ATOUCH

KNX-K4Gx-xx

Multitouch Glass Keypad - 13 Keys

Manual Version: 1.0

Contents

1. Introduction

1.1 KNX-K4Gx-xx

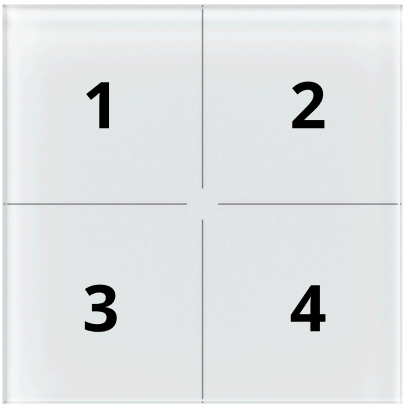
The KNX-K4Gx-xx is a glass touch keypad with integrated temperature sensor, designed and developed according to the KNX standard.
This wall device is capable of controlling lights, shutters, blinds, and many other KNX functions. It offers a wide range of functional flexibility up to 13 different user interactions with visual and sound feedback.

The most prominent features of the KNX-K4Gx-xx are:

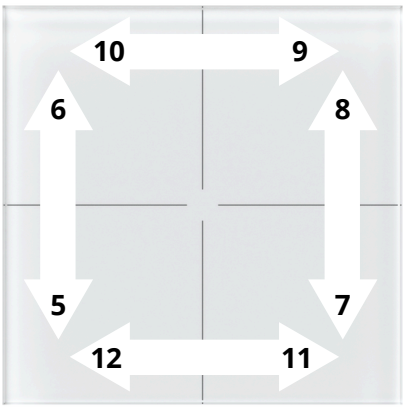
- Configured with ETS5/ETS6;
- 4 independent touch buttons;
- 1 All4Touch button;
- 4 vertical sliders + 4 horizontal sliders;
- Integrated temperature sensor;
- 4 independent LEDs:
  - Indication of pressed of buttons;
  - Following objects status.
- Buzzer for audible indication of user actions;
- Night mode:
  - Inhibit following objects status;
  - Buzzer disabled;
  - 1 middle presence LED.
- Heartbeat or periodical “keep alive” notification.

1.2 Button Definition

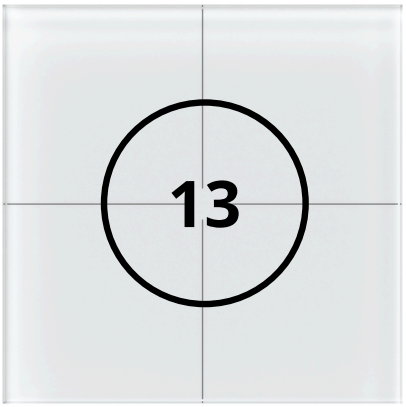
Button	Function
1	Touch button
2	Touch button
3	Touch button
4	Touch button



Button	Function
5	Left vertical slider down
6	Left vertical slider up
7	Right vertical slider down
8	Right vertical slider up
9	Top horizontal slider right
10	Top horizontal slider left
11	Bottom horizontal slider right
12	Bottom horizontal slider left



Button	Function
13	All4Touch



1.3 Dimensions

The KNX-K4Gx-xx is composed by:

- Multitouch glass keypad;
- W-KNX BCU (Standard European mounting box);
- Connecting JST 6 wire cable.

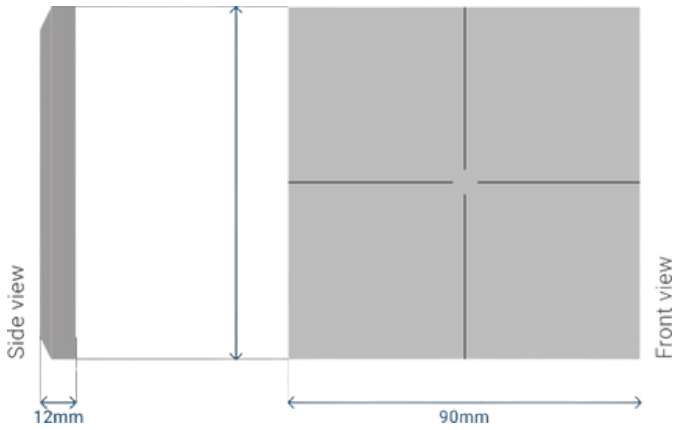


Image 1 - Multitouch glass keypad dimensions

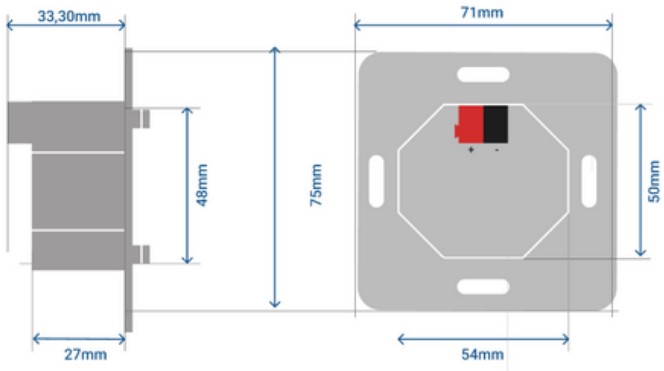


Image 2 - W-KNX BCU dimensions

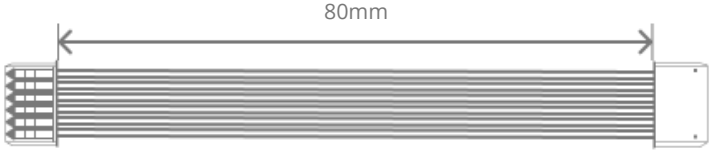


Image 3 - Connecting JST 6 wire cable dimensions

1.4 Commissioning

1.RESTART Button
2.PROG LED
3.PROG Button
4.KNX connector
5.JST conector
6.Connection cable
7.Keypad PROG button

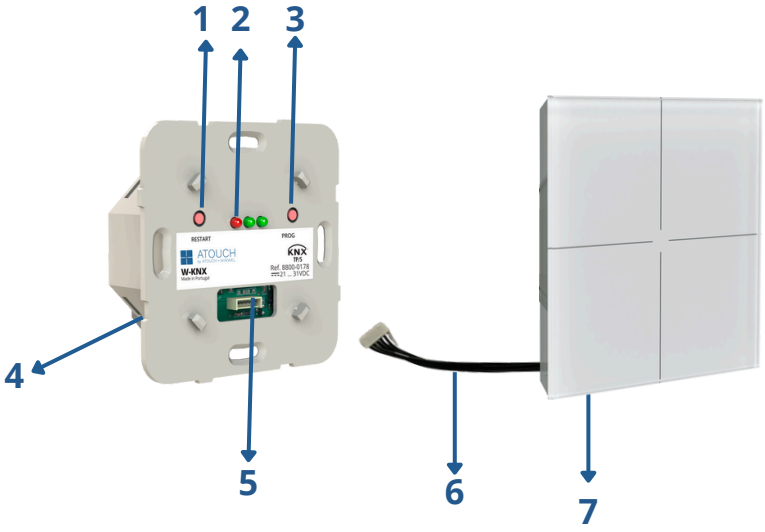


Image 4 - Connection diagram

- To begin commissioning use:
  a) W-KNX Prog button (3) ;
  b) Keypad PROG button (7)*.
  *To use the Keypad PROG button (7) connect the keypad to the W-KNX using the cable (6);

- Connect to the KNX BUS using the KNX connector (4) on the back of the W-KNX.

