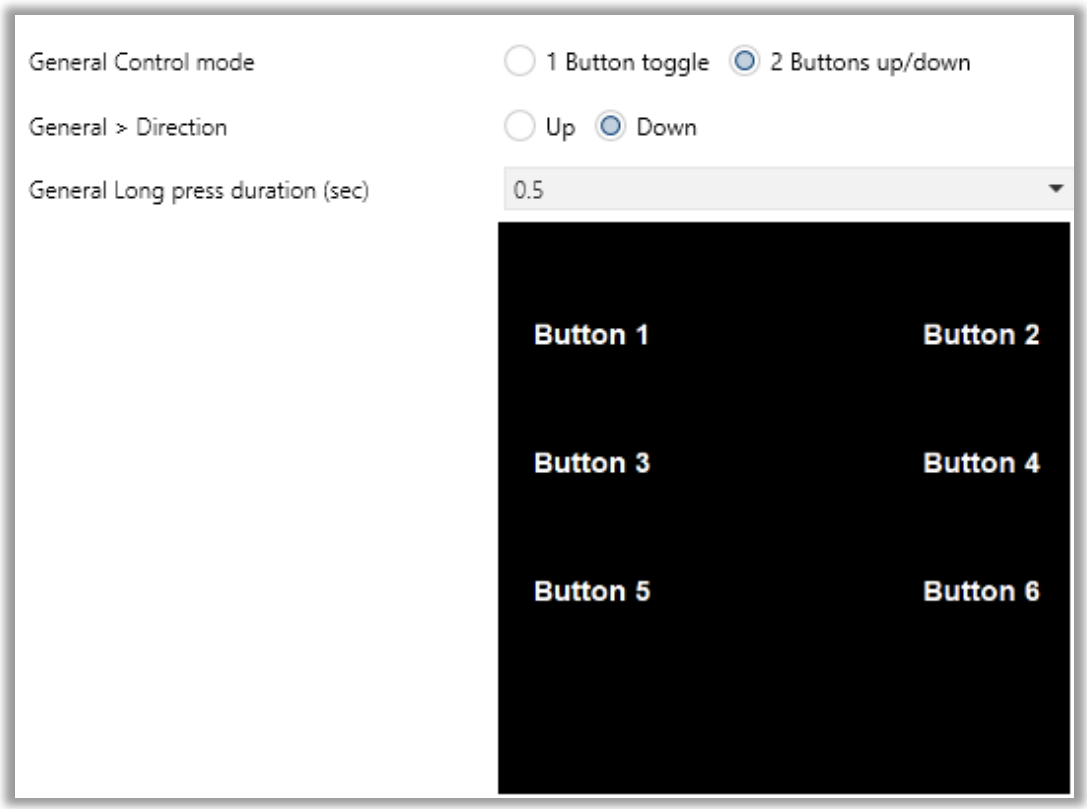


Fig. 20: Function Grup Page Button X – Shutter / Blinds Function Configuration

Shutter / blinds circuit control with 1 button; Push up, pull down and stop controls can be done with 1 push button. At every time short press, the push button will send the following sequential values in the form of; down movement, stop, up movement and stop. The movement aspect of the shutter or slat angle adjustment aspect always depends on the previous action. There is a push-button status object to prevent sending wrong commands to the bus line and the current values of the object can be updated by the devices at the same KNX bus line. This object must be connected to the actuator’s status parameter via a related group address.

Shutter / blinds circuit control with 2 buttons; 2 buttons must be used for this option. If both buttons are configured, with long-press action the shutter can be moved up or down and with short press action, the movement stops or slat angle step movement can be configured. The minimum time to detect the long-press action is configured via parameter. Every command controls the buttons defined as “Up” or “Down” via the “Direction” parameter. When short pressed to button configured as “up”, it sends the “up” value to the bus line, and when short pressed the button configured as “down”, it sends the “down” value to the bus line.

4.6.9.1 Parameters List

PARAMETERS	DESCRIPTION	VALUES
Control mode	This parameter is used to configure the shutter/blinds function as “1 button toggle” or “2 buttons up / down”. **1 Button toggle:** At every time short press, the push button will send the following sequential values in the form of; “down”,” stop”, “up” and “stop”. **2 Buttons up / down:** 2 individual push buttons are used for “up” and “down” commands. According to the direction configured before, when short pressed buttons the “step/stop” event occurs and when long pressed, the “up” or “down” event occurs.	1 Button toggle **2 Buttons up / down**
-> Direction	This parameter is used to configure the up or down operation of the shutter/blinds function.	Up **Down**
Long press duration	This parameter determines the minimum value to detect long-press action.	0.4 sec **0.5 sec** 0.6 sec 0.7 sec 0.8 sec 0.9 sec 1.0 sec

4.6.10. Value

This function is used to send the value or values previously defined by the parameters to the button.

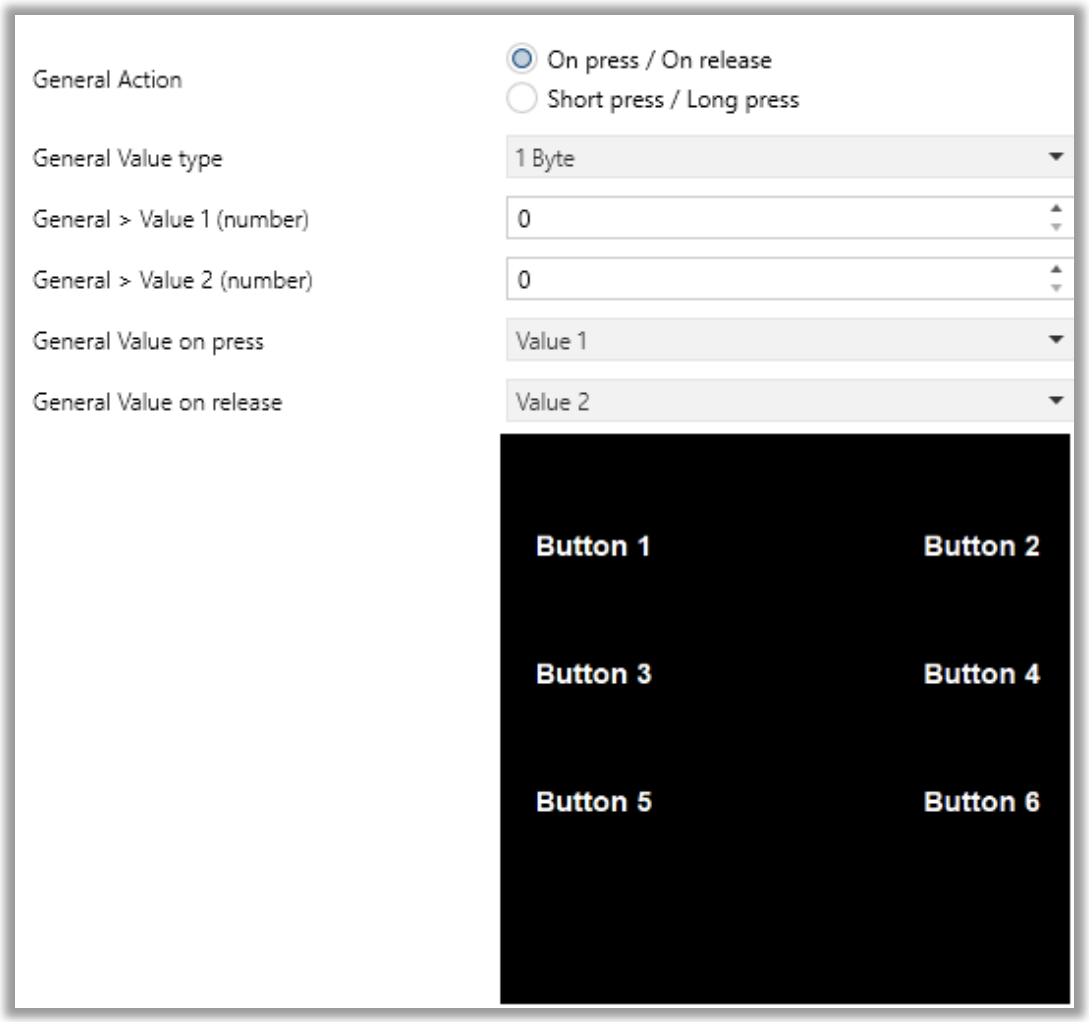


Fig. 21: Value Function Configuration

It is possible to choose up to 5 different types of data point types.

1 – Byte Value	Used for 1 – byte(0…255) data sending or to activate scene execute functions.
2 – Byte Value	Used for 2 – byte(0…65535) data sending.
Percentage	Used for 1 – byte percentage value. sending.
Temperature	Used for 2 – byte temperature value sending.
Luminosity	Used for 2 – byte lux value sending.

4.6.10.1. Parameters List

PARAMETER	DESCRIPTION	VALUES
Action	This parameter determines the operating status of the button. **On press / On release:** The value is sent when the button is pressed or released. **Short press / Long press:** The value is sent when the button is short pressed or long pressed.	**On press / On release** Short press / Long press
-> Long press duration (sec)[1]	This parameter determines the minimum value to detect long-press action.	0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.5, 2.0, 2.5, **3.0**, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0
Value type	This parameter determines the value type that will be sent. **1 – Byte Value: 0**…255 **2 – Byte Value:** (0…65535) **0** **Percentage:** 1 byte in steps of 1. (0…100%) **0** **Temperature:** 2 bytes in steps of 0.5 (0.0…50.0°C) **20.0°C** **Luminosity:** 2 bytes in steps of 50.0 (0…1000 lux) **300 lux**	**1 – Byte** 2 – Byte Percentage Temperature Luminosity
Value 1,2 (number, %, ˚C, lux)	This parameter determines the value that will be sent.	**0**…255 **0**…65535 **0%**…100% 0.0…**20.0°C** …50.0°C 0…**300**…1000 lux
Value on short press	This parameter determines which value will be sent by short press action.	None **Value 1** Value 2 Value 1 & Value 2
Value on long press	This parameter determines which value will be sent by long-press action.	None Value 1 **Value 2** Value 1 & Value 2

[*1] This parameter is only visible when the parameter “Action” is set to “Short press / Long press”.

4.6.11. 2 – Channel Mode

2 – channel mode, is used to perform two different functions by using the same button on the device. All functions which can be defined on push buttons are shown below.

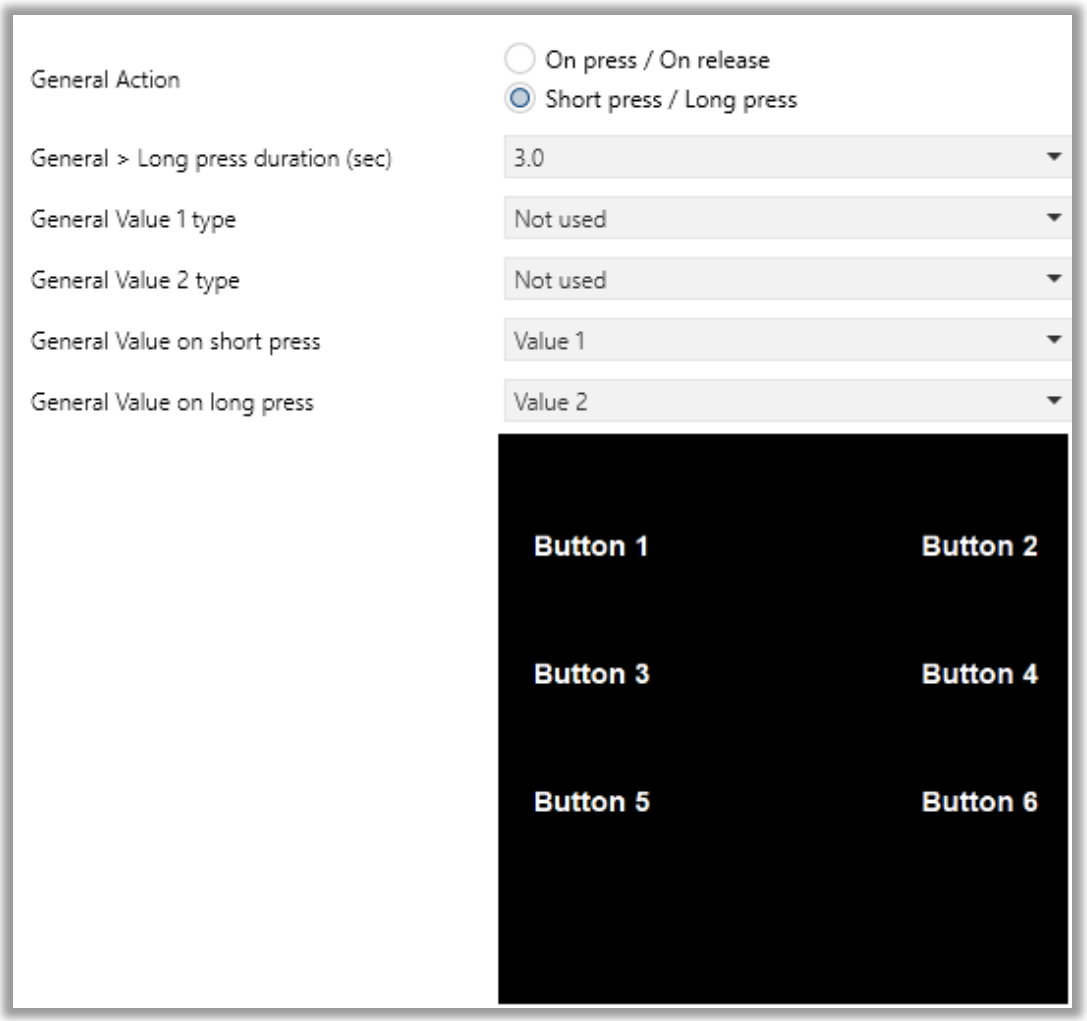


Fig. 22: 2 Channel Mode Function Configuration

4.6.11.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Action	This parameter determines the operating status of the button. **On press / On release:** The value is sent when the button is pressed or released. **Short press / Long press:** The value is sent when the button is short pressed or long pressed.	On press / On release **Short press / Long press**
-> Long press duration (sec)[1]	This parameter determines the minimum value to detect long-press action.	0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.5, 2.0, 2.5, **3.0**, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0
Value 1, 2 type	This parameter determines the value type that will be sent. **On:** On telegram **Off:** Off telegram **Toggle:** Sends the Inverted value of the current one. **1 – Byte: 0**…255 **2 – Byte: 0**…65535 **Percentage:** 1 byte **0**…100% **Temperature:** 2 byte 0.5 (0.0…50.0°C) **20.0°C** **Luminosity:** 2 bytes 0…**300**…1000 lux	**Not used** On Off Toggle 1 – Byte 2 – Byte Percentage Luminosity
Value 1,2 (number, %, ˚C, lux)	This parameter determines the value that will be sent.	**0** (0…255) **0** (0…65535) **20.0°C** (0.0…50.0°C) (0…1000 lux) **300 lux**
Value on short press	This parameter determines which value will be sent by short press action.	None **Value 1** Value 2 Value 1 & Value 2

Value on long press	This parameter determines which value will be sent by long-press action.	None Value 1 **Value 2** Value 1 & Value 2

[*1] This parameter is only visible when the parameter “Action” is set to “Short press / Long press”.

4.6.12. Scene

The scene function is used to control devices and make pre-registration of their status with the push button which sends a command via a related group address. This feature allows one to register a setting as a scene and after a while, when the same settings or conditions are requested each device can be activated only with 1 command instead of configuring them separately.

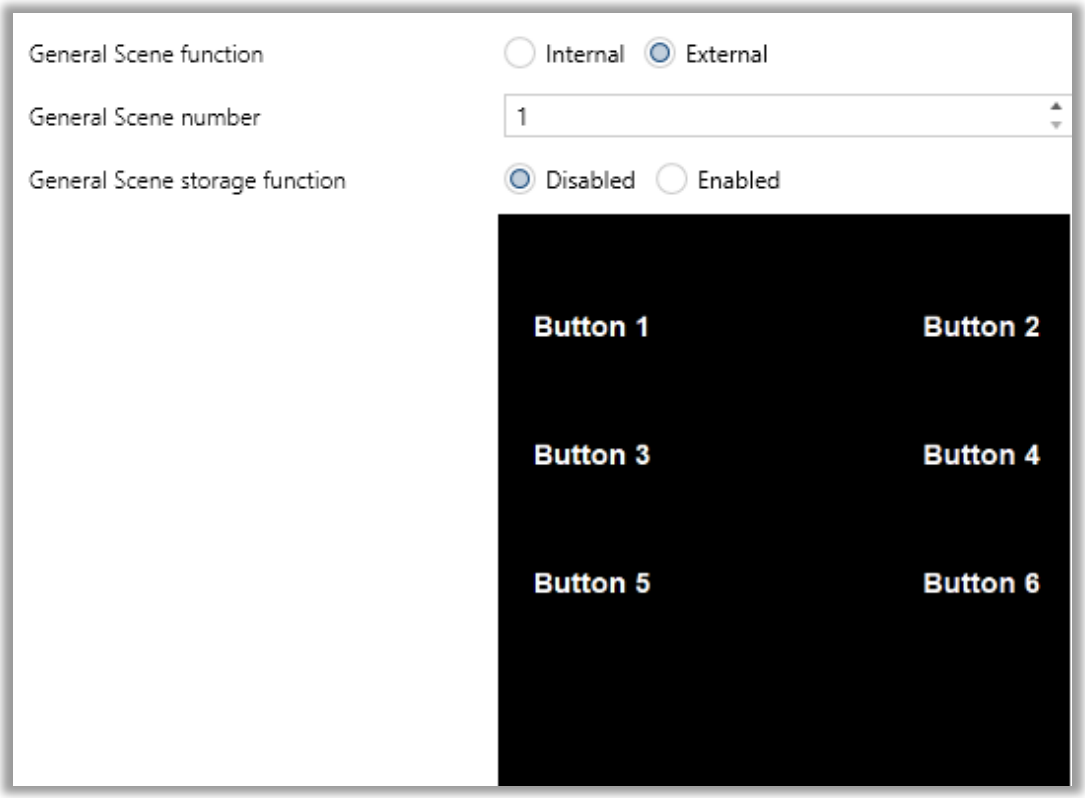


Fig. 23: Scene Function Configuration

This feature in the button sends telegrams that contain “scene run” or “scene register” functions, via the “scene” object. Scene numbers between 1 and 64 can be selected via the related group address. The scene number configured in the button must match the scene number configured on the parameters in other devices. Scene number (1 – 64) is used to run the scene using the related object. The values sent via related object must be as in the form “Scene Number + 128” for registering the scene feature.

If a scenario number is configured as 2 and it is wished to register this scenario, a value of 130 should be sent (128 + 2). If the scenario number is configured as 24, the value of 152 (128 + 24) should be sent for the scenario registering feature.

To run every scene, a time-delayed is defined or not in the parameters should be checked, whether to send with or without time delay or. This feature allows the creation of dynamic scene arrays in which several outputs connect to one another with time delay.

After programming with ETS, scene values that are used for parameterization will be written to the actuator. This means related scenes will be erased as defined by the customer. Hence, before any maintenance, all configurations should be gotten by the programmer and whether the customer wants to use the same conditions.

4.6.12.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Scene function	This parameter is used to activate the Scene storage function if external is selected.	Internal **External**
Scene number	This parameter is used to give the scenario number to the generated scenario before.	**1**…64
-> Scene storage function[1]	The scene register function can be enabled via this parameter. To enable this, it is necessary to press long with a predefined number of seconds.	**Disabled** Enabled
-> Long press duration (sec) Function Grup Page[2]	This parameter specifies the minimum time to determine the long-press action of a button to register the scene.	0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.5, 2.0, 2.5, **3.0**, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0

[*1] This parameter is only visible when the parameter “Scene function” is set to “External”.

[*2] This parameter is only visible when the parameter “Scene storage function” is set to “Enabled”.

4.6.13. Thermostat Extension Control

This function is used to control the thermostat with an external push button. From the “thermostat control” section, thermostat operating modes can be configured as “Change between all operating modes” and “Operating mode individual selection”. Also, another option is “setpoint control” which is used to increase or decrease the temperature setpoints manually.

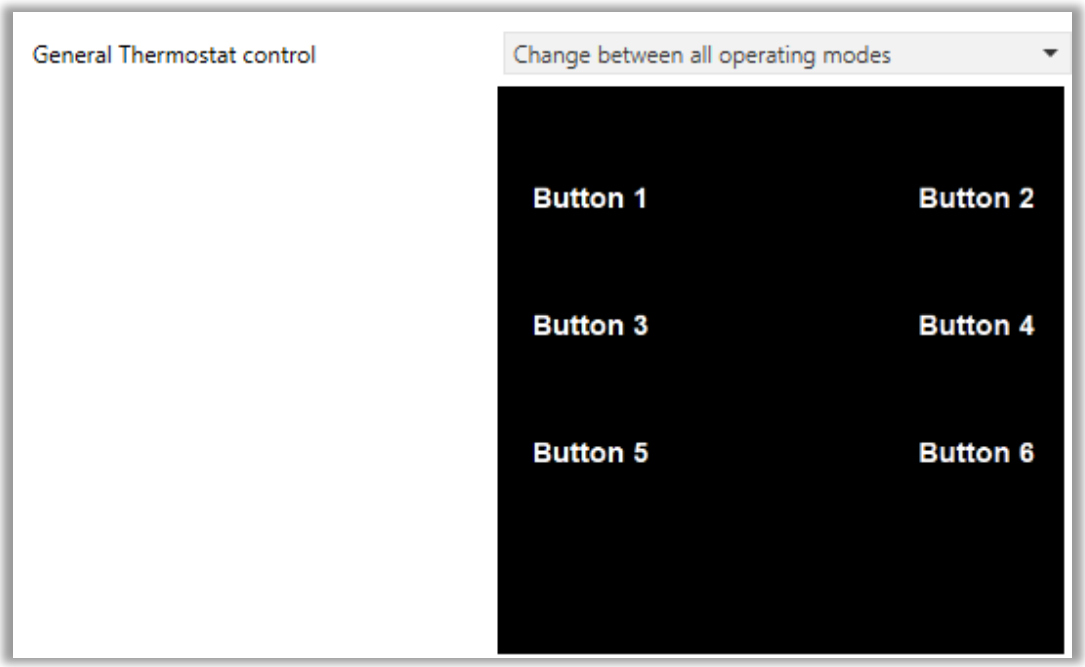


Fig. 24: Thermostat Extension Control Function Configuration

4.6.13.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Thermostat control	This parameter indicates the thermostat control options. **Operating mode individual selection:** With this option, the thermostat can be controlled in 4 different modes. These modes are described in the "Selection" section. **Change between all operating modes:** With this option, the thermostat changes the operating modes between them. **Setpoint control:** The thermostat setpoint can be configured via this option.	Operating mode individual selection **Change between all operating modes** Setpoint control
-> Selection[1]	This parameter allows mode selection for thermostat control.	**Comfort mode** Standby mode Night mode Building protection mode
-> Modification by pressing[2]	This parameter defines how the button function feature works.	**Increase a step** Decrease a step
-> Step for the setpoint control[2]	This parameter determines the step value.	0.1K, **0.5K**, 1.0K

[*1] This parameter is only visible when the parameter "Thermostat control" is set to "Operating mode individual selection".

[*2] This parameter is only visible when the parameter "Thermostat control" is set to "Setpoint control".

4.6.14 Step Switching

Thanks to the push button's "step switching" feature, It is possible to send fixed values as sequential from 1 to 5 different steps in 1 byte, 2 bytes, percentage, temperature, luminosity or scene objects, which are configured according to the selected value type.

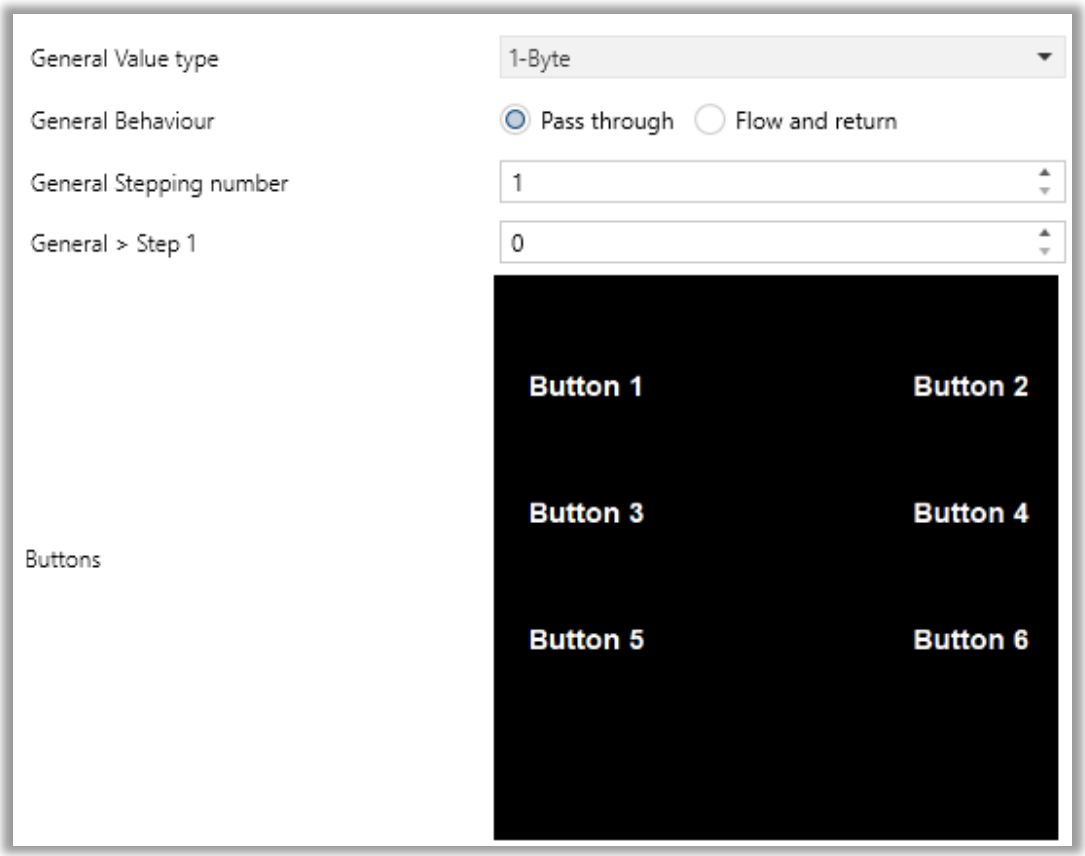


Fig. 25: Step Switching Function Configuration

4.6.14.1. Parameters List

PARAMETER	DESCRIPTION	VALUES
Value type Function Grup Page	This parameter determines the type of value that will be sent. **1 – Byte: 0**…255 **2 – Byte:** 0…**300**…65535 **Percentage:** 1 byte (**0%**…100%) **Temperature:** 2 byte 0.5 (**0.0**…50.0°C) **Luminosity:** 2 bytes (**0**…1000 lux) **Scene:** 1 byte (**1**…64)	**1 Byte** 2 Byte Percentage Temperature Luminosity Scene
Behaviour Function Grup Page	Determines the transmission option of data that will be sent sequentially, each time the push button is pressed. **Pass through:** Send values sequentially and returns to the initial value and continue. Ex : 1byte 1,2,3,4,5,1,2,3,4,5 repeats as sequential. **Flow and return:** Send values sequentially and returns to the last value and continue. Ex : 1byte 1,2,3,4,5,4,3,2,1 and repeats as sequential.	**Pass through** Flow and return
Stepping number	Determines the number of data to be sent in sequence.	**1**…5
Step 1…5	In this section, the values are entered which will be sent sequentially. 1 byte, 2 bytes, percentage, temperature, luminosity or scene data types can be sent up to the configured amount of steps.	**0**...255 0...**300**…65535 **0%**...100% **0**...50 **0**....1000 **1**...64

4.7. Buttons LEDS

- Button led colors are determined according to the function selection on page 1

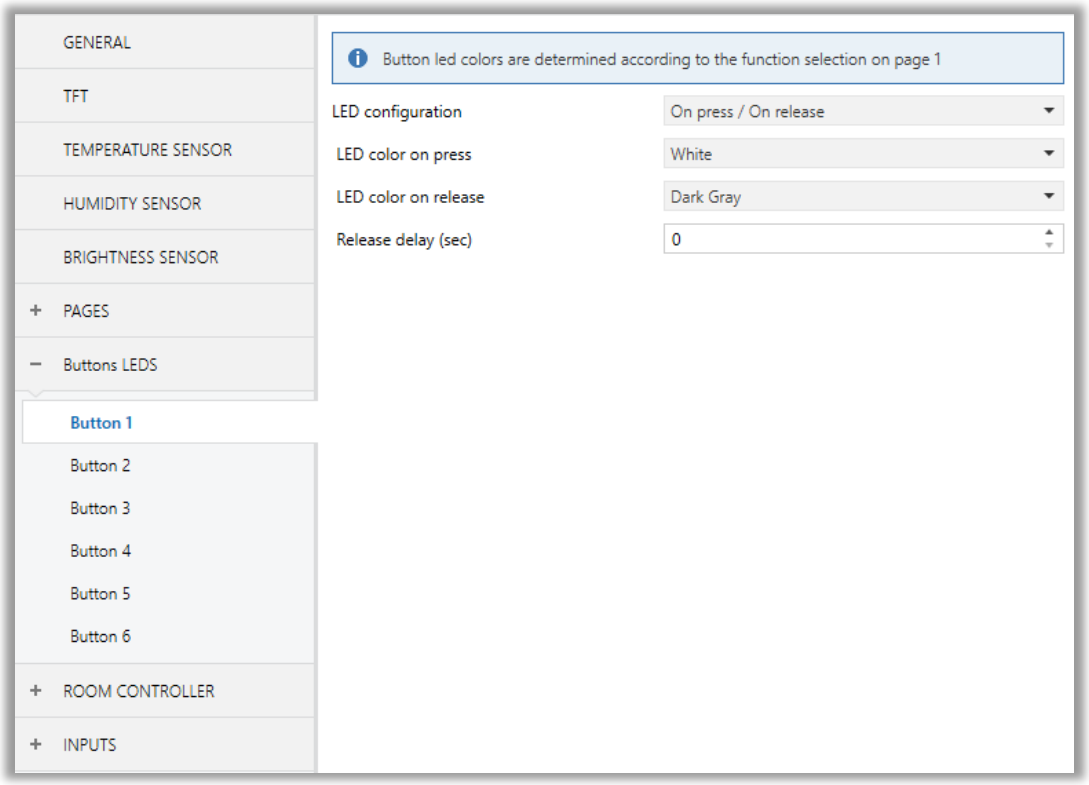


Fig. 26: Buttons LEDS Configuration

4.7.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
LED configuration	This parameter allows for controlling the LED status of the button. **Always on:** The button LED is always on whether the button is pressed. **Always off:** The button LED is always off whether the button is pressed or not. **On press / On release:** When the push button is pressed or released, the push-button LED is on or off. **Led status object:** LED control is done via the led status object.	Always on Always off **On / Off object** Feedback object On press / On release LED status object
-> LED color for on	LED colour is selected by this parameter when the status is “Always on”.	**White** / Blue / Green / Red / Cyan / Magenta / Yellow / Gray / Brown / Orange / Black / Light Blue/ Light Green / Light Red / Light Cyan / Light Magenta / Light Yellow / Light Gray / Dark Blue / Dark Green / Dark Red / Dark Cyan / Dark Magenta / Dark Yellow / Dark Gray
-> LED Color for off	LED colour is selected by this parameter when the status is “always off”.	White / Blue / Green / Red / Cyan / Magenta / Yellow / Gray / Brown / Orange / Black / Light Blue/ Light Green / Light Red / Light Cyan / Light Magenta / Light Yellow / Light Gray / Dark Blue / Dark Green / Dark Red / Dark Cyan / Dark Magenta / Dark Yellow / **Dark Gray** / Off
-> **LED color on press**	This parameter allows controlling the button LED when the push button is pressed.	**White** / Blue / Green / Red / Cyan / Magenta / Yellow / Gray / Brown / Orange / Black / Light Blue/ Light Green / Light Red / Light Cyan / Light Magenta / Light Yellow / Light Gray /

		Dark Blue / Dark Green / Dark Red / Dark Cyan / Dark Magenta / Dark Yellow / Dark Gray / Off
-> LED Color on release	This parameter allows controlling button LED when the push button is released.	White / Blue / Green / Red / Cyan / Magenta / Yellow / Gray / Brown / Orange / Black / Light Blue/ Light Green / Light Red / Light Cyan / Light Magenta / Light Yellow / Light Gray / Dark Blue / Dark Green / Dark Red / Dark Cyan / Dark Magenta / Dark Yellow / **Dark Gray** / Off
-> Release delay (sec)	This parameter determines a release delay for controlling the button LED when the push button is released.	**0**…255
-> Polarity	LED's polarity is selected by this parameter.	**Normal** Inverted

4.8. Room Controller Page

All configurations related to air conditioning control on the iSwitch are described in the sections of this chapter. This parameter page will be shown when it is enabled in the “General” parameter page section. The information about the “General” parameter configuration section is described after the theoretical control type expressions that are given below.

4.8.1. Control Types Theoretical Explanations

The room controller device can be used for only heating, only cooling or heating and cooling. If the room controller is in heating and cooling mode, the transition from heating to cooling or vice versa can occur automatically. The thermostat measures the actual temperature of the ambient air and continuously compares it to the set temperature, and the controller automatically calculates whether to send a control signal for heating or cooling.

The control algorithm based on the difference between the desired setpoint temperature values and the measured actual temperature values processes a command value that can be either percentage or On / Off. The command, periodically or depending on the event, is transmitted to a KNX actuator device via a bus line with communication objects.

4.8.1.1. 2-Points Control

This control algorithm, also known as On / Off, is the most classic and popular one. The algorithm follows a hysteresis cycle, allowing the system to switch On / Off. Hence, 2 switching levels are considered for switching.

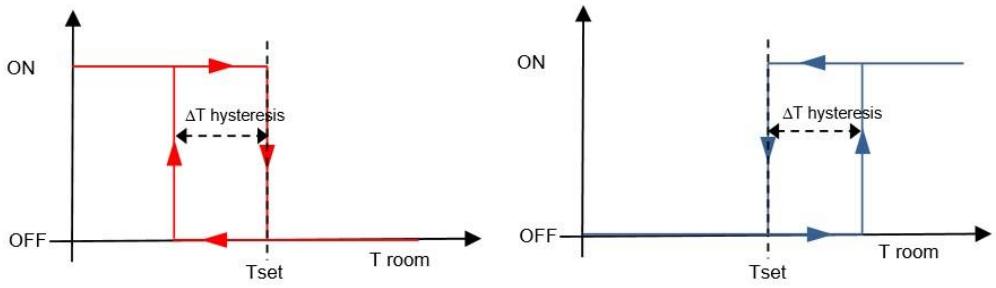


Fig. 27: 2 – Points Control Hysteresis Cycle

Heating mode

When the measured temperature is lower than the difference between the setpoint and the hysteresis value($T_{setpoint} - \Delta T_{hysteresis}$), the device activates the heating system by sending the KNX command to the actuator that controls the heating system via connected to a related group address. When the measured temperature reaches the setpoint temperature, the device sends a related command and deactivates the heating system. In this way, there are 2 decision thresholds to activate and deactivate the heating system. The first one is the

temperature at which the device activates the system($T_{setpoint} - \Delta T_{hysteresis}$), and the second one is the temperature at which the device deactivates the heating system($T_{setpoint}$).

Cooling mode

When the measured temperature is higher than the difference between the setpoint and the hysteresis value($T_{setpoint} - \Delta T_{hysteresis}$), the device activates the heating system by sending the KNX command to the actuator that controls the cooling system via connected to a related group address. When the measured temperature reaches the setpoint temperature, the device sends a related command and deactivates the cooling system. In this way, there are 2 decision thresholds to activate and deactivate the cooling system. The first one is the temperature at which the device activates the system($T_{setpoint} + \Delta T_{hysteresis}$), and the second one is the temperature at which the device deactivates the heating system($T_{setpoint}$).

There are 2 different parameters for heating and cooling hysteresis values in the ETS programme. Values differ depending on the system type.

4.8.1.2. PWM Control

The PWM (Pulse Width Modulation) proportional-integral controller allows the digital output to be set to On and Off by sampling an analogue control variable within a specified period. The controller runs periodically through a cycle and keeps its output ON for each period in proportion to the value of the control variable. As shown in the below figure, by varying the ratio between the “ON” time and the “OFF” time, the average activation time of the output changes, and as a result the average heating or cooling power supplied by the room changes.

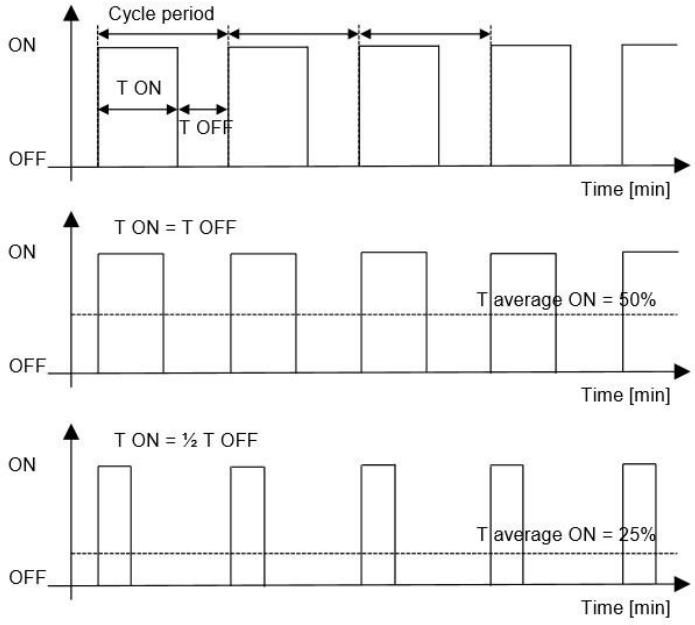


Fig. 28: PWM Control Sampling

This type of control is well suited for use with ON / OFF actuators, such as electrothermal actuators and drives for zone valves, which are less expensive than proportional actuators.

A distinctive advantage of this type of control is that it eliminates the inertia of the system: it allows significant energy savings because unnecessary interventions on the system introduced by the 2-point control with hysteresis are avoided and only the power is required to compensate for the losses.

Every time the changes the desired temperature setpoint, the cycle time is interrupted, the control output is reprocessed and the PWM restarts with a new cycle: this allows the system to reach its steady state more quickly.

4.8.1.3. Continuous (PI) Control

Proportional – Integral control (PI control) is explained by the relationship shown below:

$$control\ variable(t) = Kp \times error(t) + Ki \times \int error(\tau)d\tau\ t\ 0$$

$$error(t) = (Setpoint - Measured\ temperature)\ in\ heating$$

$$error(t) = (Measured\ temperature - Setpoint)\ in\ cooling$$

$$Kp = proportional\ constant$$

$$Ki = integral\ constant$$

The control variable contains integral and proportional (Ki and Kp) constants to eliminate errors. In practice, intuitively generated values are generally used.

Ex 1:

$Proportional\ band\ BP\ [K] = 100 / Kp$ $\qquad$ $Integral\ time\ Ti\ [min] = Kp / Ki$

The proportional band is the error value that determines the maximum deflection output as 100%.

For example, a regulator with a proportional band of 5 K provides a 100% control output when the Setpoint = 20°C and the measured temperature is ≤ 15°C in heating; in the cooling conduction mode, it provides a 100% control output when the Setpoint = 24°C and the measured temperature is ≥ 29°C. As shown in the figure, a regulator with a small proportional band tends to provide higher values of the control variable for small errors than a regulator with a higher proportional band.

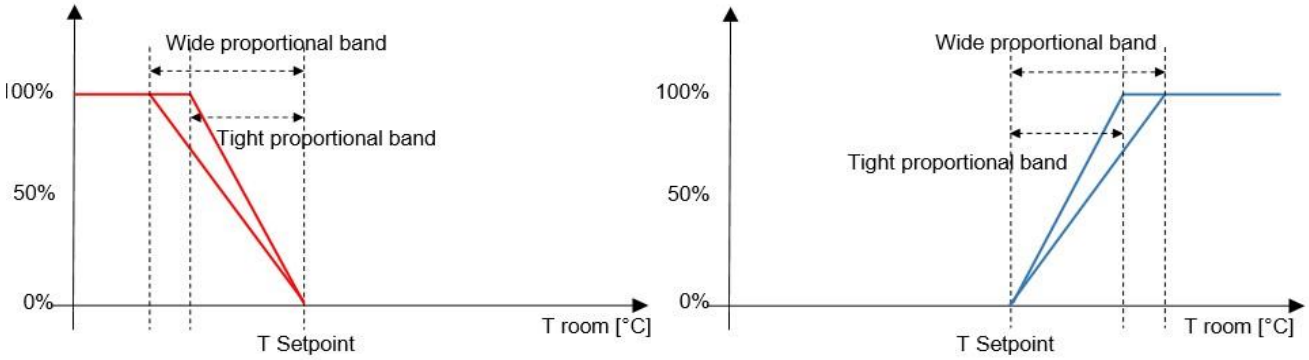


Fig. 29: Continuous PI Control Proportional Band Widths

The integral time is the time required to repeat the value of the control variable of a purely proportional regulator when the error remains constant in time.