- Press (1), (7) or use the serial number with ETS 6, success will be indicated by the blinking of the red PROG LED (2).

- Set and program the individual address in the ETS, success will be confirmed by the red PROG LED (2) ending the blinking pattern.

- Configure and program the settings in the ETS application.

2. Configuration

2.1 General

After adding the device from catalog to your ETS project see the general settings using the "General" tab.

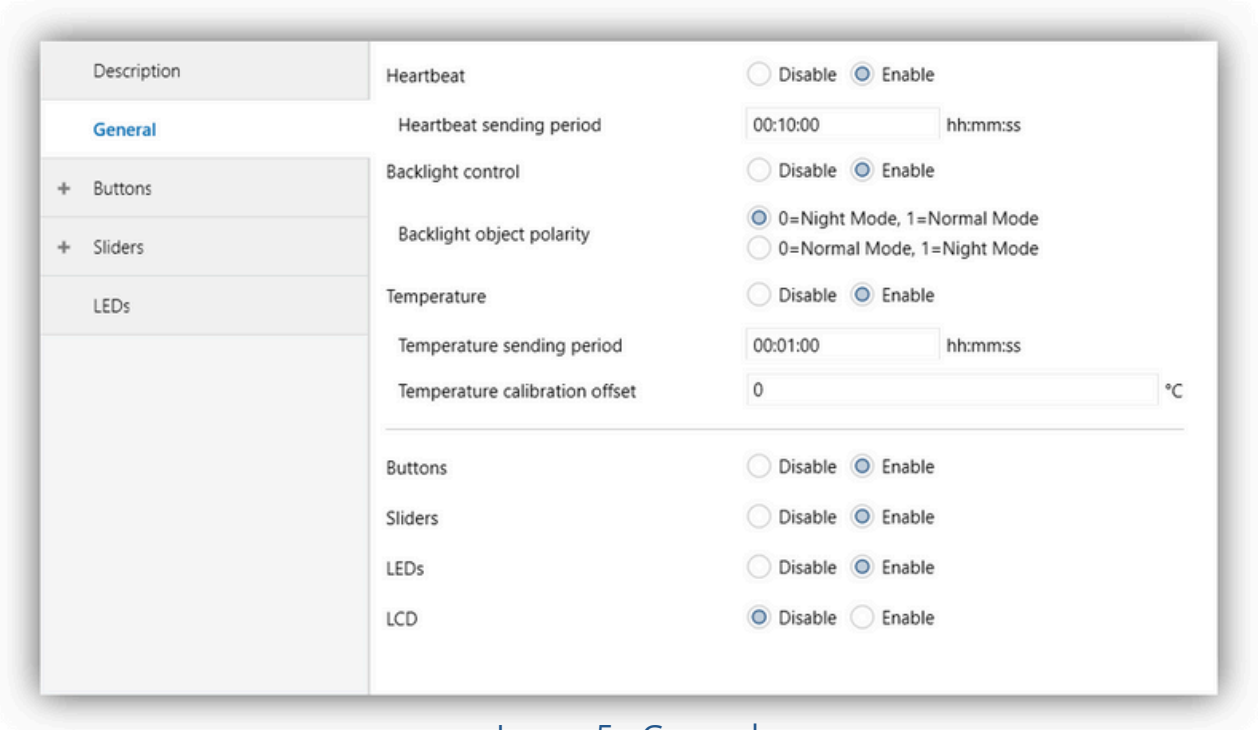


Image 5 - General

- Heartbeat [disabled/enabled]: if enabled integrates a one-bit object *Heartbeat* into your project that will be sent periodically with the value "1", to notify that the device remains operational.

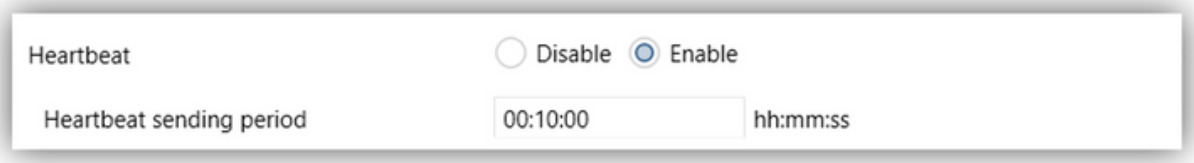


Image 6 - Heartbeat

- Backlight control [disabled/enabled]: if enabled integrates a one-bit object *Backlight* and allows you to define two operation modes via DPT *Day/Nigth*: Normal mode or Night mode .
  - Normal mode is used to enable the diffuse presence light created by all four corners LEDs at about 25% of lumen capacity;
  - Night mode is used to mute the buzzer, inhibit LED Indication of pressed buttons, turn on middle led by default;
    - turning off middle LED for complete darkness is achieved by using object *LED Middle Status*.

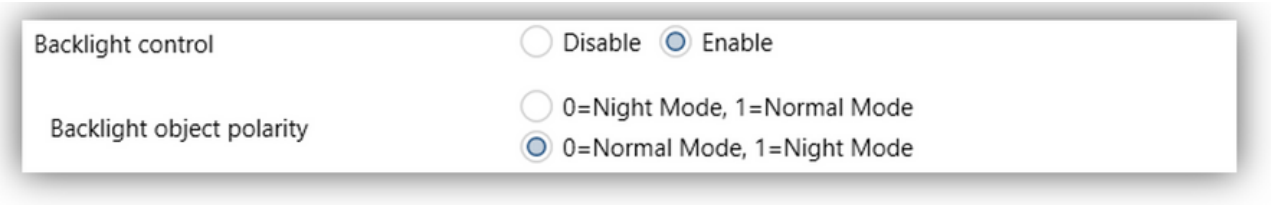


Image 7 - Backlight Control

- Temperature [disabled/enabled]: if enabled integrates a two-bytes object *Temperature.*
  - The KNX-K4Gx-xx contains an internal temperature sensor, able to measure temperatures from -55 °C to 125 °C. When enabled, the temperature value can be periodically sent to the bus. By using the parameter “Temperature calibration offset”, it's possible to correct the measured value when needed.
  - Possible usage:
    - In IOs/Android KNX APPs display local room temperature;
    - Trigger events and logical operations;
    - Use for climate control.