Ex 2:

For example, with a purely proportional controller in heating and with a value of proportional band of 4 K, if the setpoint is = 20°C and the measured temperature is = 18°C, the control variable assumes the value of 50%. With an integral time = 60 minutes, if the error remains constant, the control variable will take the value = 100% after 1 hour, i.e. a contribution equal to the value given by only proportional contribution will be added to the control variable.

In heating and air conditioning systems, a purely proportional controller is not able to guarantee the achievement of the setpoint. You should always introduce an integrated action for achieving the Setpoint: that is why the integral action is also called automatic reset.

4.8.2. General

The thermostat function can be selected as the “master” controller or “slave” controller in the configuration settings in this section. When the selection is made as to the “master” controller, configuration sections and 14 bytes “master room controller” communication objects are opened to define the thermostat functions.

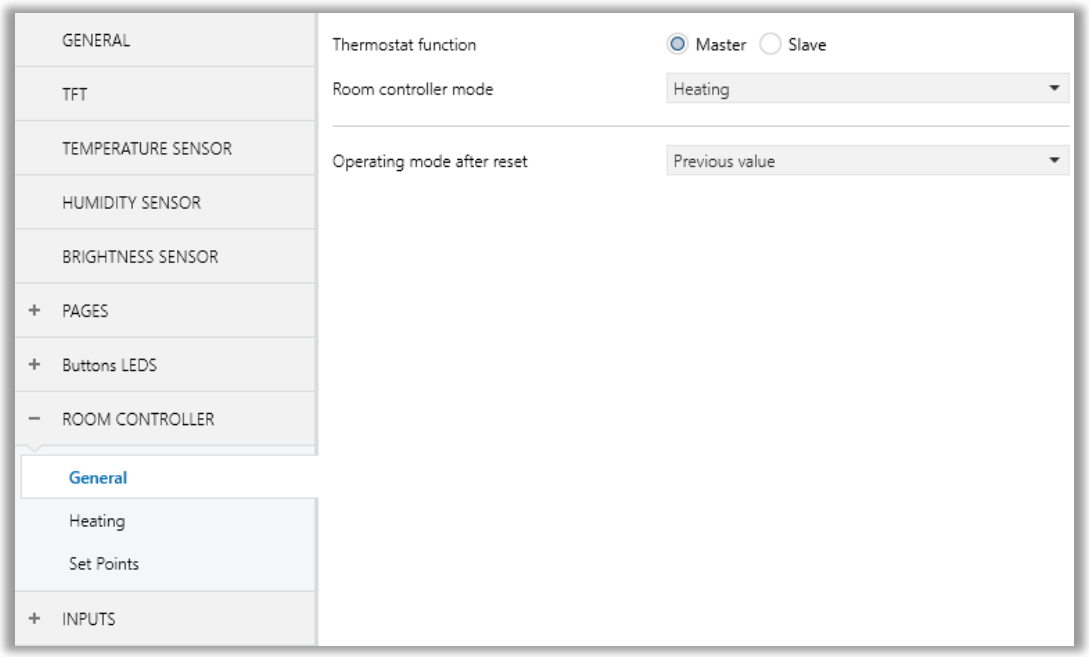


Fig. 30: Room Controller General Configuration Section

When the selection is made as to the “slave” controller, the configuration sections related to the thermostat functions are closed. The slave controller must be connected to the master controller with the KNX communication object as it will operate as a dependent controller with a 14-byte “slave room controller” object. Heating, cooling, heating and cooling operation mode selections, manual or automatic selection of mode switching and the operation of the room controller after a power failure can be set from this section.

4.8.2.1. Parameters List

PARAMETER	DESCRIPTION	VALUES
Thermostat function	The thermostat function's operating type is determined by this parameter.	**Master** Slave
-> Room controller mode	Room controller mode is determined with this parameter.	**Heating** Cooling Heating & Cooling
-> Command value object	The object types of temperature command values for heating and cooling mode are determined with this parameter.	1 common object **2 separated object**
-> Heating / Cooling change–over	This parameter determines how the heating/cooling transition is made.	**Automatic** Via communication object
-> Room controller mode after reset	This parameter determines the room controller mode after the device restarts.	**Previous value** Heating Cooling
-> Operating mode after reset	This parameter determines the operating mode of the room controller after a reset occurs. Ex: When a power failure occurs.	**Previous value** Comfort Standby Night Building protection

4.8.3. Heating

The device's operation principle of the heating feature is as follows: When the measured temperature is lower than the setpoint temperature, the device activates the heating system by sending a KNX command to the actuator that controls the heating system via connected to the related group address. When the measured temperature reaches the setpoint temperature, the device sends a related command and deactivates the heating system. The heating feature can be controlled with different types of configuration settings. These configuration settings are as follows ;

Selection of the "Heating 2 – Points Control" parameter, 1 bit on/off control.

Selection of the "Heating Pwm Control" parameter, 1-byte proportional-integral control.

Selection of the "Heating Continuous Control" parameter, 1-byte proportional-integral control.

4.8.3.1. Heating 2 – Points Control

When the measured temperature is lower than the difference between the setpoint and the hysteresis value($T_{setpoint} - \Delta T_{hysteresis}$), the device activates the heating system by sending a KNX command to the actuator that controls the heating system via connection to a related group address. When the measured temperature reaches the setpoint temperature, the device sends a related command and deactivates the heating system. In this way, there are 2 decision thresholds to activate and deactivate the heating system. The first one is the temperature at which the device activates the system($T_{setpoint} - \Delta T_{hysteresis}$), and the second one is the temperature at which the device deactivates the heating system($T_{setpoint}$).

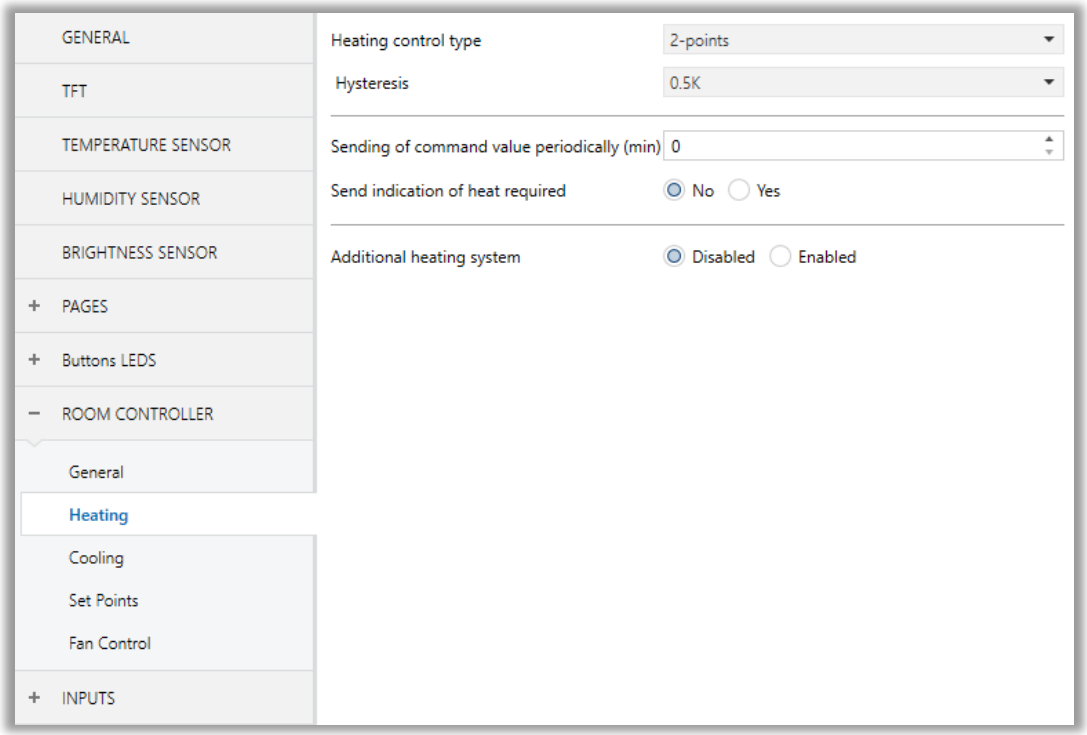


Fig. 31: Heating 2-Points Control Configuration

4.8.3.2. Parameters List

PARAMETER	DESCRIPTION	VALUES
Heating control type	This parameter determines the heating control type.	**2 – points** PWM Continuous
Hysteresis	This parameter determines the hysteresis value.	0.1K…**0.5K**…2.0K
Sending of command value periodically (min)	This parameter determines the time of command value to be sent periodically.	**0**…255
Send indication of heat required	This parameter sends status information about whether the heating system is working.	**No** Yes

4.8.3.3. Heating PWM Control

The PWM (Pulse Width Modulation) proportional-integral controller allows the digital output to be set to On and Off by sampling an analogue control variable within a specified period. The controller runs periodically through a cycle and keeps its output ON for each period in proportion to the value of the control variable. By varying the ratio between the “ON” time and the “OFF” time of the heating system, the average activation time of the output changes, and as a result, the average heating power supplied by the room changes.

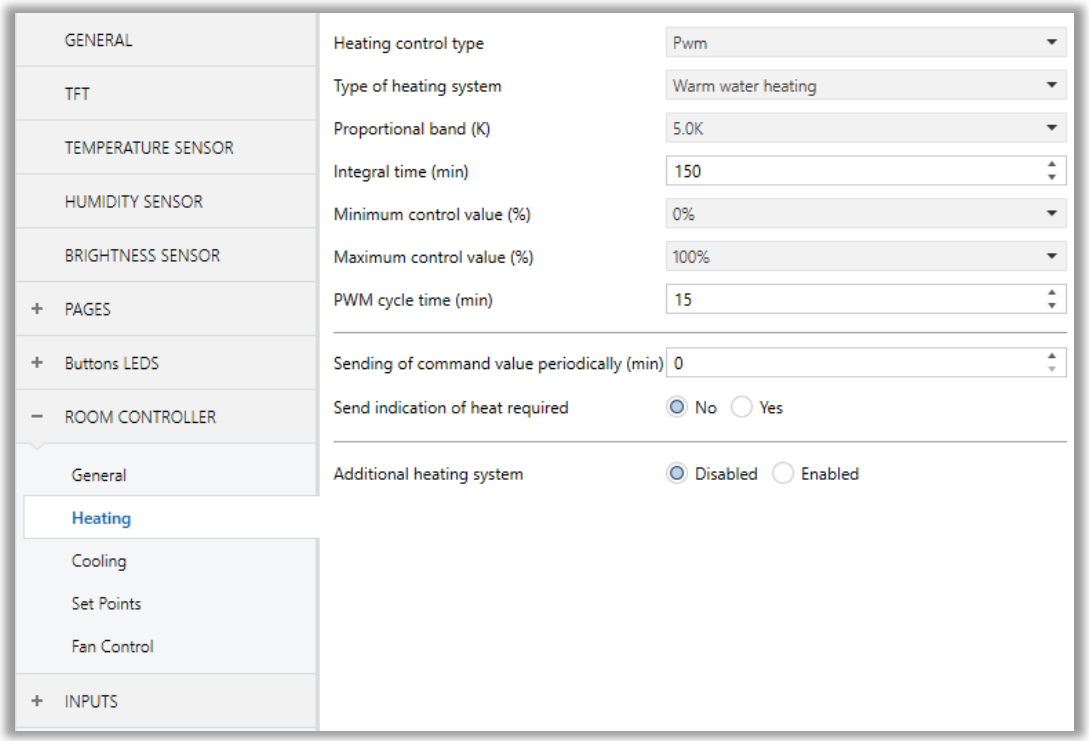


Fig. 32: Heating PWM Control Configuration

4.8.3.4. Parameters List

PARAMETER	DESCRIPTION	VALUES
Heating control type	This parameter determines the heating control type.	2 – points **PWM** Continuous
Type of heating system	This parameter determines the heating system to be controlled.	**Warm water heating** Electric heating Floor heating Split unit Fan coil User customise
Proportional band (K)	This parameter determines the proportional band.	0.5K…**5.0K**…10.0K
Integral time (min)	This parameter determines the integral time.	0…**150**…255
Minimum control value (%)	This parameter determines the output object's minimum control value.	**0%,** 5%, 10%, 15%, 20%, 25%, 30%
Maximum control value (%)	This parameter determines the output object's maximum control value.	70%, 75%, 80%, 85%, 90%, %95, **100%**
PWM cycle time (min)	This parameter determines the PWM cycle time.	0…**15**…255
Sending of the command value periodically (min)	This parameter determines the period of command value to be sent periodically.	**0**…100
Send indication of heat required	This parameter sends status information about whether the heating system is working.	**No** Yes

4.8.3.5. Heating Continuous Control

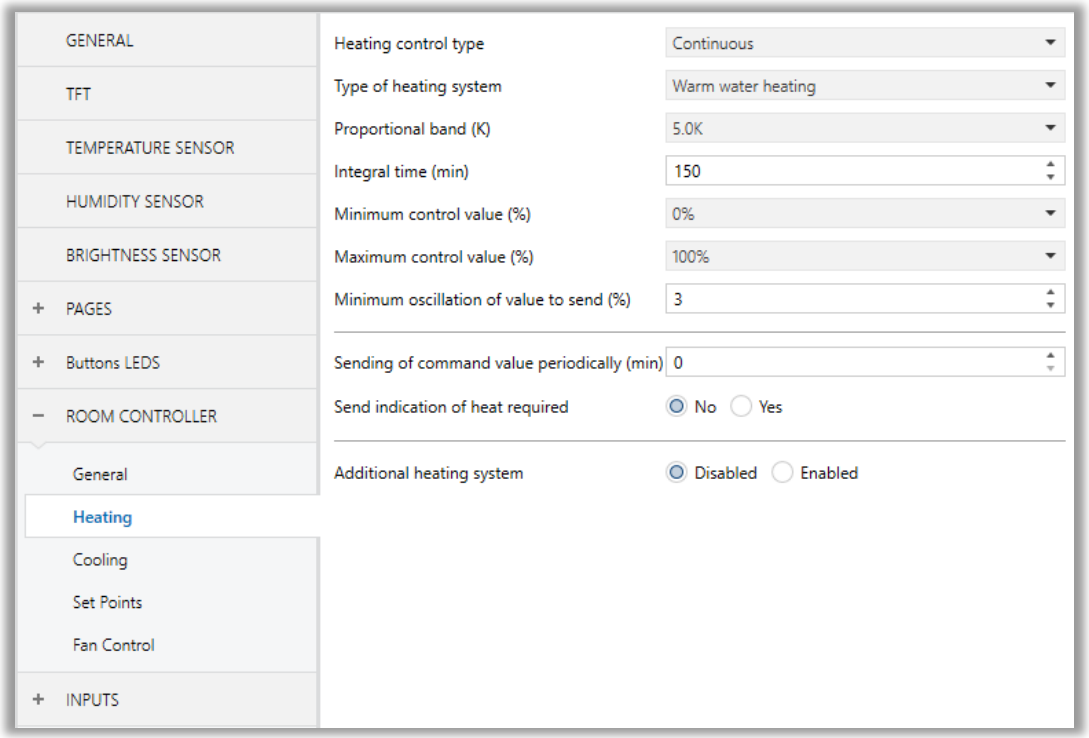


Fig. 33: Heating Continuous Control Configuration

Proportional – Integral control (PI control) is explained by the relationship shown below:

$$control\ variable(t) = Kp \times error(t) + Ki \times \int error(\tau)d\tau\ t\ 0$$

$$error(t) = (Setpoint - Measured\ temperature)\ in\ heating$$

$$error(t) = (Measured\ temperature - Setpoint)\ in\ cooling$$

$$Kp = proportional\ constant$$

$$Ki = integral\ constant$$

The control variable contains integral and proportional (Ki and Kp) constants to eliminate errors. In practice, intuitively generated values are generally used.

$$Proportional\ band\ BP\ [K] = 100 / Kp \quad , \quad Integral\ time\ Ti\ [min] = Kp / Ki$$

The proportional band is the error value that determines the maximum deflection output as 100%.

4.8.3.6. Parameters List

PARAMETER	DESCRIPTION	VALUES
Heating control type	This parameter determines the heating control type.	2 – points PWM **Continuous**
Type of heating system	This parameter determines the heating system to be controlled.	**Warm water heating** Electric heating Floor heating Split unit Fan coil User customise
Proportional band (K)	This parameter determines the proportional band.	0.5K…**5.0K**…10.0K
Integral time (min)	This parameter determines the integral time.	0…**150**…255
Minimum control value (%)	This parameter determines the output object's minimum control value.	**0%,** 5%, 10%, 15%, 20%, 25%, 30%
Maximum control value (%)	This parameter determines the output object's maximum control value.	70%, 75%, 80%, 85%, 90%, 95%, **100%**
Minimum oscillation of value to send (%)	This parameter determines the minimum oscillation value for the output object to send a value.	0…**3**…100
Sending of command value periodically (min)	This parameter determines the time of command value to be sent periodically.	**0**…255
Send indication of heat required	This parameter sends status information about whether the heating system is working.	**No** Yes

4.8.3.7. Additional Heating System

All types of heating controls(2-points, PWM and continuous control) have additional heating system options. The additional heating system works in all control types with the same characteristics. It controls the heating system with the hysteresis method. The system activates itself according to the offset and hysteresis configuration. In addition, after a power failure, the additional system retains its selected value which is selected from the Disabling additional heating parameter(Disabled or Enabled). Besides, there are 2 control-type objects these are; switching(1bit) and continuous(1 byte). The continuous one is designed for compatibility with other heating systems.

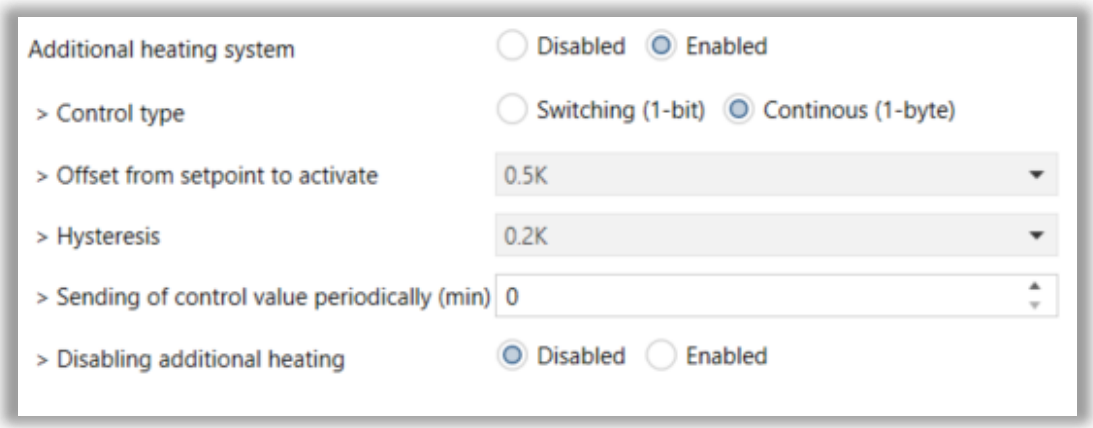


Fig. 34: Additional Heating System Configuration

4.8.3.8. Parameters List

PARAMETER	DESCRIPTION	VALUES
Additional heating system	This parameter activates the additional heating system.	**Disabled** Enabled
Control type	This parameter determines the additional heating system's control object type.	**Switching (1 – bit)** Continuous (1 – byte)
Offset from setpoint to activate*	This parameter determines the difference between the setpoint temperature value and the additional heating system's setpoint temperature value.	**0.5K,** 1.0K, 1.5K, 2.0K, 2.5K, 3.0K, 3,5K, 4.0K, 5.0K
Hysteresis	This parameter determines the hysteresis value.	**0.2K,** 0.3K, 0.4K, 0.5K, 0.6K, 0.7K, 0.8K, 0.9K, 1.0K, 1.2K, 1.3K, 0.4K, 1.5K, 1.6K, 1.7K, 1.8K, 1.9K, 2.0K
Sending of control value periodically (min)[1]	This parameter determines the time of the control value to be sent periodically.	**0**…255
Disabling additional heating	This parameter allows the additional heating system to be active or passive via the KNX bus line.	**Disabled** Enabled

4.8.4. Cooling

The device's operation principle of cooling feature is as follows: When the measured temperature is higher than the setpoint temperature, the device activates the cooling system by sending a KNX command to the actuator that controls the cooling system via connection to the related group address. When the measured temperature reaches the setpoint temperature, the device sends a related command and deactivates the cooling system. The cooling feature can be controlled with different types of configuration settings. These configuration settings are as follows ;

Selection of the "Heating 2 – Points Control" parameter, 1 bit on/off control.

Selection of the "Heating Pwm Control" parameter, 1-byte proportional-integral control.

Selection of the "Heating Continuous Control" parameter, 1-byte proportional-integral control.