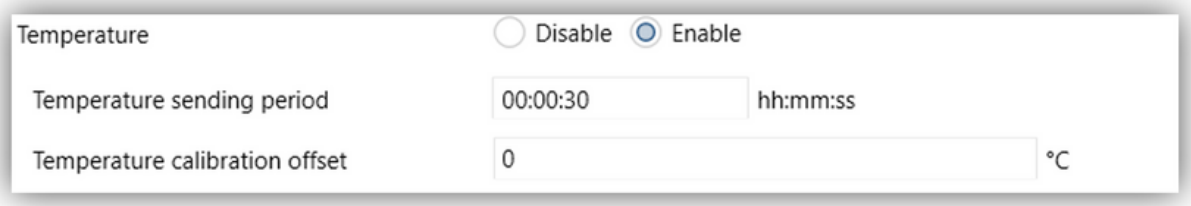


Image 8 - Temperature

- Buttons [disabled/enabled]: enable or disable the buttons on the left navigation tab of your ETS. See section 2.2 for details.

- Sliders [disabled/enabled]: enable or disable the sliders on the left navigation tab of your ETS. See section 2.3 for details.

- LEDs [disabled/enabled]: enable or disable the LEDs on the left navigation tab of your ETS. See section 2.4. for details.

- LCD [disabled/enabled]: enable or disable the LCD text on the left navigation tab of your ETS. This tab only work within the KNX-OLEDGx-xx version.

2.2 Buttons

An independent tab for button parameterization is showed in ETS by default, containing the 4 touch buttons and the All4Touch button, allowing to configure the functionalities of each button.

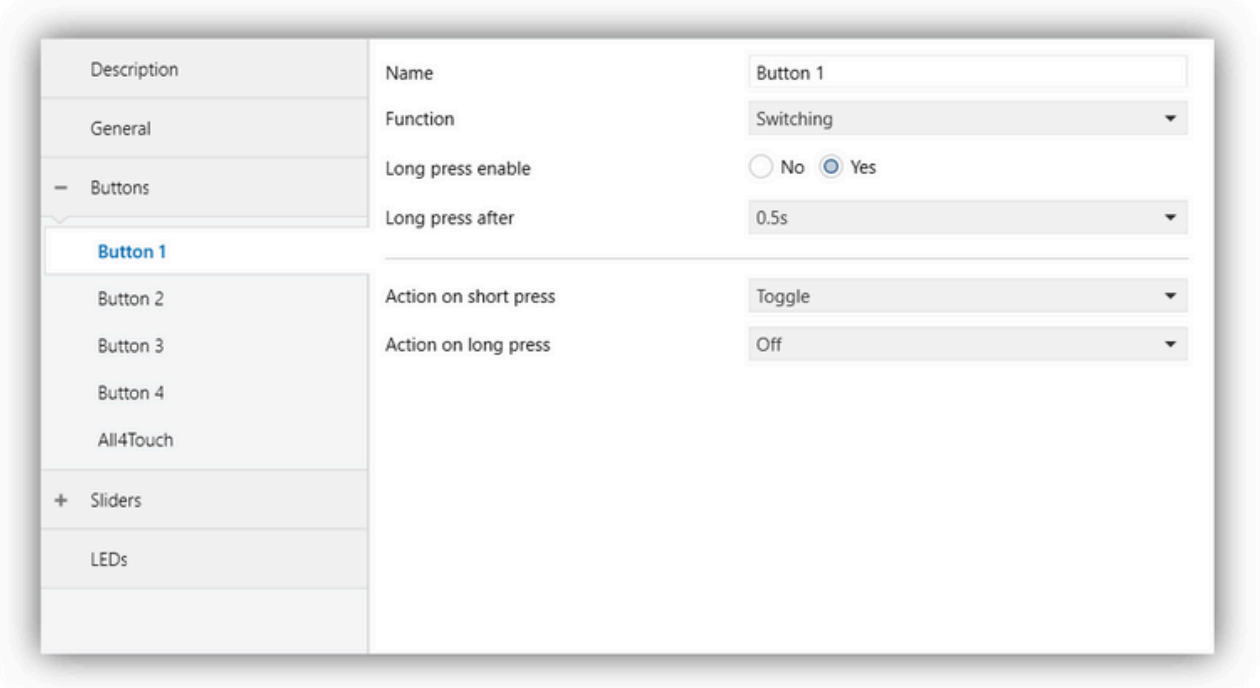


Image 9 - Buttons Configuration

Each button can be programmed independently for a different function. The following is a list of possible functions:

- Disable;
- Switching;
- Dimming;
- Shutter;
- Value;
- Color;
- Scene.

2.2.1 Switching

Selecting “Switching” function will define the Object Function as Switch allowing telegrams to set or reset the 1-bit On(1)/Off(0) to the group address that is linked to the respective communication object. Short or long press can be assigned to different commands (On, Off or Toggle).

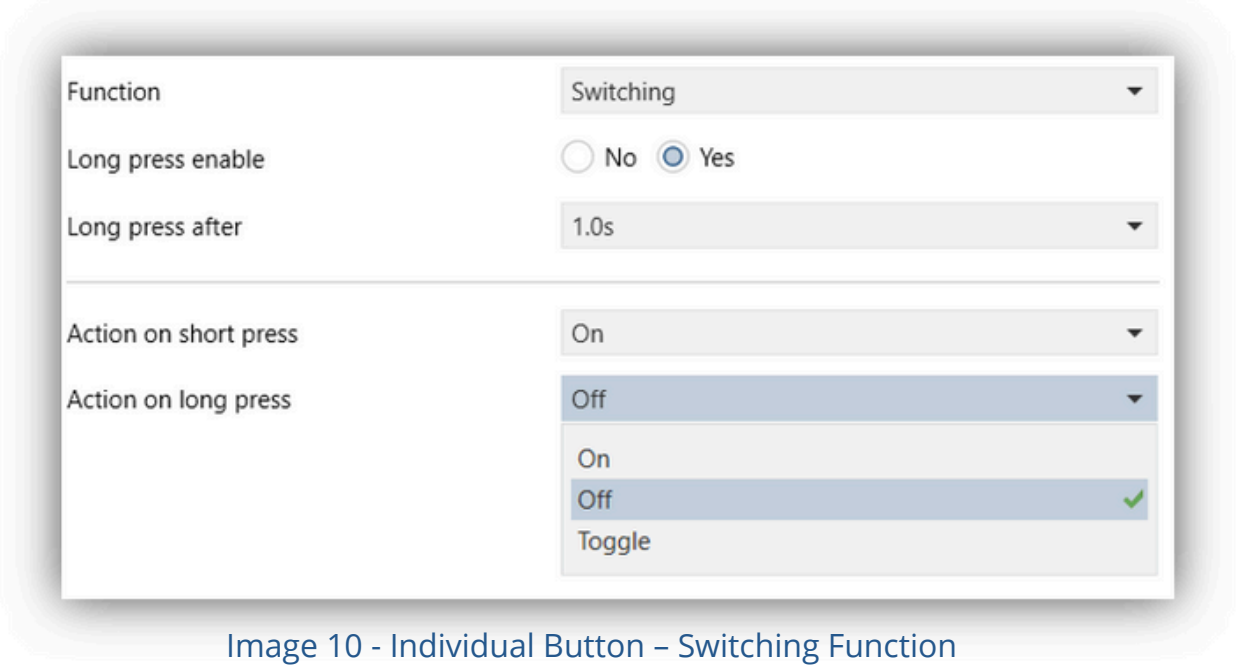


Image 10 - Individual Button – Switching Function

2.2.2 Dimming

Selecting “Dimming” function will define the Object Function as Dimming allowing telegrams to dimming control with just a group object (4-bit) in touch operation. When long press is enabled, a group object *Switch* is available for the switching function on short press and another group object *Dimming* is available for dimming function on long press.

The parameters for this function are:

- Action on short press: this parameter sets the switching telegram (On, Off or Toggle) for the short press action;
- Action on long press: this parameter sets the dimming telegram (Dim brighter, Dim darker or Toggle brighter/darker) for the long press action;
- Dimming direction after switch on: this parameter is used to determine the dimming direction (Dim darker or Dim brighter) when the switching object is “On” on long press action;
- Dimming step: this parameter defines the dimming step (in per cent) to be sent in each dimming telegram (1%, 3%, 6%, 12%, 25%, 50% or 100%).

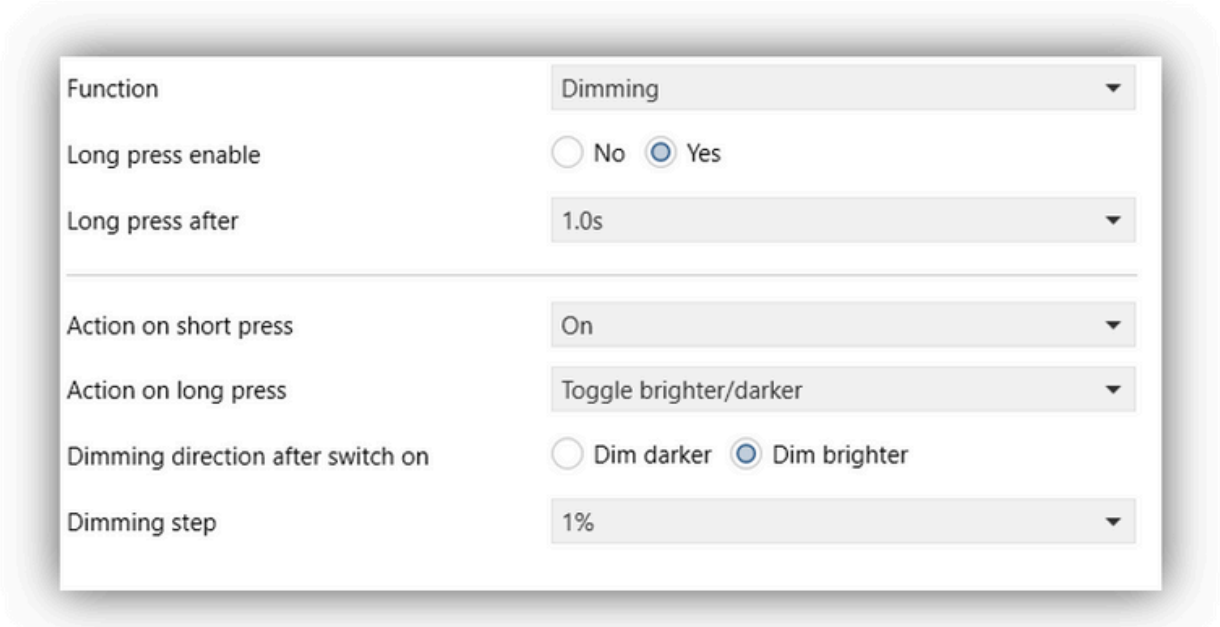


Image 11 - Individual Button – Switching Function

2.2.3 Shutter

Note: For more intuitive control of the shutters we recommend using vertical sliders. See section 2.3 for details.
Selecting "Shutter" function enables the control of shutters, blinds, curtains and others with short or long press. Both can be configured as 4 different functions: Down, Up, Stop or Toggle.

The short press function is best suited for controlling motors. Touching the button the first time will start the motor command up or down via DPT *up/down*.

Touching the button a second time stops the motor via DPT *step*.

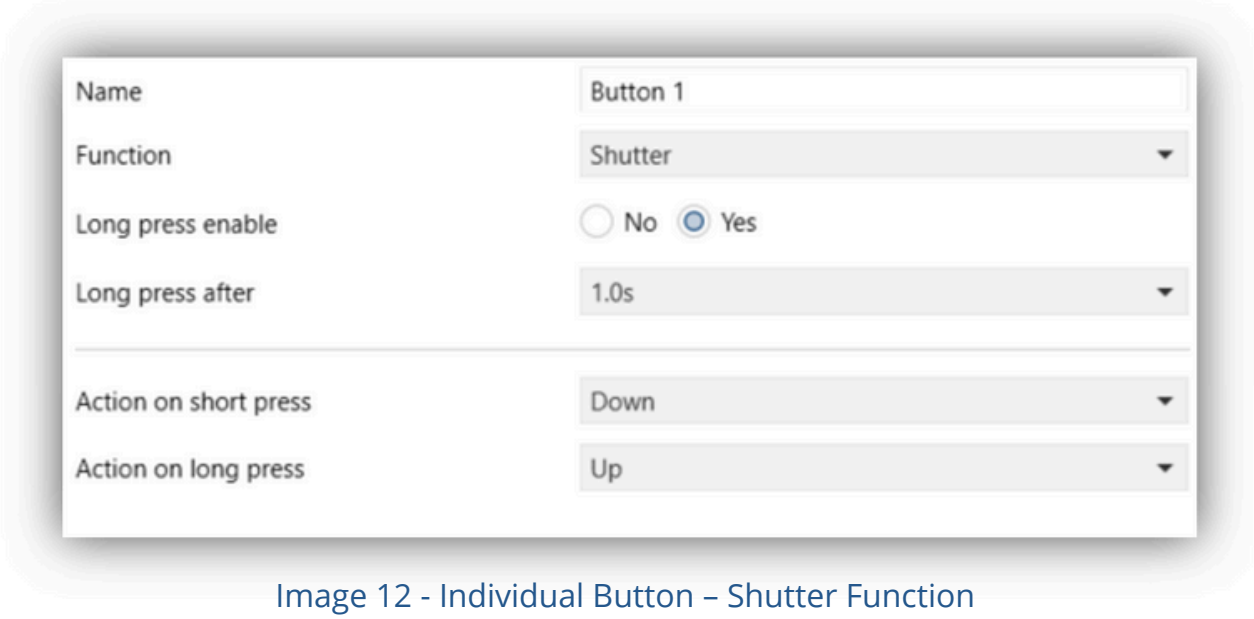


Image 12 - Individual Button – Shutter Function

2.2.4 Value

Selecting "Value" function will define the Object Function as Value and each button can be configured to send predefined values of different Data Types. Also, long or short press actions can be selected for each transmitted value individually.