4.8.4.1. Cooling 2 – Points Control

When the measured temperature is higher than the difference between the setpoint and the hysteresis value($T_{setpoint} + \Delta T_{hysteresis}$), the device activates the cooling system by sending a KNX command to the actuator that controls the cooling system via connection to a related group address. When the measured temperature reaches the setpoint temperature, the device sends a related command and deactivates the cooling system. In this way, there are 2 decision thresholds to activate and deactivate the cooling system. The first one is the temperature at which the device activates the cooling system($T_{setpoint} + \Delta T_{hysteresis}$), and the second one is the temperature at which the device deactivates the cooling system($T_{setpoint}$).

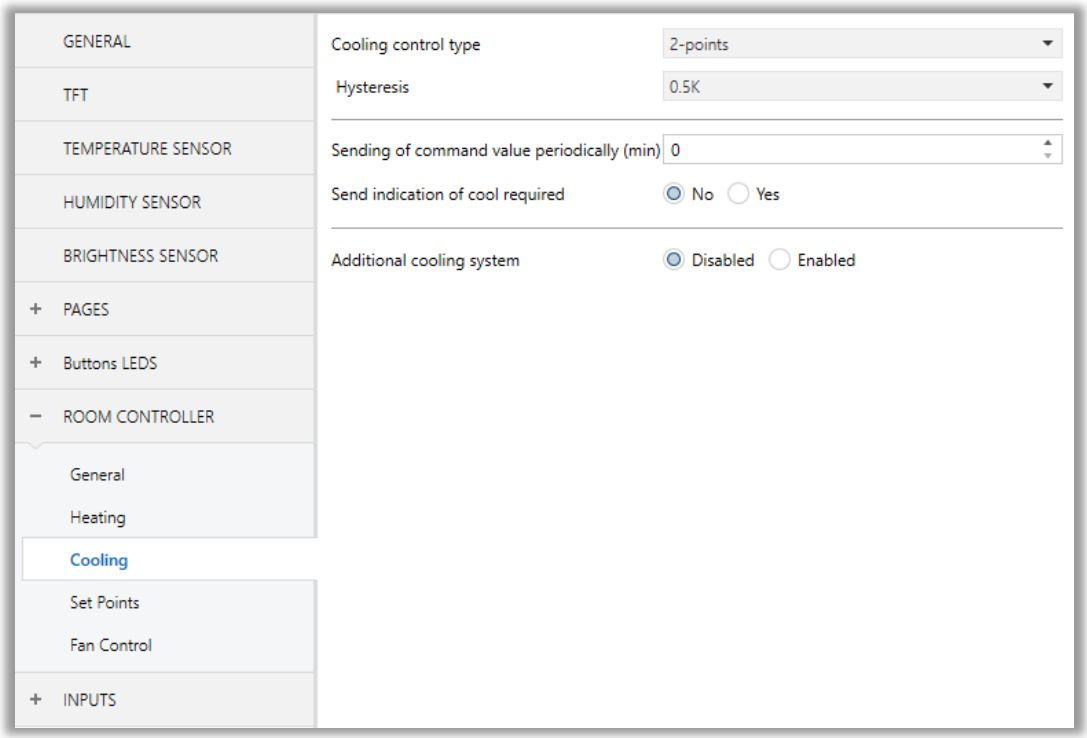


Fig. 35: Cooling 2-Points Control Configuration

4.8.4.2. Parameters List

PARAMETER	DESCRIPTION	VALUES
Cooling control type	This parameter determines the cooling control type.	**2 – points** PWM Continuous
Hysteresis	This parameter determines the hysteresis value.	0.1K…**0.5K**…2.0K
Sending of command value periodically (min)	This parameter determines the time of command value to be sent periodically.	**0**…100
Send indication of cool required	This parameter sends status information about whether the cooling system is working.	**No** Yes

4.8.4.3. Cooling Pwm Control

The PWM (Pulse Width Modulation) proportional-integral controller allows the digital output to be set to On and Off by sampling an analogue control variable within a specified time. The controller runs periodically through a cycle and keeps its output ON for each period in proportion to the value of the control variable. By varying the ratio between the “ON” time and the “OFF” time of the heating system, the average activation time of the output changes, and as a result, the average heating power supplied by the room changes.

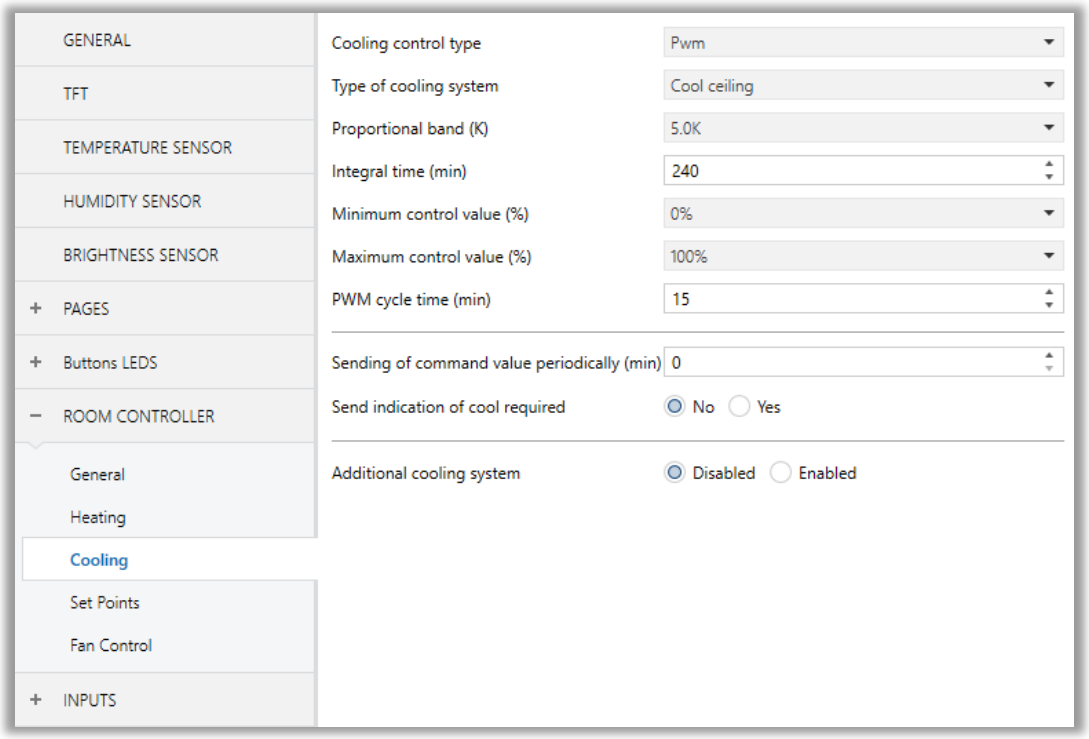


Fig. 36: Cooling PWM Control Configuration

4.8.4.4. Parameters List

PARAMETER	DESCRIPTION	VALUE
Type of cooling system	This parameter determines the cooling system to be controlled.	**Cool ceiling** Split unit Fan coil User customize
Proportional band (K)	This parameter determines the proportional band.	0.5K…**5.0K**…10.0K
Integral time (min)	This parameter determines the integral time.	0…**240**…255
Minimum control value (%)	This parameter determines the output object's minimum control value.	**0%**, 5%, 10%, 15%, 20%, 25%, 30%
Maximum control value (%)	This parameter determines the output object's maximum control value.	70%, 75%, 80%, 85%, 90%, 95%, **100%**
PWM cycle time (min)	This parameter determines the PWM cycle time.	0…**15**…255
Sending of command value periodically (min)	This parameter determines the time of command value to be sent periodically.	**0**…100
Send indication of cool required	This parameter sends status information about whether the cooling system is working.	**No** Yes

4.8.4.5. Cooling Continuous Control

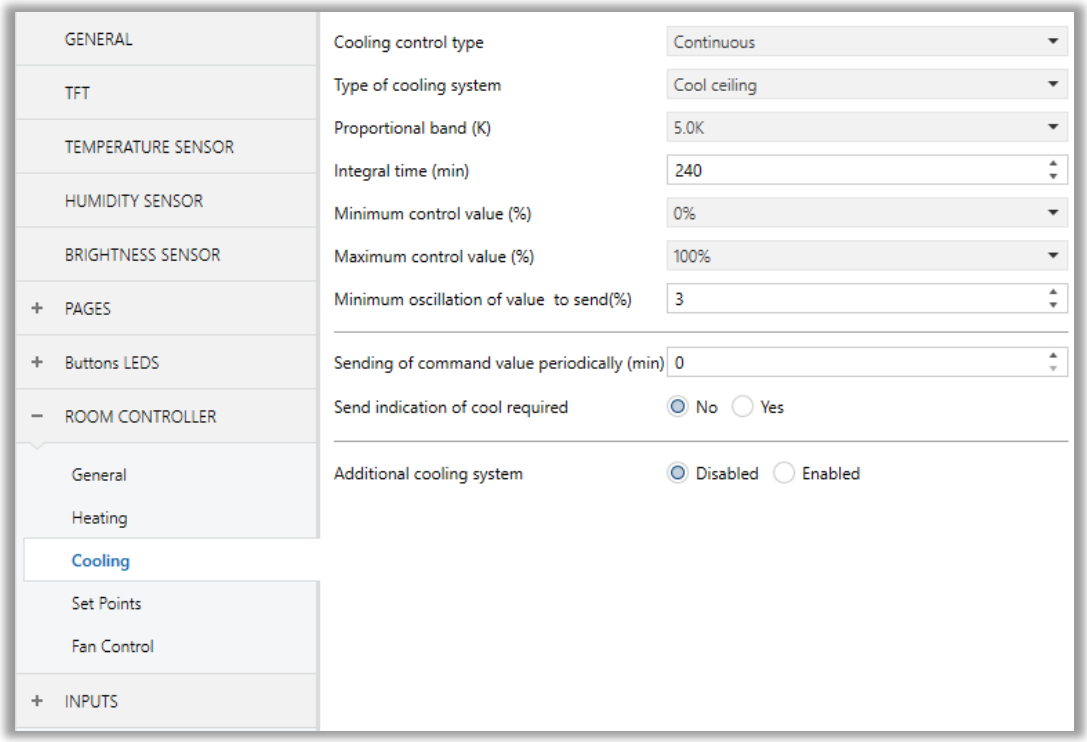


Fig. 37: Cooling Continuous Control Configuration

Proportional – Integral control (PI control) is explained by the relationship shown below:

$$control\ variable(t) = Kp \times error(t) + Ki \times \int error(\tau)d\tau\ t\ \mathbf{0}$$

$$error(t) = (Setpoint - Measured\ temperature)\ in\ heating$$

$$error(t) = (Measured\ temperature - Setpoint)\ in\ cooling$$

$$Kp = proportional\ constant$$

$$Ki = integral\ constant$$

The control variable contains integral and proportional (Ki and Kp) constants to eliminate errors. In practice, intuitively generated values are generally used.

$$Proportional\ band\ BP\ [K] = 100 / Kp \quad , \quad Integral\ time\ Ti\ [min] = Kp / Ki$$

The proportional band is the error value that determines the maximum deflection output as 100%.

4.8.4.6. Parameters List

PARAMETER	DESCRIPTION	VALUES
Type of cooling system	This parameter determines the cooling system to be controlled.	**Cooling ceiling** Split unit Fan coil User customize
Proportional band (K)	This parameter determines the proportional band.	0.5K…10.0K
Integral time (min)	This parameter determines the integral time.	0…240…255
Minimum control value (%)	This parameter determines the output object's minimum control value.	**0%**, 5%, 10%, 15%, 20%, 25%, 30%
Maximum control value (%)	This parameter determines the output object's maximum control value.	70%, 75%, 80%, 85%, 90%, 95%, **100%**
Minimum oscillation of value to send (%)	This parameter determines the minimum oscillation value for the output object to send a value.	0…**3**…100
Sending of command value periodically (min)	This parameter determines the time of command value to be sent periodically.	**0**…255
Send indication of cool required	This parameter sends status information about whether the cooling system is working.	**No** Yes

4.8.4.7. Additional Cooling System

All types of cooling controls(2-points, PWM and continuous control) have additional cooling system options. The additional cooling system works in all control types with the same characteristics. It controls the cooling system with the hysteresis method. The system activates itself according to the offset and hysteresis configuration. In addition, after a power failure, the additional system retains its selected value which is selected from the “Disabling additional cooling” parameter(Disabled or Enabled). Besides, there are 2 control-type objects these are; switching(1bit) and continuous(1 byte). The continuous one is designed for compatibility with other cooling systems.

Fig. 38: Additional Cooling System Configuration

4.8.4.8. Parameters List

PARAMETER	DESCRIPTION	VALUE
Additional Cooling system	This parameter activates the additional cooling system.	**Disabled** Enabled
Control type	This parameter determines the additional cooling system's control object type.	**Switching (1 – bit)** Continuous (1 – byte)
Offset from setpoint to activate	This parameter determines the difference between the setpoint temperature value and the additional cooling system's setpoint temperature value.	**0.5K,** 1.0K, 1.5K, 2.0K, 2.5K, 3.0K, 3,5K, 4.0K, 5.0K
Hysteresis	This parameter determines the hysteresis value.	**0.2K,** 0.3K, 0.4K, 0.5K, 0.6K, 0.7K, 0.8K, 0.9K, 1.0K, 1.2K, 1.3K, 0.4K, 1.5K, 1.6K, 1.7K, 1.8K, 1.9K, 2.0K,
Sending of control value periodically (min)	This parameter determines the time of the control value to be sent periodically.	**0**…255
Disabling additional cooling	This parameter allows the additional cooling system to be active or passive via the KNX bus line.	**Disabled** Enabled

4.8.5. Heating & Cooling

Heating & Cooling mode is generally used when there are 2 different heating and cooling sources or only 1 source that has both heating and cooling ability together. If the heating/cooling sources are different, the command value object parameter should be selected as “2 separated objects”. However, if heating and cooling are obtained from the same source, the command value object parameter should be selected as “1 common object”. Additionally, in this mode, the distinction is made whether the switch-over between heating and cooling is to be effected automatically or in a controlled way through the communication object.

In the automatic switch-over option: for the heating, the controller will turn on the heating when the room temperature has fallen below a preset dead band limit. As soon as the room temperature is exceeding the heating setpoint, the control will turn off the heating in the heating & cooling mode. For the cooling, the controller will turn on the cooling system when the room temperature has exceeded a preset dead band limit. As soon as the room temperature is reaching above the cooling setpoint, the control will turn off the cooling system in the heating & cooling mode.

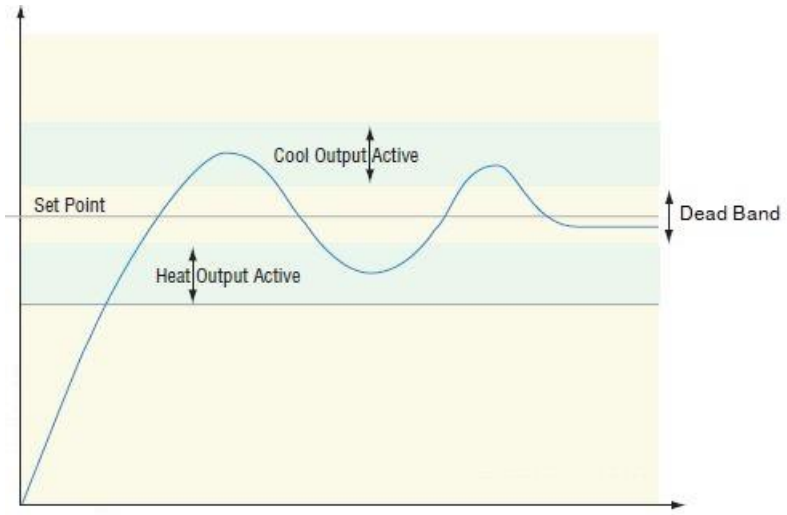


Fig. 39: Heating & Cooling Mode Dead Band

In via communication object option: In this option, there is no dead band concept compared to the automatic option. The main difference between automatic and communication object options; the mode switch-over between modes is made manually.

4.8.5.1. Parameters List

In heating & cooling mode, cooling configurations and heating configurations can be made separately mentioned before. In this section, only extra parameters for this mode are described below.

PARAMETER	DESCRIPTION	VALUES
Thermostat function	The thermostat function's operating type is determined by this parameter.	**Master** Slave
Room controller mode	Room controller mode is determined with this parameter.	**Heating** Cooling Heating & Cooling
Command value object[*1]	The object types of temperature command values for heating and cooling mode are determined with this parameter.	1 common object **2 separated object**
Heating / Cooling change–over[*1]	This parameter determines how the heating/cooling transition is made.	**Automatic** Via communication object
Room controller mode after reset	This parameter determines the room controller mode after the device restarts.	**Previous value** Heating Cooling
Operating mode after reset	This parameter determines the operating mode of the room controller after a reset occurs. Ex: When a power failure occurs.	**Previous value** Comfort Standby Night Building protection

4.8.6. Set Points

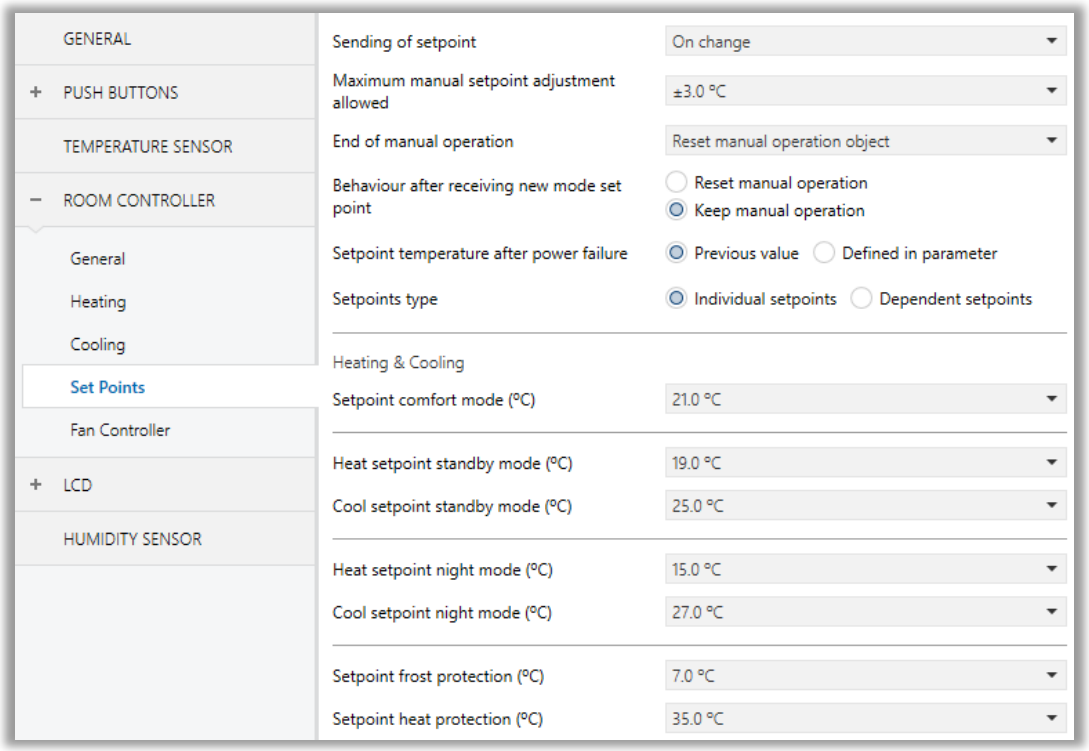


Fig. 40: Set Points Configuration

Temperature setpoints for heating or cooling modes are configured in this section. The operation modes such as comfort, standby, night and frost protection of “heating”, “cooling” and “heating & cooling” modes can be separately specified from this section. The temperature setpoint value can be configured to send to the KNX bus line with 3 different settings such as “Periodically”, “On change” and “Periodically and on change”. Besides, how much the maximum bandwidth setting will be configured for that increasing or decreasing the temperature value manually can be determined. Moreover, it is possible to set which setpoint values will be used when there is a power failure.

4.8.6.1. Parameters List

PARAMETER	DESCRIPTION	VALUES
Sending of setpoint	This parameter allows sending the setpoint temperature value information. **On change:** The Temperature value information is sent when the setpoint temperature value changed 1 K. **Periodically:** The Temperature value information is sent periodically. **Periodically and on change:** The Temperature value information is sent periodically or when the setpoint temperature value changed 1 K.	**On change** Periodically Periodically and on change
Period of sending (min)	This parameter determines the time of the setpoint temperature value to be sent periodically.	1…**5**…255
Maximum manual setpoint adjustment allowed	This parameter configures the maximum and minimum limit values for the setpoint temperature value.	**+/– 3.0˚C**…+/– 10.0 ˚C
End of manual operation	This parameter determines the time to end manual operation. This parameter determines the behaviour after receiving the new set mode.	**Reset manual operation object** 30 min, 1hr, 2hr, 3hr, 4hr, 6hr, 9hr, 12hr, 15hr, 18hr, 25hr
Behaviour after receiving a new mode set	This parameter determines the behaviour after receiving the new set mode. **Reset manual operation:** The manual operation is reset after the new setting mode is received with this option. **Keep manual operation:** The manual operation is continued after the new setting mode is received with this option.	Reset manual operation **Keep manual operation**
Setpoint temperature after power failure	This parameter determines the setpoint temperature after a power failure.	**Previous value** Defined in parameter
Setpoints type	The desired temperature value can be controlled with individual or dependent setpoints by this parameter.	**Individual setpoints** Dependent setpoints
Setpoint comfort mode (˚C)	The desired temperature value for comfort mode is configured with this parameter.	10.0˚C…**21.0˚C** …35.0˚C

Setpoint standby mode (˚C)	The desired temperature value for standby mode is configured with this parameter.	**19.0˚C** (10.0˚C…35.0˚C)
Setpoint night mode (˚C)	The desired temperature value for night mode is configured with this parameter.	**15.0˚C** (10.0˚C…35.0˚C)
Setpoint frost protection (˚C)	The desired temperature value for frost protection mode is configured with this parameter.	**7.0˚C** (10.0˚C…35.0˚C)
Setpoint heat protection (˚C)	The desired temperature value for heat protection mode is configured with this parameter.	**35.0˚C** (10.0˚C…35.0˚C)
Minimum dead band allowed for change – over	When the heating/cooling change–over is configured in automatic mode, the dead bandwidth is can be set with this parameter.	**1.0˚C** (0.5˚C…7.0˚C)

4.8.7. Fan

This section contains information about the usage of the “Fan Indicator” and “Fan Controller” sections.

4.8.7.1. Fan Controller

In addition to the above, if the parameter “Fan control used for room controllers” is set to “Enabled” from the “GENERAL” parameter page, the configuration page that is related to fan control is now opened as “Fan Controller” under the “ROOM CONTROLLER” parameter page instead of the “LCD” parameter page. The image of the configuration page to be opened is shown above. The configuration settings in this section are configured such as the selection of fan speed level of the device to be used, the fan speed transitions regarding the percentage value to be changed, the manual or automatic fan speed selections, and all arrangements related to feedback reception of the current fan speed. In addition, differs from the “fan indicator”, this option is used for controlling the fans.

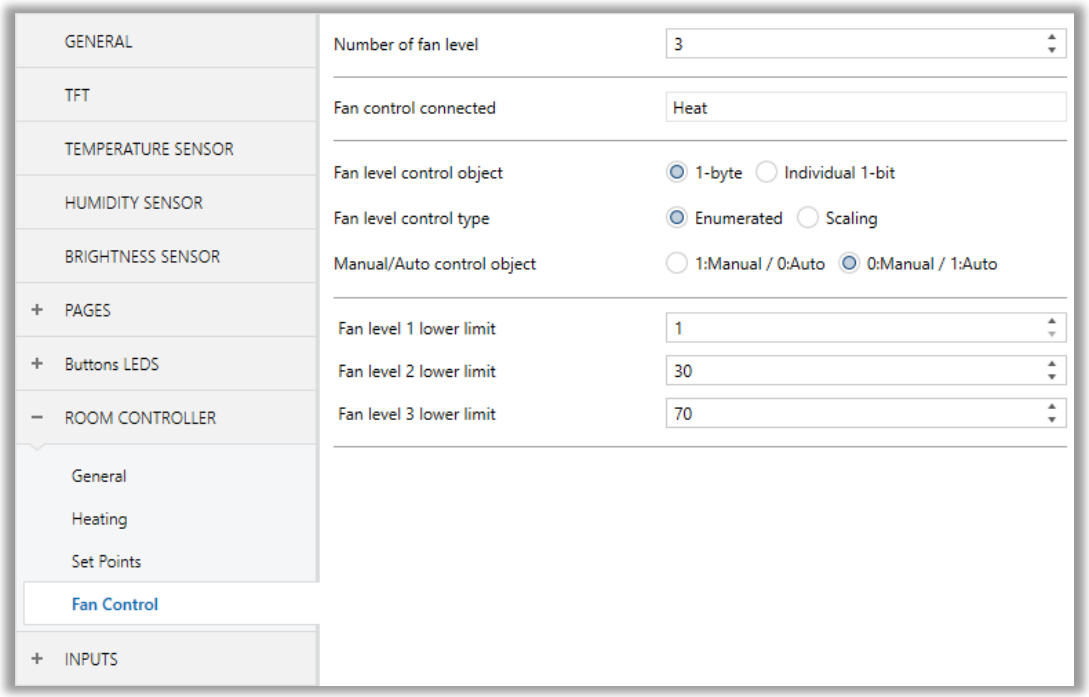


Fig. 41: Fan Control Configuration Used For Room Controller

4.8.7.2. Parameters List

PARAMETER	DESCRIPTION	VALUES
Number of fan level	The number of fan levels is determined with this parameter.	**3** (1…5)
Fan control connected	This parameter allows the fan controls to work together with the "heating", "cooling" or "heating/cooling" system.	**Heat** Cool Heat & Cool
Fan level control object	This parameter allows the control of the fan speed with 1–bit object.	**1-byte** Individual 1-bit
Fan level control type	This parameter allows the control of the fan speed with 1 – byte object.	**Enumerated** Scaling
Manual / Auto control object	Manual or automatic fan speed control is selected with this parameter.	**1 : Manual / 0 : Auto** 0 : Manual / 1 : Auto
Fan level 1 lower limit	The lower limit value of the 1st speed is determined with this parameter.	**1** (1…100)
Fan level 2 lower limit	The lower limit value of the 2nd speed is determined with this parameter.	**30** (1…100)
Fan level 3 lower limit	The lower limit value of the 3rd speed is determined with this parameter.	**70** (1…100)

4.9. Inputs

Interra Just Touch has 2 digital inputs. By connecting buttons to digital inputs, you can choose the lighting, curtains/blinds, RGB LEDs, dim devices etc. you want to control. You can control the devices by making the necessary configurations via Just Touch.

4.9.1. Input – Switch Sensor

In this section, it is explained how to control the related automation unit via the Just Touch by switching via buttons connected to digital inputs. Detailed information on the relevant parameter configurations is described in the table below.

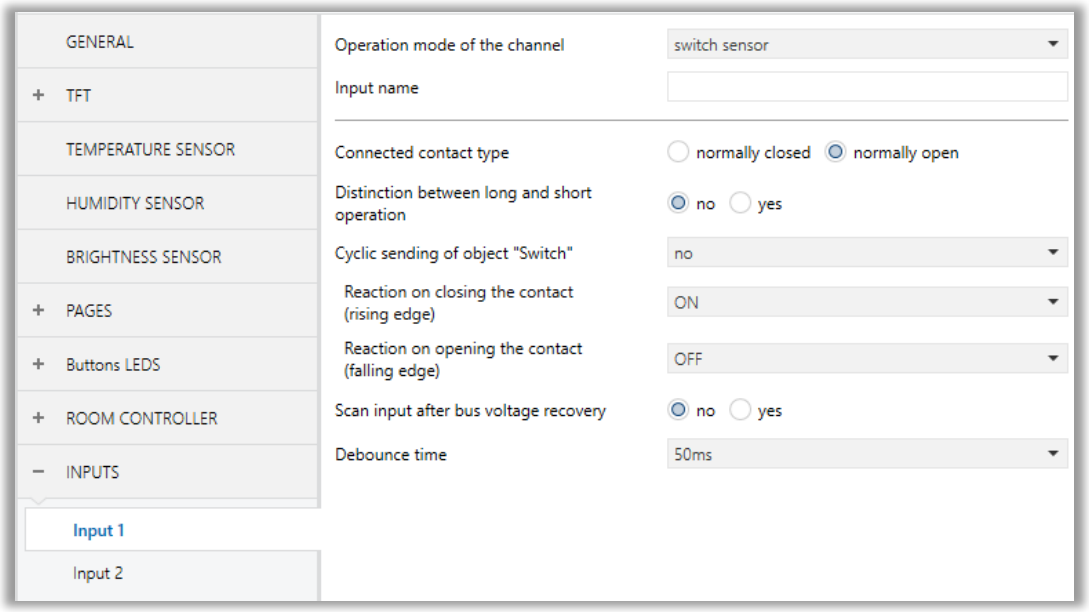


Fig. 42: Input – Switch Sensor

4.9.1.1. Parameters List

PARAMETER	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Distinction between long and short operation	This parameter is used to set if the input differentiates between short and long operations. With the option “yes”, after opening/closing of the contract, it must, first of all, be ascertained if a short or long operation has occurred here. Only thereafter will a possible reaction be triggered.	**No** Yes
-> Cyclic sending of object “Switch”	This parameter is used to periodically send the commands to the bus line.	**No** If “Switch” = ON If “Switch” = OFF Always
-> Reaction on closing the contact (rising edge)	This parameter is visible if there is no distinction between short and long operations. For each edge, you can set if the object value is to be switched ON, OFF or TOGGLE, or if no reaction should occur. If cyclical sending has been parameterized, it is possible by setting the parameter value “terminate cyclic sending” with an operation of the input, to stop cyclic sending without a new object value being sent.	No reaction **ON** OFF TOGGLE
-> Reaction on opening the contact (falling edge)	This parameter is visible if there is no distinction between short and long operations. For each edge, you can set if the object value is to be switched ON, OFF or TOGGLE, or if no reaction should occur. If cyclical sending has been parameterized, it is possible by setting the parameter value “terminate	No reaction ON **OFF** TOGGLE

	cyclic sending" with an operation of the input, to stop cyclic sending without a new object value being sent.	
-> Telegram is repeated every	This parameter is visible if the cyclical transmission is active. The send cycle time describes the time used between two cyclically transmitted telegrams.	5…**30**…65535 sec
-> Reaction on short operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	No reaction **ON** OFF TOGGLE
-> Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	**No reaction** ON OFF TOGGLE
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.200…**00:00.500**… 01:05.000
Number of object for short/long operation	This parameter is used to determine the object count to use for short and long operations. **1 object:** short and long operations will proceed with the same object. **2 object:** Short and long operations will proceed with 2 different objects.	**1 object** 2 object
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms

4.9.2. Input - Switch / Dimming Sensor

In this section, it is explained how to control the unit of a lighting unit through the Just Touch, both by switching and dimming, via the buttons connected to the digital inputs. Detailed information on the relevant parameter configurations is described in the table below. Make sure that the lighting unit to be controlled has a dimming feature.

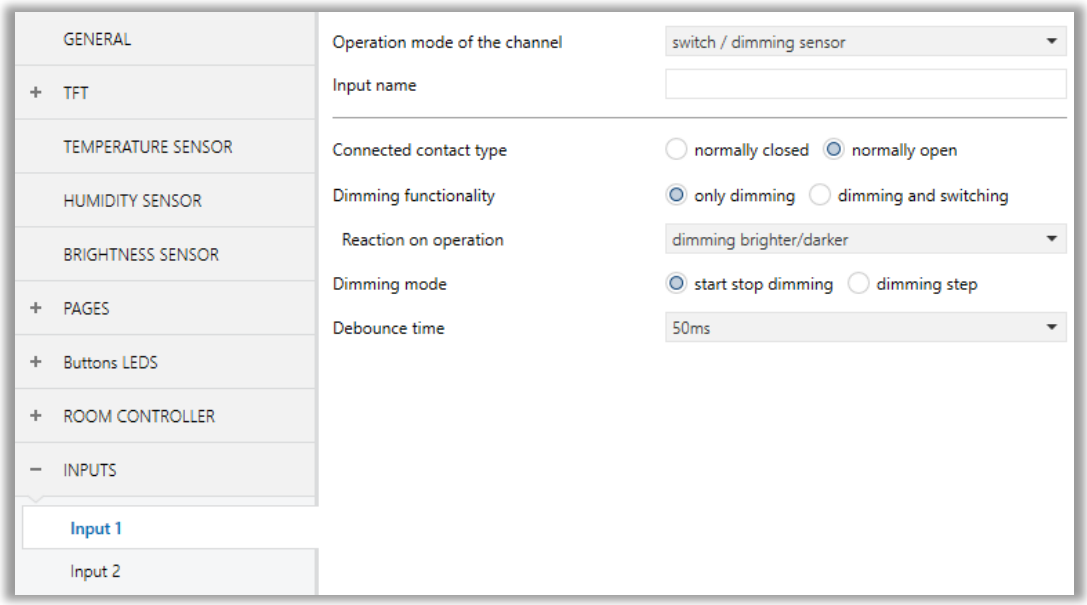


Fig. 43: Input – Switch/Dimming Sensor

4.9.2.1. Parameters List

PARAMETER	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Dimming functionality	This parameter is used to define if the lighting can only be dimmed “Only dimming” or if additional switching is also permitted “Dimming and switching”. In this case, a long button press dims and a short button push switch.	**Only dimming** Dimming and switching
Reaction on operation	This parameter is visible if the “Only dimming” dimming functionality is set. A distinction is not made between short and long operations here.	Dimming brighter Dimming darker **Dimming brighter/darker**
-> Reaction on short operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	No reaction **ON** OFF TOGGLE
-> Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	Dimming brighter Dimming darker **Dimming brighter/darker**
-> Dimming direction after switch ON	This parameter is used to determine the dimming direction when the switch object is ON on long operation.	**Brighter** Darker
-> Long operation after	This parameter is used to determine long operation detection after the button press operation. For	00:00.200… **00:00.500** … 01:05.000

	making a long operation, the button should be pressed at least the configured value.	
Dimming mode	This parameter is used to determine the dimming mode. Normal “Start-stop-dimming” starts the dimming process with a telegram BRIGHTER or DARKER and ends the dimming process with a STOP telegram. Cyclic sending of the telegram is not necessary in this case. With “Dimming steps”, the dimming telegram is sent cyclically during a long operation. The STOP telegram ends the dimming process at the end of the operation.	**Start-stop dimming** Dimming step
Brightness Change on every sent telegram	This parameter is only visible with “Dimming steps”. This parameter is set to change the brightness (in per cent), which is cyclically sent with every dimming telegram.	1.56%, 3.13%, 6.25%, 12.5%, 25%, 50%, **100%**
Sending cycle time: Telegram is repeated every	This parameter is used to determine the sending cycle time. The dimming telegram is sent cyclically during a long operation if “Dimming steps” are set. The cycle time for sending corresponds with the time interval between two telegrams during cyclical sending.	0,3s, 0,4s, **0.5s**, 0.6s, 0.8s, 1.0s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms

4.9.3. Input - Shutter Sensor

In this section, it is explained how to control a shutter/blind unit via the buttons connected to the digital inputs via the Just Touch. Detailed information on the relevant parameter configurations is described in the table below.

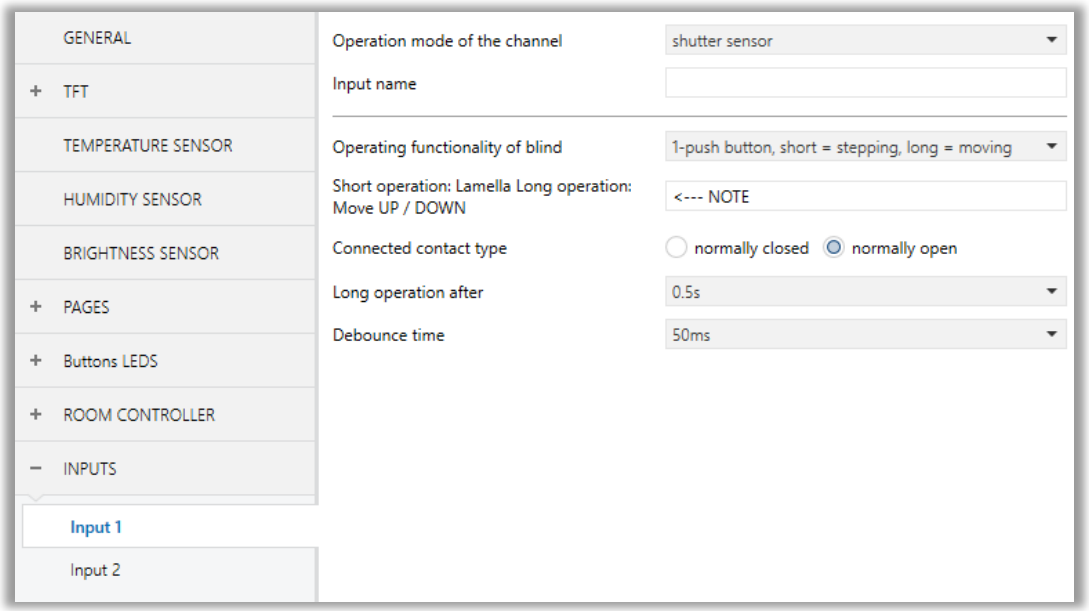


Fig. 44: Input – Shutter Sensor

4.9.3.1.Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Operating functionality of blind	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	**1-push button, short stepping, long = movin** 1-push button, short moving, long = stepping 1-push button op. 1-switch button op. 2-push button, standard 2-switch op., moving 2-push button op., moving 2-push button op., stepping
1-push button, short = stepping, long = moving		
Short operation: Lamella Long operation: Move UP / DOWN	< --- NOTE	< --- NOTE
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	0,3s, 0,4s, **0.5s**, 0.6s, 0.8s, 1.0s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s

Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms
1-push button, short = moving, long = stepping		
Short operation: Move UP/DOWN Long operation: Lamella	< --- NOTE	< --- NOTE
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	0,3s, 0,4s, **0.5s**, 0.6s, 0.8s, 1.0s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s
"STOP/lamella adj," is repeated every	This parameter is used to determine the time between two telegrams is set. This parameter is visible in operations in which the object "STOP/lamella adjustment" is sent cyclically on the bus during a long operation.	0,3s, **0,4s**, 0.5s, 0.6s, 0.8s, 1.0s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms
1-push button operation & 1-switch button operation		
On every operation in succession: UP – STOP - DOWN - STOP	< --- NOTE	< --- NOTE
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms
2-push button, standard		
Short operation: STOP – lamella UP / DOWN	< --- NOTE	< --- NOTE

Long operation: Move UP / DOWN		
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Reaction on short operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	**Stop/lamella up** Stop/lamella down
Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	**Move up** Move down
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	0,3s, 0,4s, **0.5s**, 0.6s, 0.8s, 1.0s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms
2-switch operation, moving		
On operation: Moving End of operation: STOP	< --- NOTE	< --- NOTE
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Reaction on long operation	This parameter is used to determine the reaction when an operation occurs. A distinction is not made between short and long operations here.	**Move up** Move down
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms
2-push button operation, moving		
On operation: Moving	< --- NOTE	< --- NOTE

Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	**Move up** Move down
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms
2-push button operation, stepping		
On operation: Stepping	< --- NOTE	< --- NOTE
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Reaction on short operation	This parameter is used to determine the reaction when an operation occurs. A distinction is not made between short and long operations here.	**Stop/lamella up** Stop/lamella down
“STOP/lamella adj,” İs repeated every	This parameter is used to determine the time between two telegrams is set. This parameter is visible in operations in which the object “STOP/lamella adjustment” is sent cyclically on the bus during a long operation.	0,3s, **0,4s**, 0.5s, 0.6s, 0.8s, 1.0s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms

4.9.3.2. Functionality of Each Function

1 push button: Short Press = stepping, Long Press = moving	
Short Operation	Stop/ Lamella Adjustment
Long Operation	Toggle between “Move Up” and “Move Down”
1 push button: Short Press = moving, Long Press = stepping	
Short Operation	Toggle between “Move Up” and “Move Down”
Long Operation	Stop/Lamella Adjustment (Sent Cyclically as the button is kept pressed)
1 push button operation: Press: moving, Long Press Disabled	
On Operation	Following signals are sent in order on each press. → Move UP → Stop/Lamella Adj. Up → Move Down → Stop/Lamella Adj. Down →
1 Switch Operation: Moving, Long Press Disabled	
Press Operation	Toggle between “Move Up” and “Move Down”
Release Operation	Stop/Lamella Adjustment
2 Push Button Operation: Standard	
Short Operation	“Stop/Lamella Adj. Down” or Stop/Lamella Adj. Up (Whichever is chosen as the parameter)
Long Operation	“Move Up” or “Move Down” (Whichever is chosen as the parameter)
2 Switch Operation: Moving, Long Press Disabled	
Press Operation	“Move Up” or “Move Down” (Whichever is chosen as the parameter)
Release Operation	“Stop/Lamella Adj. Down” or “Stop/Lamella Adj. Up” (Whichever is chosen)
2 Push Button Operation: Moving, Long Press Disabled	
On Operation	Whichever sequence is selected as the parameter; “ → Move Up → Stop/Lamella Adj. Up → “ or “ → Move Down → Stop/Lamella Adj. Down → “
2 Push Button Operation: Stepping, Long Press Disabled	
On Operation	Whichever signal is selected as the parameter, is sent cyclically as the button is kept pressed; “Stop/Lamella Adj. Up” or “Stop/Lamella Adj. Down”

4.9.4. Input - Value / forced operation

In this section, it is explained how to control an automation unit via Just Touch via a value/forced via buttons connected to digital inputs. Detailed information on the relevant parameter configurations is described in the table below.