Below is the list of available Data Types:

- 1-bit DPT.1001 *Switch (0-1);*
- 1-byte DPT.5001 *Percent (0-100%);*
- 1-byte DPT.5010 *Counter Pulse (0-255);*
- 1-byte DPT.6010 *Counter Pulse (-128-127);*
- 1-byte DPT.5001 *Percent (0-100%);*
- 2-byte DPT.7001 *Pulse (0-65535);*
- 2-byte DPT.8001 *Pulse Difference (-32768-32767);*
- 2-byte DPT.9001 *Temperature (-273-6707760).*

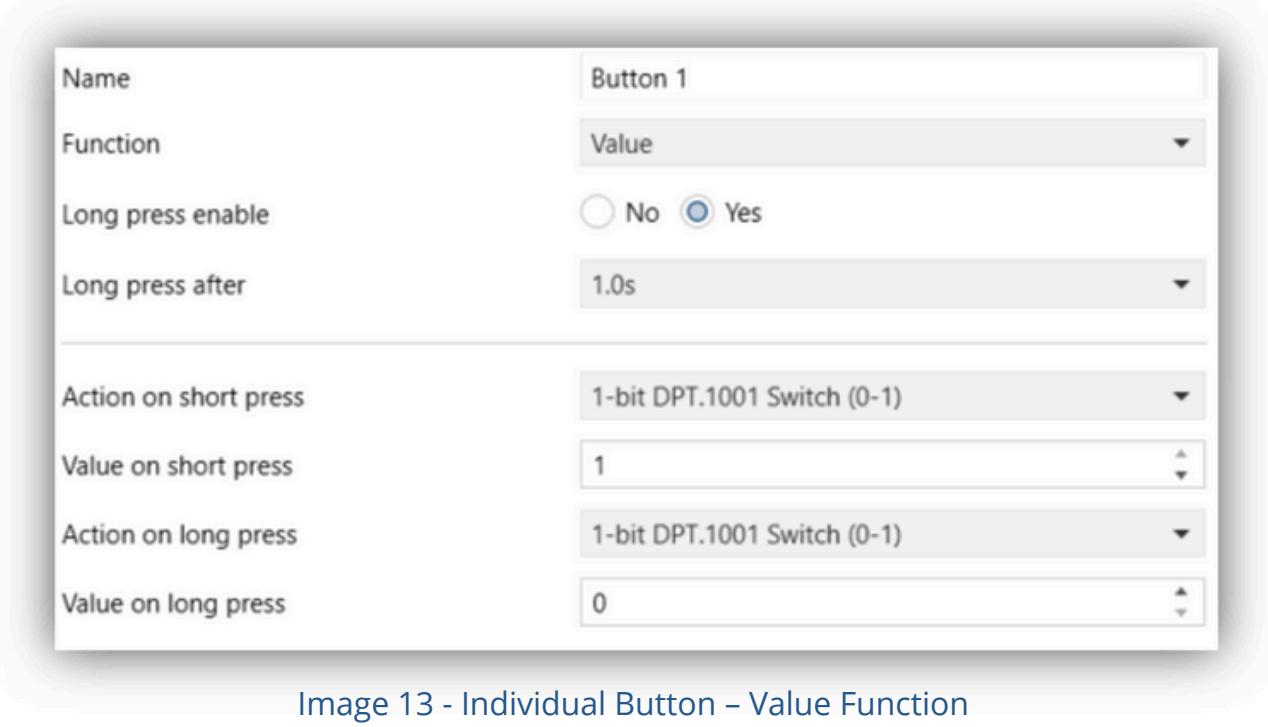


Image 13 - Individual Button – Value Function

2.2.5 Color

Selecting “Color” function will define Three Single Colour Objects (*Red, Green, Blue*) or One *RGB* Object. Each button can be configured to control an RGB LED device.

Below, detailed information is provided on the settings of relevant parameters:

- Long press enable:
  - Choose the condition “Reset color position” or “Send color value” on long press;
  - Any condition for long press, short press does the opposite.
- Object type - this parameter is used to determine the RGB color object value:
  - Selecting the Data Type "3 x DPT.5001 *(0-100%)*" it is possible to send telegrams with 3 objects of 1-byte to control dimming via red, green or blue independently;
  - If the Data Type “1 x DPT.23600 *(RGB value)”* is selected the telegram is sent with a single 3-byte object to control via RGB.
- Color position number: it is possible to choose up to 8 color positions. Pressing the palette on the right it is possible to choose the color.

- Reset color position after: This parameter determines the behavior and transmission of the color position allowing a reset of the color position after 0-255 seconds where 0 = no reset.
  After the delay time expires, the list starts again at the first color position on the next short button press.

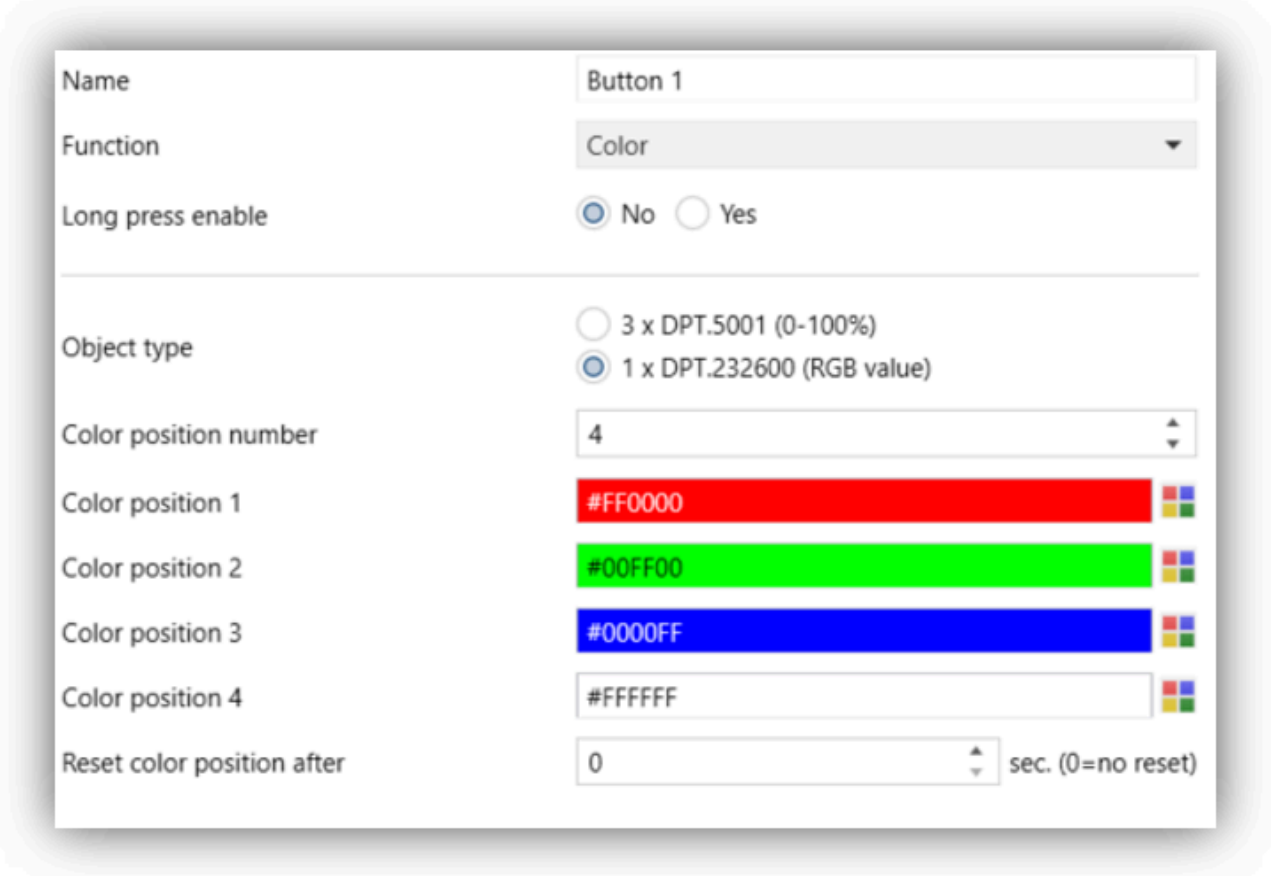


Image 14 - Individual Button – Color Function

2.2.6 Scene

This function is intended to be used in conjunction with several KNX actuators that support the scene function to store and recall a communication object value in an actuator.

The device's role is to send the "Recall/Store Scene mode" telegram to the actuators in a short press.

If the long press is enabled, the short press will be for Recall Scene and long press will be for Store Scene function.

For each button, scene 1 – 64 can be activated.

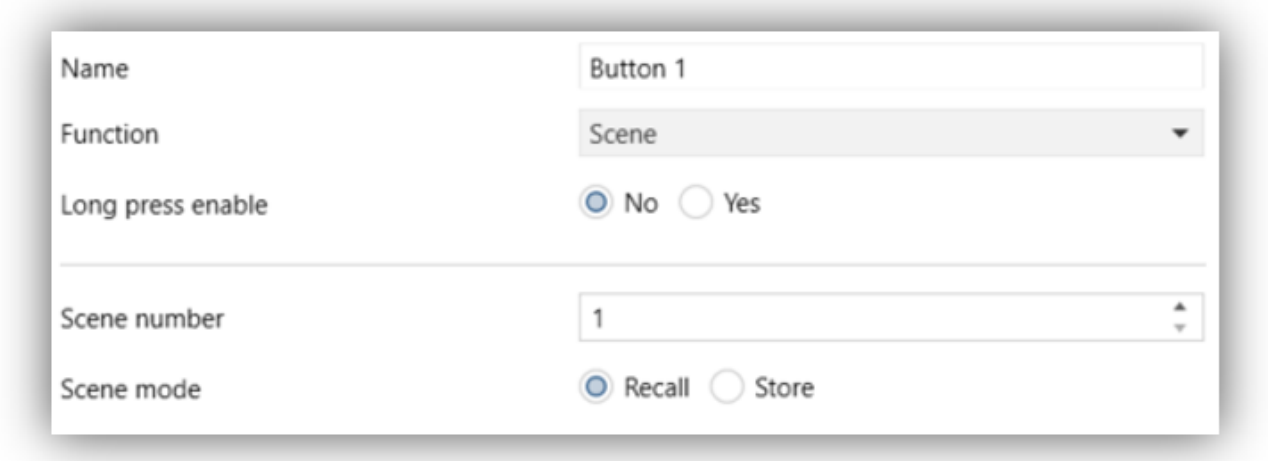


Image 15 - Individual Button – Scene Function

2.3 Sliders

If the Sliders are enabled in General tab, an independent tab for slider parameterization is showed in the ETS, containing 4 groups of sliders (2 vertical sliders + 2 horizontal sliders), which will make possible to configure the functionalities of each movement (Up, Down, Right and Left).

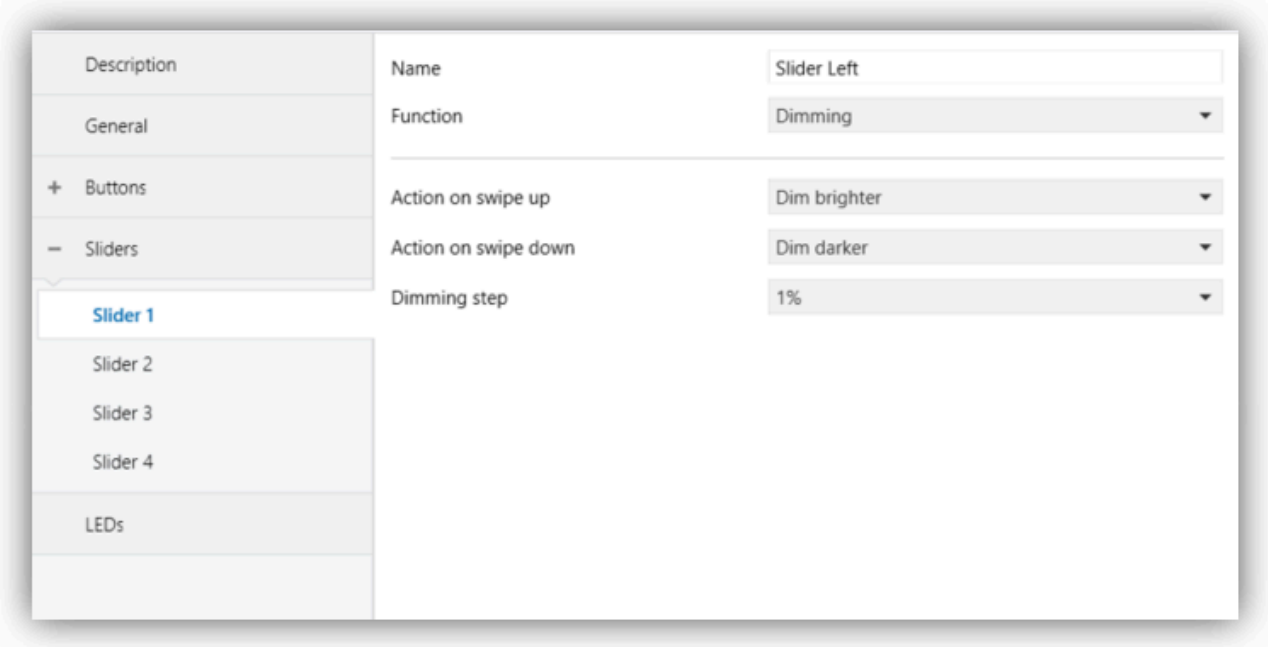


Image 16 - Sliders Configuration

2.3.1 Switching

Selecting “Switching” function will define the Object Function as Switch allowing telegrams to set or reset the 1-bit On(1)/Off(0) to the group address that is linked to the respective communication object.