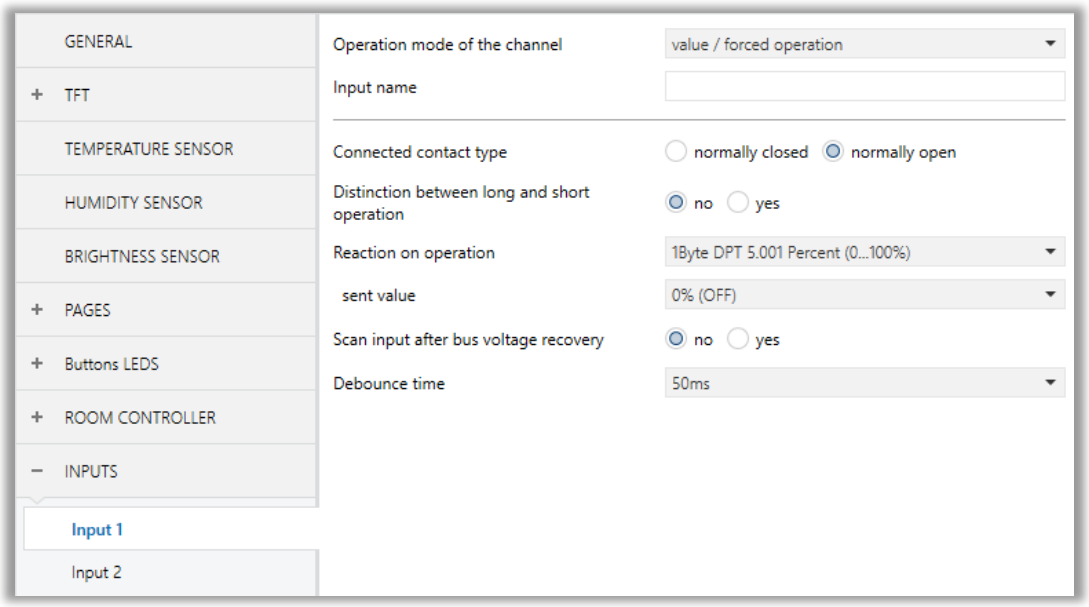


Fig. 45: Input – Value/Forced Operation

4.9.4.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Distinction between long and short operation	This parameter is used to set if the input differentiates between short and long operations. With the option “yes”, after opening/closing of the contract, it must, first of all, be ascertained if a short or long operation has occurred here. Only thereafter will a possible reaction be triggered.	**No** Yes
Reaction on operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	2 – bit DPT 2.001 Switch Control 1Byte DPT 5.001 Percent (0…100%) 1Byte DPT 5.005 Decimal factor (0…255) 1Byte DPT 17.001 Scene number 2Byte DPT 7.600 Colour temperature (Kelvin) 2Byte DPT 9.001 Temperature (°C) 2Byte DPT 9.004 Brightness (lux) 3-Byte DPT 232.600 RGB value 3x(0..255)

Sent value	This parameter is used to determine the sending value to the bus when a short operation occurs.	Values depend on DPT selection.
-> Scan input after bus voltage recovery	This parameter is used to determine the scanning of the inputs when the bus voltage has been recovered.	**No** Yes
-> Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	**2 – bit DPT 2.001 Switch Control** 1Byte DPT 5.001 Percent (0…100%) 1Byte DPT 5.005 Decimal factor (0…255) 1Byte DPT 17.001 Scene number 2Byte DPT 7.600 Colour temperature (Kelvin) 2Byte DPT 9.001 Temperature (°C) 2Byte DPT 9.004 Brightness (lux) 3-Byte DPT 232.600 RGB value 3x(0..255)
Sent value	This parameter is used to determine the sending value to the bus when a long operation occurs.	Values depend on DPT selection.
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms

4.9.5. Input - Control Scene

In this section, it is explained how to control the related automation unit via the Just Touch by triggering a scenario via buttons connected to digital inputs. Detailed information on the relevant parameter configurations is described in the table below.

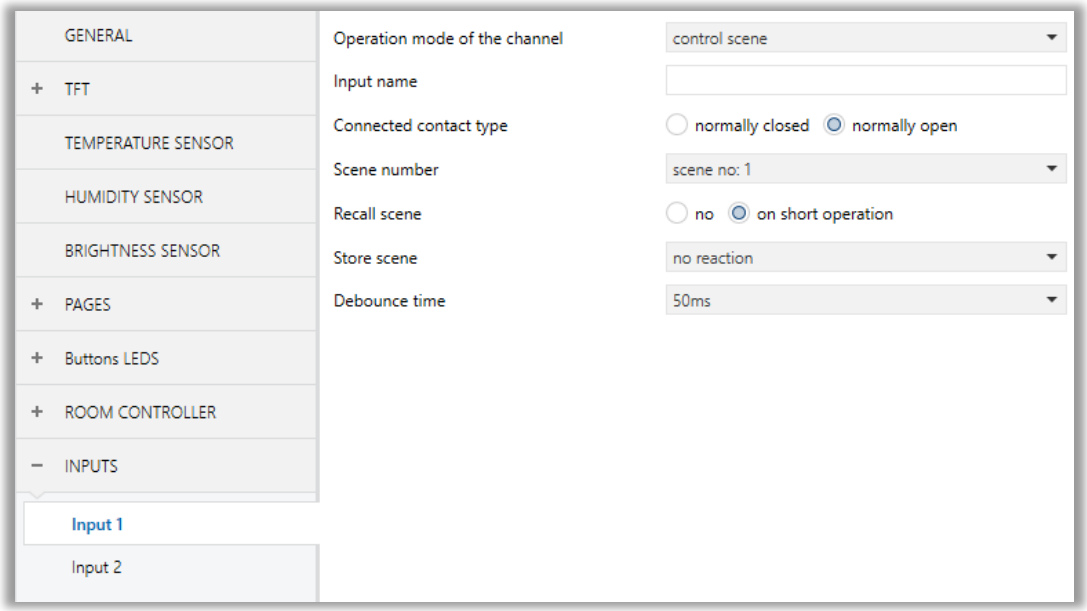


Fig. 46: Input – Control Scene

4.9.5.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Scene number	This parameter is used to configure the scene number to send to the KNX when a short press operation occurs.	**Scene no: 1 …** 64
Recall scene	This parameter is used to determine the recalling of the scene. If this parameter is selected as “recall enabled” the configured scene number will be called.	No **On short operation**
Store scene	This parameter is used to determine whether to store or not to store the related scene. **On long operation**: The scene will be stored after a long operation. **With “Store scene” obj. value = 1**: The scene will be stored on operation if the Store scene object value is 1. **On long operation (“Store scene” obj. value = 1)**: The scene will be stored on long operation if the Store scene object is 1.	**No reaction** On long operation With “Store scene” obj value = 1 On long operation (“Store scene” obj value = 1)
-> Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.200…**00:00.500**… 01:05.000
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms

4.9.6. Input - RGB colour control

In this section, it is explained how to control an RGB LED device through the buttons connected to the digital inputs via Just Touch. Detailed information on the relevant parameter configurations is described in the table below.

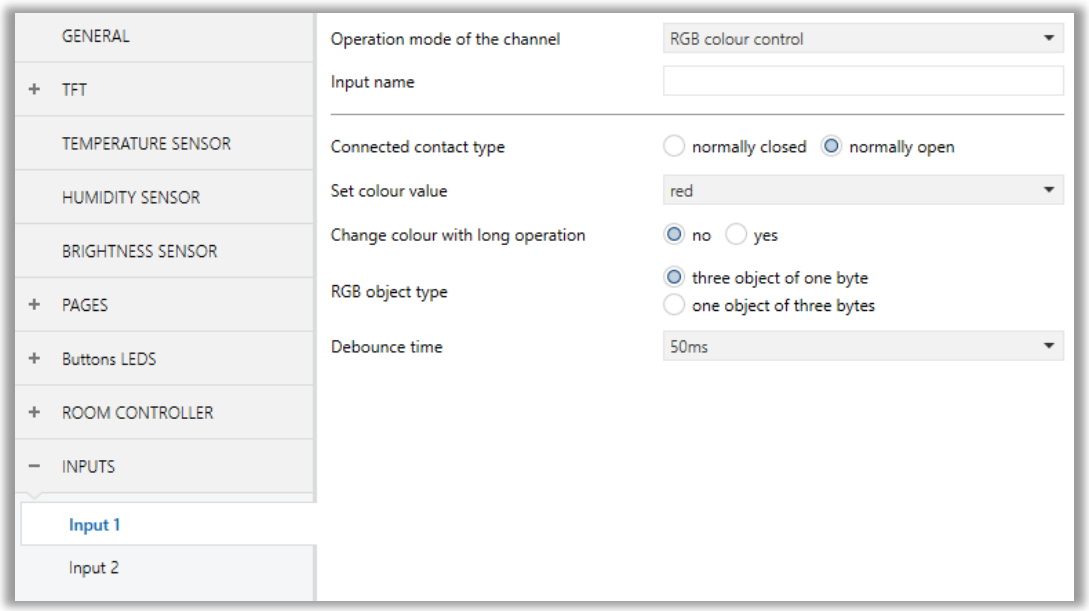


Fig. 47: Input – RGB Colour Control

4.9.6.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Set Colour value	This parameter is used to set RGB colours according to the configured values.	**Red**, Orange, Yellow, Green-Yellow, Green, Green-Cyan, Cyan, Blue-Cyan, Blue, Blue-Magenta, Red-Magenta, White
Change colour with long operation	This parameter is used to enable or disable the colour changing with long press operation.	**No** Yes
-> Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.200…**00:00.500** …01:05.000
RGB object type	This parameter is used to determine the RGB colour object type.	**Three object of one byte** One object of three bytes
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms

4.9.7. Input - Mode selection

In this section, it is explained how to control the operating modes of an HVAC unit via the buttons connected to the digital inputs via the Just Touch. Detailed information on the relevant parameter configurations is described in the table below.

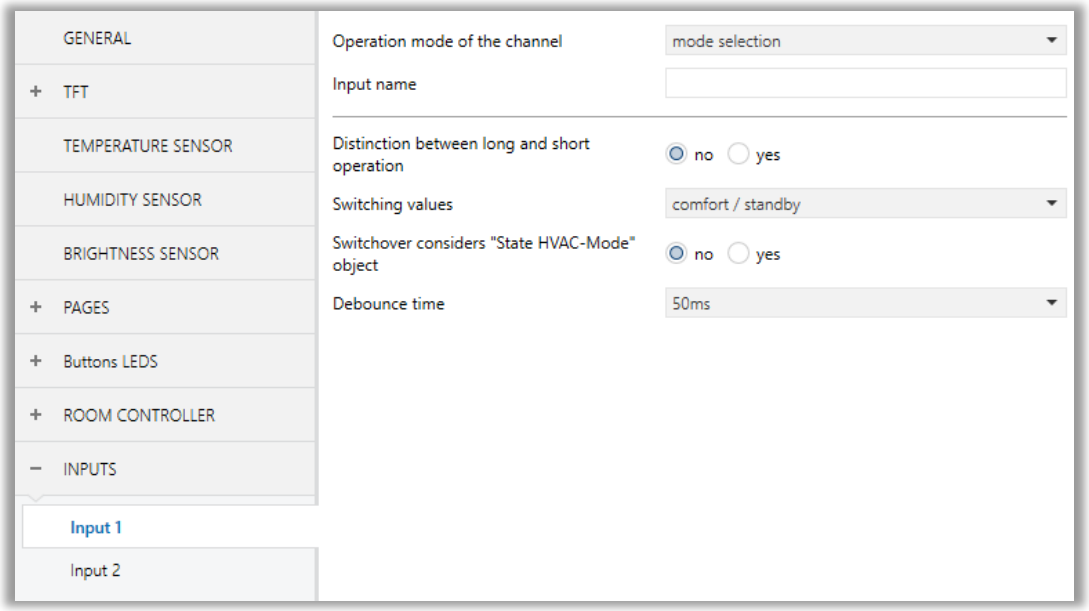


Fig. 48: Input – Mode Selection

4.9.7.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Distinction between long and short operation	This parameter is used to set if the input differentiates between short and long operations. With the option “yes”, after opening/closing of the contract, it must, first of all, be ascertained if a short or long operation has occurred here. Only thereafter will a possible reaction be triggered.	**No** Yes
Connected contact type	This parameter is used to specify the contact type that is connected to the Interra Just Touch Input X.	Normally closed **Normally open**
Switching values	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	**Comfort / standby** Comfort / economy Comfort / standby / economy Comfort / standby / economy / frost
-> Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	**Comfort** Standby Economy Frost
-> Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.200…**00:00.500**…01:05.000
Switchover considers “State HVAC-Mode” object	This parameter is used to enable the HVAC-Mode state object to change the current HVAC mode via KNX.	**No** Yes

Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10ms, 20ms, 30ms, 40ms, **50ms**, 70ms, 100ms, 150ms

5. ETS Objects List & Descriptions

The Interra Just Touch can communicate via the KNX bus line. In this section, the group objects of the Interra Just Touch is described. All of the communication objects listed below are available to the Just Touch. Which of these group objects are visible and capable of being linked with group addresses are explained in sub-sections.

X: Page 1 / Page 2 / Page 3 / Page 4 / Page 5 / Page 6 / Function Grup

No	Name	Function	DTP Type	Length	Flags				
					C	R	W	T	U
1	Alive Beacon	Alive Beacon	1.002	1 bit	X	X		X	X
2	Device Control Locking	Device Control Locking	1.003	1 bit	X	X	X	X	X
5	Humidity	Threshold 1…2		1 bit	X	X	X	X	X
10	Humidity	Relative Internal	9.007	2 bytes	X	X	X	X	X
	Humidity	External Relative	9.007	2 bytes	X	X	X	X	X
11	Brightness Sensor		9.004	2 bytes	X	X	X	X	X
12	Air Conditioner Error Code			2 bytes	X	X	X	X	X
15	Actual Temperature - Internal		9.001	2 bytes	X	X		X	X
	Actual Temperature – Internal & External		9.001	2 bytes	X	X		X	X
16	Temperature External KNX		9.001	2 bytes	X	X	X	X	X
17	Temperature	Threshold 1…2	1.002	1 bit	X	X		X	X
25	Room Controller	Master		14 bytes	X	X	X	X	X
	Room Controller	Slave		14 bytes	X	X	X	X	X
26	Room Controller	Operating Mode Switch-Over	20.102	1 byte	X	X	X	X	X
27	Room Controller	Operating Mode Status	20.102	1 byte	X	X		X	X
28	Room Controller	Comfort Mode	1.002	1 bit	X	X	X	X	X
29	Room Controller	Standby Mode	1.002	1 bit	X	X	X	X	X
30	Room Controller	Night Mode	1.002	1 bit	X	X	X	X	X
31	Room Controller	Building Protection	1.002	1 bit	X	X	X	X	X
32	Room Controller	Heating/Cooling Change-Over	1.100	1 bit	X	X	X	X	X
33	Room Controller	Heating/Cooling Feedback	1.100	1 bit	X	X	X	X	X
34	Room Controller	Command Value for Heating and Cooling (2-points PWM)	1.001	1 bit	X	X		X	X
35	Room Controller	Command Value for Heating and Cooling (Continuous)	5.001	1 byte	X	X		X	X
36	Room Controller	Command Value for Heating (2-points / PWM)	1.001	1 bit	X	X		X	X

37	Room Controller	Command Value for Heating (Continous)	5.001	1 byte	X	X		X	X
38	Room Controller	Heat Requirement Indication	1.002	1 bit	X	X		X	X
39	Room Controller	Control of Additional Heating (1 bit)	1.001	1 bit	X	X		X	X
40	Room Controller	Control of Additional Heating (1 byte)	5.001	1 byte	X	X		X	X
41	Room Controller	Disable Additional Heating	1.003	1 bit	X	X	X	X	X
42	Room Controller	Command Value for Cooling (2-points)	1.001	1 bit	X	X		X	X
43	Room Controller	Command Value for Cooling	5.001	1 byte	X	X		X	X
44	Room Controller	Cool Requirement Induction	1.002	1 bit	X	X		X	X
45	Room Controller	Control of Additional Cooling (1 bit)	1.001	1 bit	X	X		X	X
46	Room Controller	Control of Additional Cooling (1 byte)	5.001	1 byte	X	X		X	X
47	Room Controller	Disable Additional Cooling	1.003	1 bit	X	X	X	X	X
48	Room Controller	Setpoint Temperature	9.001	2 bytes	X	X		X	X
49	Room Controller	Reset Manual Setpoint Operation	9.001	2 bytes	X	X	X	X	X
	Room Controller	Set Manual Setpoint	9.001	2 bytes	X	X	X	X	X
50	Room Controller	Reset Manual Setpoint Operation	1.001 & 1.002	1 bit	X	X	X	X	X
51	Room Controller	Setpoint for Heating Comfort	9.001	2 bytes	X	X	X	X	X
		Setpoint for Comfort	9.001	2 bytes	X	X	X	X	X
52	Room Controller	Setpoint for Heating Standby	9.001	2 bytes	X	X	X	X	X
53	Room Controller	Setpoint for Heating Night	9.001	2 bytes	X	X	X	X	X
54	Room Controller	Setpoint for Cooling Comfort	9.001	2 bytes	X	X	X	X	X
55	Room Controller	Setpoint for Cooling Standby	9.001	2 bytes	X	X	X	X	X
56	Room Controller	Setpoint for Cooling Night	9.001	2 bytes	X	X	X	X	X
57	Room Controller	Setpoint for Frost Protection	9.001	2 bytes	X	X	X	X	X
58	Room Controller	Setpoint for Heat Protection	9.001	2 bytes	X	X	X	X	X
59	AC Control	0:AUTO / 1:HEAT / 3:COOL / 9:FAN / 14:DRY		1 byte	X	X	X	X	X
60	AC Control	Feedback		1 byte	X	X	X	X	X
63	Fan Manual Control		5.010	1 byte	X	X	X	X	X
64	Fan Controller Scaling		5.001	1 byte	X	X	X	X	X
	Fan Controller Enumarated		5.010	1 byte	X	X	X	X	X
65	Fan Controller Individual Level 1		1.002	1 bit	X	X	X	X	X

66	Fan Controller Individual Level 2		1.002	1 bit	X	X	X	X	X
67	Fan Controller Individual Level 3		1.002	1 bit	X	X	X	X	X
68	Fan Controller Individual Level 4		1.002	1 bit	X	X	X	X	X
69	Fan Controller Individual Level 5		1.002	1 bit	X	X	X	X	X
70	Fan Controller Auto/Manual		1.002	1 bit	X	X	X	X	X
71	Fan Indicator Scaling Feedback		5.001	1 byte	X	X	X	X	X
	Fan Indicatorr Enumarated Feedback		5.010	1 byte	X	X	X	X	X
72	Fan Controller Individual Level 1	Feedback	1.001	1 bit	X	X	X	X	X
73	Fan Controller Individual Level 2	Feedback	1.001	1 bit	X	X	X	X	X
74	Fan Controller Individual Level 3	Feedback	1.001	1 bit	X	X	X	X	X
75	Fan Controller Individual Level 4	Feedback	1.001	1 bit	X	X	X	X	X
76	Fan Controller Individual Level 5	Feedback	1.001	1 bit	X	X	X	X	X
77	Fan Indicator Auto/Manual Feedback		1.002	1 bit	X	X	X	X	X
82	TFT Backlight Intensity		5.001	1 byte	X	X	X	X	X
83	TFT On/Off Indicator		1.001	1 bit	X	X	X	X	X
85	Air Quality		9.008	2 bytes	X	X	X	X	X
86	Room Controller	Heating/Cooling Status	1.100	1 bit	X	X	X	X	X
99 121 132 143 154 165	X Button 1	Switching	1.001	1 bit	X	X		X	X
		Slat Angle/Stop	1.008	1 bit	X	X		X	X
		Channel 1 Value – 1 Bit	1.001	1 bit	X	X		X	X
100 122 133 144 155 166	X Button 1	Feedback On/Off	1.001	1 bit	X	X	X	X	X
		Up/Down	1.008	1 bit	X	X		X	X
		Channel 2 Value – 1 Bit	1.001	1 bit	X	X		X	X
101 123 134 145 156	X Button 1	Up/Down Status	1.008	1 bit	X	X	X	X	X
		Feedback Channel 1	1.001	1 bit	X	X	X	X	X