Action on each swipe can be assigned to different commands (On, Off or Toggle).

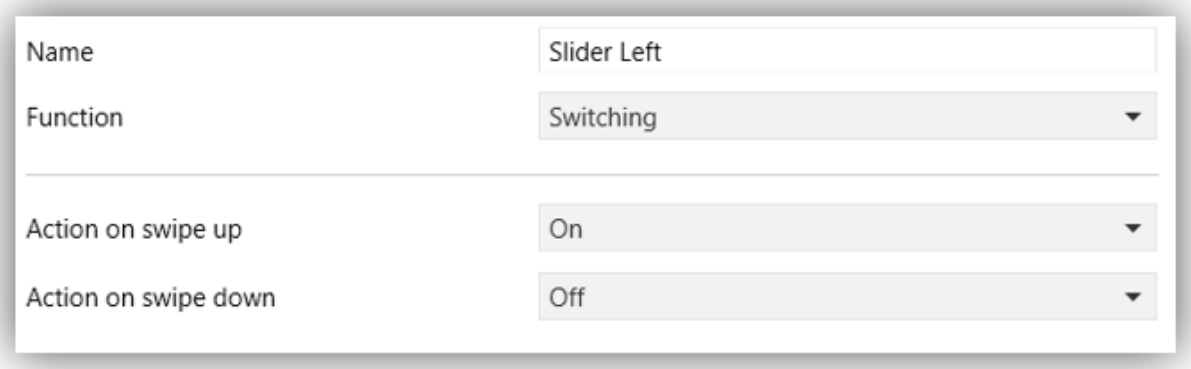


Image 16 - Individual Slider - Switching Function

2.3.2 Dimming

Selecting “Dimming” function will define the Object Function as Dimming allowing telegrams to dimming control with just a group object (4-bit) in slider operation.

The parameters for this function are:

- Action on swipe up, down, right or left: this parameter sets the dimming telegram (Dim brighter, Dim darker or Toggle brighter/darker) for each swipe action;

- Dimming step: this parameter defines the dimming step (in per cent) to be sent in each dimming telegram (1%, 3%, 6%, 12%, 25%, 50% or 100%).

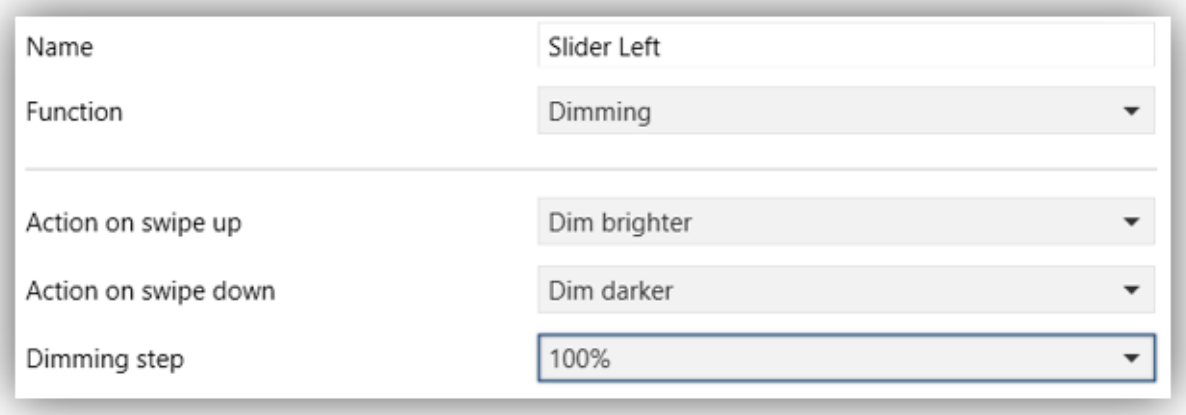


Image 18 - Individual Slider - Dimming Function

2.3.3 Shutter

Selecting "Shutter" function enables the control of shutters, blinds, curtains and others with swipes. Each swipe can be configured as 4 different functions: Down, Up, Stop or Toggle.

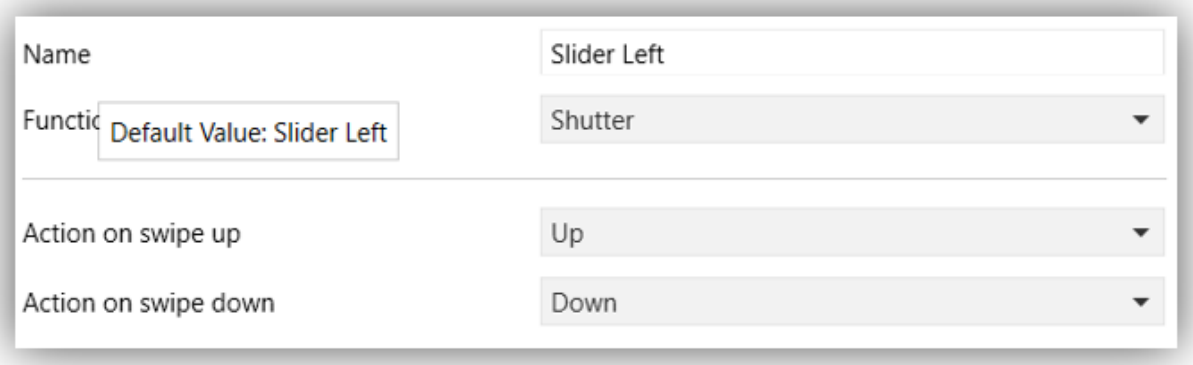


Image 19 - Individual Slider - Shutter Function

2.3.4 Value

Selecting "Value" function will define the Object Function as Value and each slider can be configured to send predefined values of different Data Types. Each swipe actions can be selected for each transmitted value individually.