167									
102 124 135 146 157 168	X Button 1	Feedback Channel 2	1.001	1 bit	X	X	X	X	X
103 125 136 147 158 169	X Button 1	Value	5.010	1 byte	X	X		X	X
		Channel 1 Value	5.010	1 byte	X	X		X	X
		Channel 1 Value - Percentage	5.001	1 byte	X	X		X	X
		Scene	18.001	1 byte	X	X		X	X
		Operating Mode	20.102	1 byte	X	X		X	X
		Step – 1 Byte	5.010	1 byte	X	X		X	X
		Step Percentage	5.001	1 byte	X	X		X	X
		Step Scene	18.001	1 byte	X	X		X	X
104 126 137 148 159 170	X Button 1	Channel 2 Value	5.010	1 byte	X	X		X	X
		Channel 2 Value - Percentage	5.001	1 byte	X	X		X	X
105 127 138 149 160 171	X Button 1	Value - Temperature	9.001	2 bytes	X	X		X	X
		Value – 2 Byte	7.001	2 bytes	X	X		X	X
		Value - Luminosity	9.004	2 bytes	X	X		X	X
		Channel 1 Value	7.001	2 bytes	X	X		X	X
		Channel 1 Value - Temperature	9.001	2 bytes	X	X		X	X
		Channel 1 Value - Luminosity	9.004	2 bytes	X	X		X	X
		Setpoint Temperature	9.001	2 bytes	X	X		X	X
		Step – 2 Byte	7.001	2 byte	X	X		X	X
		Step Temperature	9.001	2 bytes	X	X		X	X
		Step Luminosity	9.004	2 bytes	X	X		X	X
106 128 139 150 161 172	X Button 1	Channel 2 Value	7.001	2 bytes	X	X		X	X
		Channel 2 Value - Temperature	9.001	2 bytes	X	X		X	X
		Channel 2 Value - Luminosity	9.004	2 bytes	X	X		X	X
		Feedback Setpoint Temperature	9.001	2 bytes	X	X	X	X	X
107 129 140	X Button 1	Relative Dimming	3.007	4 bit	X	X	X	X	X
	X HSL Hue (H)	Relative Dimming	3.007	4 bit	X	X	X	X	X
	X HSV Hue (H)	Relative Dimming	3.007	4 bit	X	X	X	X	X

151 162 173	X RGB Red (R)	Relative Dimming	3.007	4 bit	X	X	X	X	X
	X Color Temperature 1 (Button1-2)	Relative Dimming	3.007	4 bit	X	X	X	X	X
108 130 141 152 163 174	X Button 1	Absolute Dimming Feedback	5.001	1 byte	X	X	X	X	X
	X HSL Hue (H)	Absolute Dimming Feedback Percent	5.001	1 byte	X	X	X	X	X
	X HSV Hue (H)	Absolute Dimming Feedback Percent	5.001	1 byte	X	X	X	X	X
	X RGB Red (R)	Absolute Dimming Feedback Percent	5.001	1 byte	X	X	X	X	X
109 131 142 153 164 175	X Button 1	Absolute Dimming		1 byte	X	X	X	X	X
	X HSL Hue (H)	Absolute Dimming Percent		1 byte	X	X	X	X	X
	X HSV Hue (H)	Absolute Dimming Percent		1 byte	X	X	X	X	X
	X RGB Red (R)	Absolute Dimming Percent		1 byte	X	X	X	X	X
198	Thermostat	Switching	1.001	1 bit	X	X		X	X
199	Thermostat	Switch Feedback	1.001	1 bit	X	X	X	X	X
209 211 212 213 214	X Button 1	LED Status	1.001	1 bit	X	X	X	X	X
359 381 392 403 414 425	X HSL Saturation (S)	Relative Dimming	3.007	4 bit	X	X	X	X	X
	X HSV Saturation (S)	Relative Dimming	3.007	4 bit	X	X	X	X	X
	X RGB Green (G)	Relative Dimming	3.007	4 bit	X	X	X	X	X
360 382 393 404 415 426	X HSL Saturation (S)	Absolute Dimming Feedback Percent	5.001	1 byte	X	X	X	X	X
	X HSV Saturation (S)	Absolute Dimming Feedback Percent	5.001	1 byte	X	X	X	X	X
	X RGB Green (G)	Absolute Dimming Feedback Percent	5.001	1 byte	X	X	X	X	X
361 383 394 405 416 427	X HSL Saturation (S)	Absolute Dimming Percent		1 byte	X	X	X	X	X
	X HSV Saturation (S)	Absolute Dimming Percent		1 byte	X	X	X	X	X
	X RGB Green (G)	Absolute Dimming Percent		1 byte	X	X	X	X	X
611 633	X HSL Lightness (L)	Relative Dimming	3.007	4 bit	X	X	X	X	X

644 655 666 677	X HSV Value (V)	Relative Dimming	3.007	4 bit	X	X	X	X	X
	X RGB Blue (B)	Relative Dimming	3.007	4 bit	X	X	X	X	X
612 634 645 656 667 678	X HSL Lightness (L)	Absolute Dimming Feedback Percent	5.001	1 byte	X	X	X	X	X
	X HSV Value (V)	Absolute Dimming Feedback Percent	5.001	1 byte	X	X	X	X	X
	X RGB Blue (B)	Absolute Dimming Feedback Percent	5.001	1 byte	X	X	X	X	X
613 635 646 657 668 679	X HSL Lightness (L)	Absolute Dimming Percent		1 byte	X	X	X	X	X
	X HSL Value (V)	Absolute Dimming Percent		1 byte	X	X	X	X	X
	X RGB Blue (B)	Absolute Dimming Percent		1 byte	X	X	X	X	X
1104 1114 1119 1124 1129 1134	X RGB Color	24 Bit	232.600	3 bytes	X	X	X	X	X
1105 1115 1120 1125 1130 1135	X RGB Color	24 Bit Feedback	232.600	3 bytes	X	X	X	X	X
1106 1116 1121 1126 1131 1136	X RGB White (W)	Relative Dimming	3.007	4 bit	X	X	X	X	X
1107 1117 1122 1127 1132 1137	X RGB White	Absolute Dimming Feedback	5.001	1 byte	X	X	X	X	X
1108 1118 1123 1128 1133 1138	X RGB White	Absolute Dimming	5.001	1 byte	X	X	X	X	X

1154 1158 1160 1162 1164	X Color Temperature 1 (Button1-2)	Absolute Dimming	7.600	2 bytes	X	X	X	X	X
1155 1159 1161 1163 1165	X Color Temperature 1 (Button1-2)	Dimming Feedback	7.600	2 bytes	X	X	X	X	X
1214 1216 1217 1218 1219 1220	X RGBW	6 Byte	251.600	6 bytes	X	X	X	X	X
1224 1226 1227 1228 1229	Lighting RGBW	6 Byte Feedback	251.600	6 bytes	X	X	X	X	X
1234	Text Message	Text Messages	16.001	14 bytes	X	X	X	X	X
1235	Input 1	Block	1.003	1 bit	X		X		
1236	Input 1	Switch	1.001	1 bit	X		X	X	
		Shutter UP / DOWN	1.008	1 bit	X		X	X	
		Forced operation – 2 bit	2.001	2 bit	X		X	X	
		Forced operation – Percent Value	5.001	1 byte	X		X	X	
		Forced operation – Decimal Value	5.005	1 byte	X		X	X	
		Forced operation – Scene	17.001	1 byte	X		X	X	
		Forced operation – Colour temperature	7.600	2 bytes	X		X	X	
		Forced operation – Temperature value	9.001	2 bytes	X		X	X	
		Forced operation – Brightness value	9.004	2 bytes	X		X	X	
		Forced operation – Percent value	232.600	3 bytes	X		X	X	
		8-bit Scene	18.001	1 byte	X		X	X	
		Red colour	5.010	1 byte	X		X	X	
		RGB Colour	232.600	3 bytes	X		X	X	
		Mode selection	20.102	1 byte	X		X	X	
1237	Input 1 - long	Switch	1.001	1 bit	X	X	X	X	

		Dimming	3.007	4 bit	X	X	X	X	
		STOP/lamella adjustment	1.007	1 bit	X	X	X	X	
		Percent Value	5.001	1 byte	X	X	X	X	
		Forced operation	2.001	2 bit	X	X	X	X	
		Decimal Value	5.005	1 byte	X	X	X	X	
		Scene	17.001	1 byte	X	X	X	X	
		Colour temperature	7.600	2 bytes	X	X	X	X	
		Temperature value	9.001	2 bytes	X	X	X	X	
		Brightness value	9.004	2 bytes	X	X	X	X	
		RGB colour	232.600	3 bytes	X	X	X	X	
		Store Scene	1.003	1 bit	X	X	X	X	
		Green Colour	5.010	1 byte	X	X	X	X	
		HVAC – Mode State	20.102	1 byte	X	X	X	X	
1238	Input 1	Upper limit position	1.002	1 bit	X	X	X	X	
		Blue Colour	5.010	1 byte	X	X	X	X	
1239	Input 1	Lower limit operation	1.002	1 bit	X		X		

5.1. General Objects

This section describes the "general" group objects and their properties. General group objects, as the name suggests, indicate the general characteristics of the Just Touch.

Object Number	Object Name	Function	Type	Flags
1	**Alive Beacon**	**Alive Beacon**	**1 bit**	**CRTU**
This object is only visible when the “Module Alive Beacon” function is enabled. The device sends “true” values via the connected group address while it is working. DPT: 1.002 (boolean)				
2	**Device Control Locking**	**Device Control Locking**	**1 bit**	**CRWTU**
Device control is blocked by this object. DPT: 1.003 (enable)				
12	**Air Conditioner**	**Error Code**	**2 bytes**	**CRWTU**
This object is used to give information about the error codes. This functionality allows sending messages to the KNX bus informing about errors. Errors management handles air conditioner unit error codes as well as any communication errors that may arise.				
59	**AC Control**	**0:AUTO / 1: HEAT / 3: COOL / 9:FAN / 14:DRY -**	**1 byte**	**CRWTU**
This object is used to set the operating modes of the air conditioner. You can select AUTO with 0, HEAT with 1, COOL with 3, FAN with 9, and DRY with 14.				
60	**AC Control**	**Feedback**	**1 byte**	**CRWTU**
This object is used to monitor the status of the operating modes of the air conditioner. With value 0 the status is AUTO, with value 1 the status is HEAT, with value 3 status is COOL, with value 9 the status is FAN and with value 14 the status is DRY can be understood.				
85	**Air Quality**		**2 bytes**	**CRWTU**
This object is used to display air quality value on the LCD screen. DPT: 9.008 (parts/million (ppm))				

5.2. Humidity Objects

This section describes the "humidity" group objects and their properties. General group objects, as the name suggests, indicate the general characteristics of the Just Touch.

Object Number	Object Name	Function	Type	Flags
5, 6	**Humidity**	**Humidity Threshold X**	**1 bit**	**CRWTU**
The first threshold value property for relative humidity is configured by this object.				
10	**Humidity**	**Relative Internal**	**2 bytes**	**CRWTU**
The internal relative humidity is received with this object via connection to a related group address. DPT: 9.007 (humidity (%))				
10	**Humidity**	**External Relative**	**2 bytes**	**CRWTU**
The external relative humidity is received with this object via connection to the related group address DPT: 9.007 (humidity (%))				

5.3. Temperature Objects

This section describes the "temperature" group objects and their properties. General group objects, as the name suggests, indicate the general characteristics of the Just Touch.

Object Number	Object Name	Function	Type	Flags
15	**Temperature**	**Actual Temperature – Internal**	**2 bytes**	**CRTU**
This object provides to measure the actual internal temperature with an internal sensor, via connection to the related group address. DPT: 9.001 (temperature (°C))				
15	**Temperature**	**Actual Temperature – Internal & External**	**2 bytes**	**CRTU**
This object provides to measure at which ratio the actual internal temperature with external and internal sensors, via connected to the related group address. DPT: 9.001 (temperature (°C))				
16	**Temperature**	**Temperature External KNX**	**2 bytes**	**CRWTU**
This object provides to measure the actual external temperature with an external sensor, via connected to the related group address. DPT: 9.001 (temperature (°C))				
17, 18	**Temperature**	**Temperature Threshold X**	**1 bit**	**CRTU**
This object provides the use of the first internal threshold value, via connected to the related group address. DPT: 1.002 (boolean)				

5.4. Room Controller Objects

This section describes the "room controller" group objects and their properties. Room group objects, as the name suggests, indicate the general characteristics of the Just Touch.

Object Number	Object Name	Function	Type	Flags
25	**Room Controller**	**Master**	**14 bytes**	**CRWTU**
This object determines which device is the main controller.				
25	**Room Controller**	**Slave**	**14 bytes**	**CRWTU**
This object is used to determine the slave room controller devices.				
26	**Room Controller**	**Operating Mode Switch-Over**	**1 byte**	**CRWTU**
This object switches over the operating modes with a 1-byte value. DPT: 20.102 (HVAC mode)				
27	**Room Controller**	**Operating Mode Status**	**1 byte**	**CRTU**
This object indicates the status of the operating mode with a 1-byte value. DPT: 20.102 (HVAC mode)				
28	**Room Controller**	**Comfort Mode**	**1 bit**	**CRWTU**
The comfort mode activation command is sent via this object. DPT: 1.002 (boolean)				
29	**Room Controller**	**Standby Mode**	**1 bit**	**CRWTU**
The standby mode activation command is sent via this object. DPT: 1.002 (boolean)				
30	**Room Controller**	**Night Mode**	**1 bit**	**CRWTU**

The night mode activation command is sent via this object.

DPT: 1.002 (boolean)

31	**Room Controller**	**Building Protection Mode**	**1 bit**	**CRWTU**

The building protection mode activation command is sent via this object.

DPT: 1.002 (boolean)

32	**Room Controller**	**Heating/Cooling Change-Over**	**1 bit**	**CRWTU**

This object is used to change over the heating/cooling modes.

DPT: 1.100 (cooling/heating)

33	**Room Controller**	**Heating/Cooling Feedback**	**1 bit**	**CRWTU**

Heating/cooling status information is indicated via this object.

DPT: 1.100 (cooling/heating)

34	**Room Controller**	**Command Value for Heating and Cooling (2-points / PWM)**	**1 bit**	**CRTU**

This object sends commands for the heating amd cooling modes by 2 – points / PWM on/off control method with 1-bit data.

DPT: 1.001 (switch)

35	**Room Controller**	**Command Value for Heating and Cooling (Continuous)**	**1 byte**	**CRTU**

This object sends commands for the heating and cooling modes by the continuous control method with 1-byte data.

DPT: 5.001 (percentage (0..100%))

36	**Room Controller**	**Command Value for Heating (2-points / PWM)**	**1 bit**	**CRTU**

This object sends commands for the heating modes by 2 – points / PWM on/off control method with 1-bit data.

DPT: 1.001 (switch)

37	**Room Controller**	**Command Value for Heating (Continuous)**	**1 byte**	**CRTU**

This object sends commands for the heating modes by the continuous control method with 1-byte data.

DPT: 5.001 (percentage (0..100%))

38	**Room Controller**	**Heat Requirement Indication**	**1 bit**	**CRTU**

This object sends the actual status information of controlled heating.

DPT: 1.002 (boolean)

39	**Room Controller**	**Control of Additional Heating (1 bit)**	**1 bit**	**CRTU**

This object is used to inform about the additional heating control. If the additional heating control is active and the control value is higher than zero, ON telegram is transmitted to the KNX bus. If the additional heating control is not active and the control value is zero, OFF telegram is transmitted to the KNX bus.

DPT: 1.001 (switch)

40	**Room Controller**	**Control of Additional Heating (1 byte)**	**1 byte**	**CRTU**

The output value of additional heating control is transmitted via the object.

DPT: 5.001 (percentage (0..100%))

41	**Room Controller**	**Disable Additional Heating**	**1 bit**	**CRWTU**

This object activates or deactivates the additional heating system

DPT: 1.003 (enable)

42	**Room Controller**	**Command Value for Cooling (2-points / PWM)**	**1 bit**	**CRTU**

This object sends commands for the cooling mode by 2 – points / PWM on/off control method with 1-bit data.

DPT: 1.001 (switch)

43	**Room Controller**	**Command Value for Cooling (Continous)**	**1 byte**	**CRTU**

This object sends commands for the cooling mode by the continuous control method with 1-byte data.

DPT: 5.001 (percentage (1..100%))

44	**Room Controller**	**Cooling Requirement Induction**	**1 bit**	**CRTU**

This object sends the actual status information of controlled cooling.

DPT: 1.002 (boolean)

45	**Room Controller**	**Control of Additional Cooling (1 bit)**	**1 bit**	**CRTU**

This object is used to inform about the additional cooling control. If the additional cooling control is active and the control value is higher than zero, ON telegram is transmitted to the KNX bus. If the additional cooling control is not active and the control value is zero, OFF telegram is transmitted to the KNX bus.

DPT: 1.001 (switch)

46	**Room Controller**	**Control of Additional Cooling (1 byte)**	**1 byte**	**CRTU**

The output value of additional cooling control is transmitted via the object.

DPT: 5.001 (percentage (1..100%))

47	**Room Controller**	**Disable Additional Cooling**	**1 bit**	**CRWTU**

This object activates or deactivates the additional cooling system

DPT: 1.003 (enable)

48	**Room Controller**	**Setpoint Temperature**	**2 bytes**	**CRTU**

The setpoint temperature is configured with this object.

DPT: 9.001 (temperature (°C))

49	**Room Controller**	**Set Manual Setpoint**	**2 bytes**	**CRWTU**

The setpoint temperature is configured manually with this object.

DPT: 9.001 (temperature (°C))

50	**Room Controller**	**Reset Manual Setpoint Operation**	**1 bit**	**CRWTU**

The setpoint temperature that is desired to configure manually can be reset with this object.

DPT: 1.001 (switch) & 1.002 (boolean)

51	**Room Controller**	**Setpoint for Heating Comfort**	**2 bytes**	**CRWTU**

The setpoint temperature value for heating comfort mode is configured with this object.

DPT: 9.001 (temperature (°C))

51	**Room Controller**	**Setpoint for Comfort**	**2 bytes**	**CRWTU**

The setpoint temperature value for comfort mode is configured with this object.

DPT: 9.001 (temperature (°C))

52	**Room Controller**	**Setpoint for Heating Standby**	**2 bytes**	**CRWTU**

The setpoint temperature value for heating standby mode is configured with this object.

DPT: 9.001 (temperature (°C))

53	**Room Controller**	**Setpoint for Heating Night**	**2 bytes**	**CRWTU**

The setpoint temperature value for heating night mode is configured with this object.

DPT: 9.001 (temperature (°C))

54	**Room Controller**	**Setpoint for Cooling Comfort**	**2 bytes**	**CRWTU**

The setpoint temperature value for cooling comfort mode is configured with this object.

DPT: 9.001 (temperature (°C))

55	**Room Controller**	**Setpoint for Cooling Standby**	**2 bytes**	**CRWTU**

The setpoint temperature value for cooling standby mode is configured with this object.

DPT: 9.001 (temperature (°C))

56	**Room Controller**	**Setpoint for Cooling Night**	**2 bytes**	**CRWTU**

The setpoint temperature value for cooling night mode is configured with this object.

DPT: 9.001 (temperature (°C))

57	**Room Controller**	**Setpoint for Frost Protection**	**2 bytes**	**CRWTU**

The setpoint temperature value for frost protection mode is configured with this object.

DPT: 9.001 (temperature (°C))

58	**Room Controller**	**Setpoint for Heat Protection**	**2 bytes**	**CRWTU**

The setpoint temperature value for heat protection mode is configured with this object.

DPT: 9.001 (temperature (°C))

86	**Room Controller**	**Heating/Cooling Status**	**1 bit**	**CRWTU**

This object is used to watch heating/cooling status. “Enabled” or “Disabled” telegram is transmitted to KNX bus via this object when heating/cooling status is changed over device.

DPT: 1.100 (cooling/heating)

5.5. Fan Controller Objects

This section describes the "Fan controller" group objects and their properties. Fan controller group objects, as the name suggests, indicate the general characteristics of Just Touch.

Object Number	Object Name	Function	Type	Flags
63	**Fan Controller**	**Manual Control**	**1 byte**	**CRWTU**
This object allows the fan speed to be controlled with 1-byte data. DPT: 5.010 (counter pulses (0..255))				
64	**Fan Controller**	**Scaling**	**1 byte**	**CRWTU**
This object is used for the fan speed to be displayed on the screen. Fan levels configured to specific limits are displayed on the screen. 5 different fan speed levels can be displayed. DPT: 5.001 (percentage (0..100%))				
64	**Fan Controller**	**Enumerated**	**1 byte**	**CRWTU**
This object is used for the fan speed to be displayed on the screen. When the value of 1 is sent fan level is 1, the value of 2 is sent and the fan level is 2, and so on; the fan level can be determined. A total of 5 different fan speed levels can be determined. DPT: 5.010 (counter pulses (0..255))				
65, 66, 67, 68, 69	**Fan Controller**	**Individual Level X**	**1 bit**	**CRWTU**
This object is used to switch over to Individual Fan Level X DPT: 1.002 (boolean)				
70	**Fan Controller**	**Auto/Manual**	**1 bit**	**CRWTU**
This object is used to display manual or auto fan speed on the screen. DPT: 1.002 (boolean)				

71	**Fan Controller**	**Fan Indicator Scaling Feedback**	**1 byte**	**CRWTU**

This object indicates the fan speed status with a 1-byte value.

DPT: 5.001 (percentage (0..100%))

71	**Fan Controller**	**Fan Indicator Enumerated Feedback**	**1 byte**	**CRWTU**

This object indicates the fan speed status with a 1-byte value.

DPT: 5.010 (counter pulses (0..255))

72, 73, 74, 75, 76	**Fan Controller**	**Individual Level X Feedback**	**1 bit**	**CRWTU**

This object indicates the fan speed X status with a 1-bit value.

DPT: 1.001 (switch)

77	**Fan Controller**	**Fan Indicator Auto/Manual Feedback**	**1 bit**	**CRWTU**

This object indicates the auto/manual fan operating mode with a 1-bit value.

DPT: 1.002 (boolean)

5.6. Button Objects

This section describes the "button" group objects and their properties. Button group objects, as the name suggests, indicate the general characteristics of Just Touch.

Object Number	Object Name	Function	Type	Flags
99, 121, 132, 143, 154, 165 / 225, 247, 258, 269, 280, 291 / 351, 373, 384, 395, 406, 417 / 477, 499, 510, 521, 532, 543 / 603, 625, 636, 647, 658, 669 / 729, 751, 762, 773, 784, 795	**X Button 1…6**	**Switching**	**1 bit**	**CRTU**
Switching telegram will be sent via this object connected to a related group address. DPT: 1.001 (switch)				
99, 121, 132, 143, 154, 165 / 225, 247, 258, 269, 280, 291 / 351, 373, 384, 395, 406, 417 / 477, 499, 510, 521, 532, 543 / 603, 625, 636, 647, 658, 669 / 729, 751, 762, 773, 784, 795	**X Button 1…6**	**Slat Angle/Stop**	**1 bit**	**CRTU**
Stop telegram will be sent via this object connected to related group address. DPT: 1.008 (up/down)				
99, 121, 132, 143, 154, 165 / 225, 247, 258, 269, 280, 291 / 351, 373, 384, 395,	**X Button 1…6**	**Channel 1 Value – 1 Bit**	**1 bit**	**CRTU**

406, 417 / 477, 499, 510, 521, 532, 543 / 603, 625, 636, 647, 658, 669 / 729, 751, 762, 773, 784, 795				

This object appears only when the channel 1 control type is selected as “On / Off”.

DPT: 1.001 (switch)

100, 122, 133, 145, 155, 166 / 226, 248, 259, 270, 281, 292 / 352, 374, 385, 396, 407, 418 / 478, 500, 511, 522, 533, 544 / 604, 626, 637, 648, 659, 670 / 730, 752, 763, 774, 785, 796	**X Button 1…6**	**Feedback On/Off**	**1 bit**	**CRWTU**

Output status is shown via this object connected to a related group address.

DPT: 1.001 (switch)

100, 122, 133, 145, 155, 166 / 226, 248, 259, 270, 281, 292 / 352, 374, 385, 396, 407, 418 / 478, 500, 511, 522, 533, 544 / 604, 626, 637, 648, 659, 670 / 730, 752, 763, 774, 785, 796	**X Button 1…6**	**Up/Down**	**1 bit**	**CRTU**

Up and down telegrams will be sent via this object connected to related group address.

DPT: 1.008 (up/down)

100, 122, 133, 145, 155, 166 / 226, 248, 259,	**X Button 1…6**	**Channel 2 Value – 1 Bit**	**1 bit**	**CRTU**

270, 281, 292 / 352, 374, 385, 396, 407, 418 / 478, 500, 511, 522, 533, 544 / 604, 626, 637, 648, 659, 670 / 730, 752, 763, 774, 785, 796				

This object appears only when the channel 2 control type is selected as “On / Off”.

DPT: 1.001 (switch)

101, 123, 134, 146, 156, 167 / 227, 249, 260, 271, 282, 293 / 353, 375, 386, 397, 408, 419 / 479, 501, 512, 523, 534, 545 / 605, 627, 638, 649, 660, 671 / 731, 753, 764, 775, 786, 797	**X Button 1…6**	**Up/Down Status**	**1 bit**	**CRWTU**

This object can only be seen when “the 1 Button toggle” control mode is selected. Output status is shown via this object connected to related group address.

DPT: 1.008 (up/down)

101, 123, 134, 146, 156, 167 / 227, 249, 260, 271, 282, 293 / 353, 375, 386, 397, 408, 419 / 479, 501, 512, 523, 534, 545 / 605, 627, 638, 649, 660, 671 / 731, 753, 764, 775, 786, 797	**X Button 1…6**	**Feedback Channel 1**	**1 bit**	**CRWTU**

This object appears only when the channel 1 control type is selected as “toggle”. It shows the current status of value via this object connected to a related group address.

DPT: 1.001 (switch)

102, 124, 135, 146, 157, 168 / 228, 250, 261, 272, 283, 294 / 354, 376, 387, 398, 409, 420 / 480, 502, 513, 524, 535, 546 / 606, 628, 639, 650, 661, 672 / 732, 754, 765, 776, 787, 798	**X Button 1…6**	**Feedback Channel 2**	**1 bit**	**CRWTU**

This object appears only when the channel 2 control type is selected as “toggle”. It shows the current status of value via this object connected to a related group address.

DPT: 1.001 (switch)

103, 125, 136, 147, 158, 169 / 229, 251, 262, 273, 284, 295 / 355, 377, 388, 399, 410, 421 / 481, 503, 514, 525, 536, 547 / 607, 629, 640, 651, 662, 673 / 733, 755, 766, 777, 788, 799	**X Button 1…6**	**Value – 1 byte**	**1 byte**	**CRTU**

This object can be either 1 byte (0 – 255) value. Values will be sent via this object connected to a related group address.

DPT: 5.010 (counter pulses (0..255))

103, 125, 136, 147, 158, 169 / 229, 251, 262, 273, 284, 295 / 355, 377, 388, 399, 410, 421 / 481, 503, 514, 525, 536, 547 / 607, 629, 640, 651, 662, 673 /	**X Button 1…6**	**Channel 1 Value – 1 byte / Percentage**	**1 byte**	**CRTU**

733, 755, 766, 777, 788, 799				

This object can be either 1 byte (0 – 255) or a percentage value. Values will be sent via this object connected to a related group address.

DPT: 5.010 (counter pulses (0..255)) / 5.001 (percentage (0..100%))

103, 125, 136, 147, 158, 169 / 229, 251, 262, 273, 284, 295 / 355, 377, 388, 399, 410, 421 / 481, 503, 514, 525, 536, 547 / 607, 629, 640, 651, 662, 673 / 733, 755, 766, 777, 788, 799	**X Button 1…6**	**Scene**	**1 byte**	**CRTU**

Scene telegram will be sent via this object connected to a related group address.

DPT: 18.001 (scene control)

103, 125, 136, 147, 158, 169 / 229, 251, 262, 273, 284, 295 / 355, 377, 388, 399, 410, 421 / 481, 503, 514, 525, 536, 547 / 607, 629, 640, 651, 662, 673 / 733, 755, 766, 777, 788, 799	**X Button 1…6**	**Operating Mode**	**1 byte**	**CRTU**

The selected operating mode for the push-button is controlled via this object connected to related group address.

DPT: 20.102 (HVAC mode)

103, 125, 136, 147, 158, 169 / 229, 251, 262, 273, 284, 295 / 355, 377, 388,	**X Button 1…6**	**Step – 1 byte / Step - percentage**	**1 byte**	**CRTU**

399, 410, 421 / 481, 503, 514, 525, 536, 547 / 607, 629, 640, 651, 662, 673 / 733, 755, 766, 777, 788, 799				

The 1-byte value sent by this object can be in the range (0 – 255) or a percentage value (0-100%). Values will be sent via this object connected to a related group address.

DPT: 5.010 (counter pulses (0..255)) / 5.001 (percentage (0..100%))

103, 125, 136, 147, 158, 169 / 229, 251, 262, 273, 284, 295 / 355, 377, 388, 399, 410, 421 / 481, 503, 514, 525, 536, 547 / 607, 629, 640, 651, 662, 673 / 733, 755, 766, 777, 788, 799	**X Button 1…6**	**Step scene**	**1 byte**	**CRTU**

The scene call value sent by this object can be in the range (0 – 64). Values will be sent via this object connected to a related group address.

DPT: 18.001 (scene control)

104, 126, 137, 148, 159, 170 / 230, 252, 263, 274, 285, 296 / 356, 378, 389, 400, 411, 422 / 482, 504, 515, 526, 537, 548 / 608, 630, 641, 652, 663, 674 / 734, 756, 767, 778, 789, 800	**X Button 1…6**	**Channel 2 Value – 1 byte / Channel 2 Value - Percentage**	**1 byte**	**CRTU**

The 1-byte value sent by this object can be in the range (0 – 255) or a percentage value (0-100%). Values will be sent via this object connected to a related group address.

DPT: 5.010 (counter pulses (0..255)) / 5.001 (percentage (0..100%))

105, 127, 138, 149, 160, 171 / 231, 253, 264, 275, 286, 297 / 357, 379, 390, 401, 412, 423 / 483, 505, 516, 527, 538, 549 / 609, 631, 642, 653, 664, 675 / 735, 757, 768, 779, 790, 801	**X Button 1…6**	**Value – Temperature / Value – 2 byte / Value – Luminosity (Lux)**	**2 byte**	**CRTU**

This object can be 2 bytes (0 – 65535), temperature(°C) or luminosity value. Values will be sent via this object connected to a related group address.

DPT: 9.001 (temperature (°C)) / 7.001 (pulses) / 9.004 (lux (Lux))

105, 127, 138, 149, 160, 171 / 231, 253, 264, 275, 286, 297 / 357, 379, 390, 401, 412, 423 / 483, 505, 516, 527, 538, 549 / 609, 631, 642, 653, 664, 675 / 735, 757, 768, 779, 790, 801	**X Button 1…6**	**Channel 1 – Value / Channel 1 – Temperature / Channel 1 - Luminosity**	**2 byte**	**CRTU**

This object can be 2 bytes (0 – 65535), temperature(°C) or luminosity value. Values will be sent via this object connected to a related group address.

DPT: 7.001 (pulses) / 9.001 (temperature (°C)) / 9.004 (lux (Lux))

105, 127, 138, 149, 160, 171 / 231, 253, 264, 275, 286, 297 / 357, 379, 390, 401, 412, 423 / 483, 505, 516, 527, 538, 549 / 609, 631, 642, 653, 664, 675 /	**X Button 1…6**	**Setpoint Temperature**	**2 byte**	**CRTU**

735, 757, 768, 779, 790, 801				

The selected setpoint temperature for the push button is controlled via this object connected to the related group address.

DPT: 9.001 (temperature (°C))

105, 127, 138, 149, 160, 171 / 231, 253, 264, 275, 286, 297 / 357, 379, 390, 401, 412, 423 / 483, 505, 516, 527, 538, 549 / 609, 631, 642, 653, 664, 675 / 735, 757, 768, 779, 790, 801	**X Button 1…6**	**Step – 2 Byte / Step – Temperature / Step - Luminosity**	**2 byte**	**CRTU**

This object can be 2 bytes (0 – 65535), temperature(°C) or luminosity value. Values will be sent via this object connected to a related group address.

DPT: 7.001 (pulses) / 9.001 (temperature (°C)) / 9.004 (lux (Lux))

106, 128, 139, 150, 161, 172 / 232, 254, 265, 276, 287, 298 / 358, 380, 391, 402, 413, 424 / 484, 506, 517, 528, 539, 550 / 610, 632, 643, 654, 665, 676 / 736, 758, 769, 780, 791, 802	**X Button 1…6**	**Channel 2 Value / Channel 2 Value – Temperature / Channel 2 Value - Luminosity**	**2 byte**	**CRTU**

This object can be 2 bytes (0 – 65535), temperature(°C) or luminosity value. Values will be sent via this object connected to a related group address.

DPT: 7.001 (pulses) / 9.001 (temperature (°C)) / 9.004 (lux (Lux))

106, 128, 139, 150, 161, 172 / 232, 255, 265, 276, 287, 298 /	**X Button 1…6**	**Feedback Setpoint Temperature**	**2 byte**	**CRWTU**

358, 380, 391, 402, 413, 424 / 484, 506, 517, 528, 539, 550 / 610, 632, 643, 654, 665, 676 / 736, 758, 769, 780, 791, 802				

This object appears only when the thermostat control type is selected as “Setpoint control”. It shows the current status of the setpoint temperature via this object connected to the related group address.

DPT: 9.001 (temperature (°C))

107, 129, 140, 151, 162, 173	**X Button 1…6**	**Relative Dimming / X HSL Hue (H) – Relative Dimming / X HSV Hue (H) – Relative Dimming / X RGB Red (R) – Relative Dimming / X Color Temperature 1 (Button 1-2) – Relative Dimming**	**4 bit**	**CRWTU**

This object is used to receive dimming telegram for devices connected to Button 1..6. When a start telegram is received, the brightness value is changed in the defined direction. If a stop telegram is received before the dimming process ends or the upper dimming or lower dimming value is reached, the dimming process is interrupted and the brightness value reached is retained. The minimum and maximum dimming thresholds apply and cannot be exceeded.

DPT: 3.007 (dimming control)

359, 381, 392, 403, 414, 425	**X Button 1…6**	**X HSL Saturation (S) – Relative Dimming / X HSV Saturation (S) – Relative Dimming / X RGB Green (G) – Relative Dimming**	**4 bit**	**CRWTU**

This object is used to receive dimming telegram for devices connected to Button 1..6. When a start telegram is received, the brightness value is changed in the defined direction. If a stop telegram is received before the dimming process ends or the upper dimming or lower dimming value is reached, the dimming process is interrupted and the brightness value reached is retained. The minimum and maximum dimming thresholds apply and cannot be exceeded.

DPT: 3.007 (dimming control)

611, 633, 644, 655, 666, 677	**X Button 1…6**	**X HSL Lightness (L) – Relative Dimming / X HSV Value (H) – Relative Dimming / X RGB Blue (B) – Relative Dimming**	**4 bit**	**CRWTU**

This object is used to receive dimming telegram for devices connected to Button 1..6. When a start telegram is received, the brightness value is changed in the defined direction. If a stop telegram is received before the dimming process ends or the upper dimming or lower dimming value is reached, the dimming process is interrupted and the brightness value reached is retained. The minimum and maximum dimming thresholds apply and cannot be exceeded.

DPT: 3.007 (dimming control)

1106, 1116, 1121, 1126, 1131, 1136	**X Button 1…6**	**X RGB White (W) – Relative Dimming**	**4 bit**	**CRWTU**

This object is used to receive dimming telegram for devices connected to Button 1..6. When a start telegram is received, the brightness value is changed in the defined direction. If a stop telegram is received before the dimming process ends or the upper dimming or lower dimming value is reached, the dimming process is interrupted and the brightness value reached is retained. The minimum and maximum dimming thresholds apply and cannot be exceeded.

DPT: 3.007 (dimming control)

5.7. Thermostat Objects

This section describes the "thermostat" group objects and their properties. Thermostat group objects, as the name suggests, indicate the general characteristics of Just Touch.

Object Number	Object Name	Function	Type	Flags
198	**Thermostat**	**Switching**	**1 bit**	**CRTU**
Switching telegram will be sent via this object connected to a related group address. DPT: 1.001 (switch)				
199	**Thermostat**	**Switching Feedback**	**1 bit**	**CRWTU**
The thermostat status is shown via this object connected to a related group address. DPT: 1.001 (switch)				

5.8. Input Objects

This section describes the "input" group objects and their properties. Input group objects, as the name suggests, indicate the general characteristics of Just Touch.

Object Number	Object Name	Function	Type	Flags
1235, 1240	**Input X**	**Block**	**1 bit**	**CW**
Switching telegram will be sent via this object connected to a related group address. DPT: 1.003 (enable)				
1236, 1241	**Input X**	**Switch**	**1 bit**	**CWT**
Switching telegram will be sent via this object connected to a related group address. DPT: 1.001 (switch)				
1236, 1241	**Input X**	**Shutter UP / DOWN**	**1 bit**	**CWT**
Up and down telegrams will be sent via this object connected to a related group address. DPT: 1.008 (up/down)				
1236, 1241	**Input X**	**Forced Operation**	**2 bit / 1 byte / 2 bytes/ 3 bytes**	**CWT**
This communication object changes in functionality depending on the selected input function. This communication object sends a value on the bus with short operation when opening or closing of the contact. Depending on the configuration, the data type of this object changes. forced, percent value, decimal value, Scene number, temperature value, brightness value and percent value (RGB) can be performed on this object. DPT: According to parameter selection				
1236, 1241	**Input X**	**8-bit Scene**	**1 byte**	**CWT**
Scene telegram will be sent via this object connected to a related group address. DPT: 18.001 (scene control)				

1236, 1241	**Input X**	**RGB Red Colour / RGB Colour**	**1 byte / 3bytes**	**CWT**

This object either keeps the 1-Byte Red value of the RGB or keeps the entire 3-Byte RGB value. Decision is made in the parameter list as either “1 object of 3 bytes” or 3 objects of 1 byte”.

DPT: 5.010 (counter pulses) / 232.600 (RGB value)

1236, 1241	**Input X**	**Mode selection**	**1 byte**	**CWT**

This object keeps the active HVAC state that can be toggled through press events.

Note: There can be up to 4 different HVAC states (comfort, standby, economy, building protection) selected and each press event toggles through the HVAC states that are set as available in the parameter list.

DPT: 20.102 (HVAC mode)

1237, 1242	**Input X**	**Switch - long**	**1 bit**	**CRWT**

Switching telegram will be sent via this object connected to a related group address.

DPT: 1.001 (switch)

1237, 1242	**Input X**	**Dimming**	**4 bit**	**CRWT**

This communication object changes in functionality depending on the selected input function. In accordance with the parameter setting, A long operation at the input has the effect that BRIGHTER or DARKER dim telegrams are sent via this communication object on the bus. A STOP telegram is sent and the cyclic sending of dim telegrams is stopped at the end of the actuation with START-STOP-DIMMING.

DPT: 3.007 (dimming control)

1237, 1242	**Input X**	**STOP/lamella adjustment**	**1 bit**	**CRWT**

This communication object changes in functionality depending on the selected input function. This communication object sends a STOP telegram or slat adjustment.

DPT: 1.007 (step)

1237, 1242	**Input X**	**Forced Operation - long**	**2 bit / 1 byte / 2 bytes/ 3 bytes**	**CWT**

This communication object changes in functionality depending on the selected input function. This communication object sends a value on the bus with short operation when opening or closing of the contact. Depending on the configuration, the data type of this object changes. forced, percent value, decimal value, Scene number, temperature value, brightness value and percent value (RGB) can be performed on this object.

DPT: According to parameter selection

1237, 1242	Input X	Store Scene	1 bit	CRWT

This communication object, when active, decides whether to call or store the preset 8-bit scene number in the parameter list. When the store scene object is enabled the preset scene number is stored, but, when disabled preset scene number is called to be active.

DPT: 1.003 (enable)

1237, 1242	Input X	Green Colour	1 byte	CRWT

This object keeps the 1-Byte green value of RGB if “3 objects of 1 Byte” option is selected in the parameter list.

DPT: 5.010 (counter pulses)

1237, 1242	Input X	HVAC – Mode State	1 byte	CRWT

This object takes the HVAC state changed via the bus.

Note: Whenever this object is updated from the bus, the HVAC state that this object holds will be considered as the valid HVAC state and press events will act as if the last HVAC state is what this object is updated with.

DPT: 20.102 (HVAC mode)

1238, 1243	Input X	Upper limit position	1 bit	CRWT

This object is used for the shutter actuator indicates if it is in the lower limit position (“shutter/blind closed”). The object is intended for a 1-button operation. ‘0’ is no lower limit operation, ‘1’ lower end operation.

DPT: 1.002 (boolean)

1238, 1243	Input X	Blue Colour	1 byte	CRWT

This object keeps the 1-Byte blue value of RGB if “3 objects of 1 Byte” option is selected in the parameter list.

DPT: 5.010 (counter pulses)

1239, 1244	**Input X**	**Lower limit position**	**1 bit**	**CW**

This object is used for the shutter actuator indicates if it is in the lower limit position (“shutter/blind closed”).

The object is intended for a 1-button operation. ‘0’ is no lower limit operation, ‘1’ lower end operation.

DPT: 1.002 (boolean)

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