Below is the list of available Data Types:

- 1-bit DPT.1001 *Switch (0-1);*
- 1-byte DPT.5001 Percent (0-100%);
- 1-byte DPT.5010 *Counter Pulse (0-255);*
- 1-byte DPT.6010 *Counter Pulse (-128-127);*
- 1-byte DPT.5001 *Percent (0-100%);*
- 2-byte DPT.7001 *Pulse (0-65535);*
- 2-byte DPT.8001 *Pulse Difference (-32768-32767);*
- 2-byte DPT.9001 *Temperature (-273-6707760).*

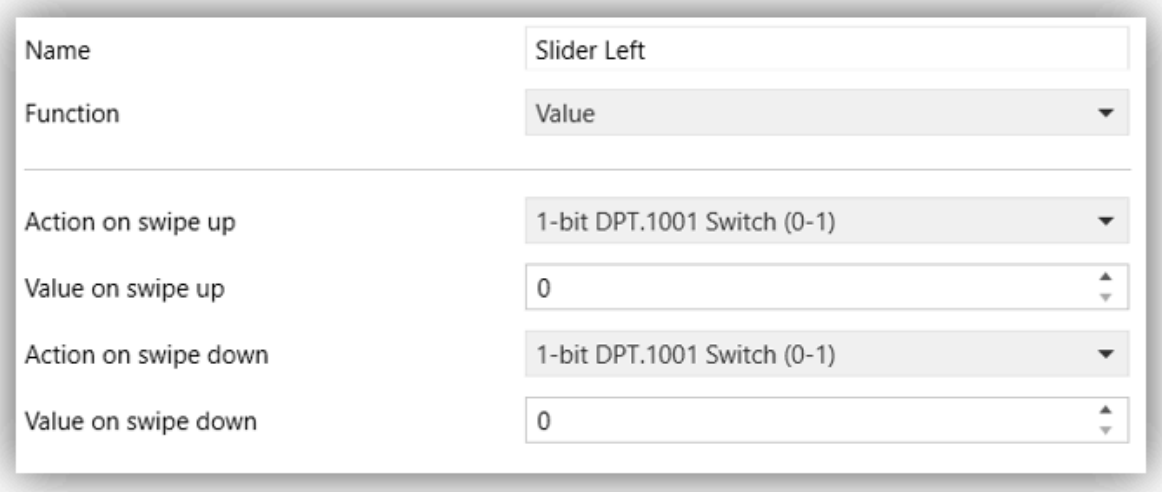


Image 20 - Individual Slider - Value Function

2.3.5 Color

Selecting “Color” function will define Three Single Colour Objects (*Red, Green, Blue*) or One *RGB* Object. Each slider can be configured to control an RGB LED device.

Settings of relevant parameters:

- Object type - determine the RGB colour object value:

  - Selecting the Data Type "3 x DPT.5001 *(0-100%)"* sends telegrams with 3 objects of 1-byte to control dimming via red, green or blue independently;

  - If the Data Type “1 x DPT.23600 (*RGB value)*” is selected the telegram is sent with a single 3-byte object to control via RGB.

- Color position number: chooses up to 8 color positions. Pressing the palette on the right it is possible to choose the color;

- Condition on swipe left or down: chooses the condition on swipe: Reset color position or Send color value. In this condition, swipe right or up does the opposite;

- Reset color position after: Parameter that determines the behavior and transmission of the color position allowing a reset of the color position after 1-255 seconds where 0 will not reset the color position.

After the delay time expires, the list starts again at the first color position on the next swipe.

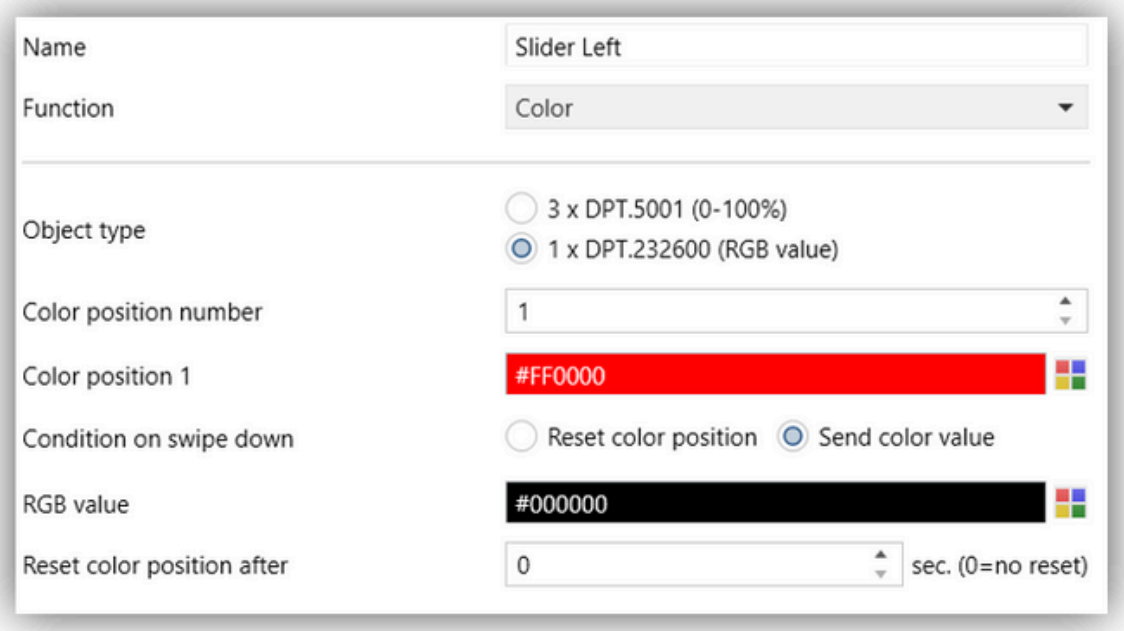


Image 21 - Individual Slider - Color Function

2.3.6 Scene

This function is intended to be used in conjunction with several KNX actuators that support the scene function. Stores and recalls a communication object value in an actuator.

It's the device's role is to send the "Recall/Store Scene mode" telegram to the actuators with a swipe.

For each swipe, scene 1 – 64 can be activated.

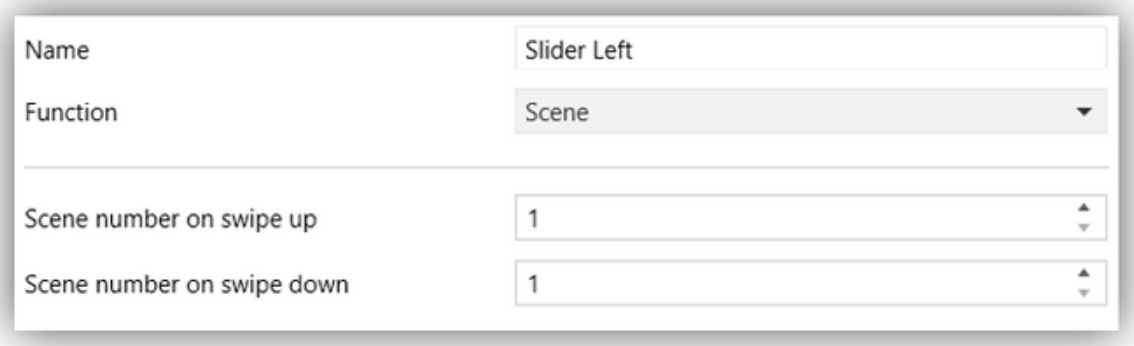


Image 22 - Individual Slider - Scene Function

2.4 LEDs

The integrated LEDs provide touch feedback. If in the “General” settings the LEDs are enabled, it is possible to parameterize the LEDs to indicate the status, touch feedback and follow night mode.

For each LED it is possible to choose the following parameters: Disable, Always on or Object value.

In night mode, the buzzer is disabled, the middle LED is enabled and the other LEDs are disabled and can´t indicate the status and don’t provide touch feedback.

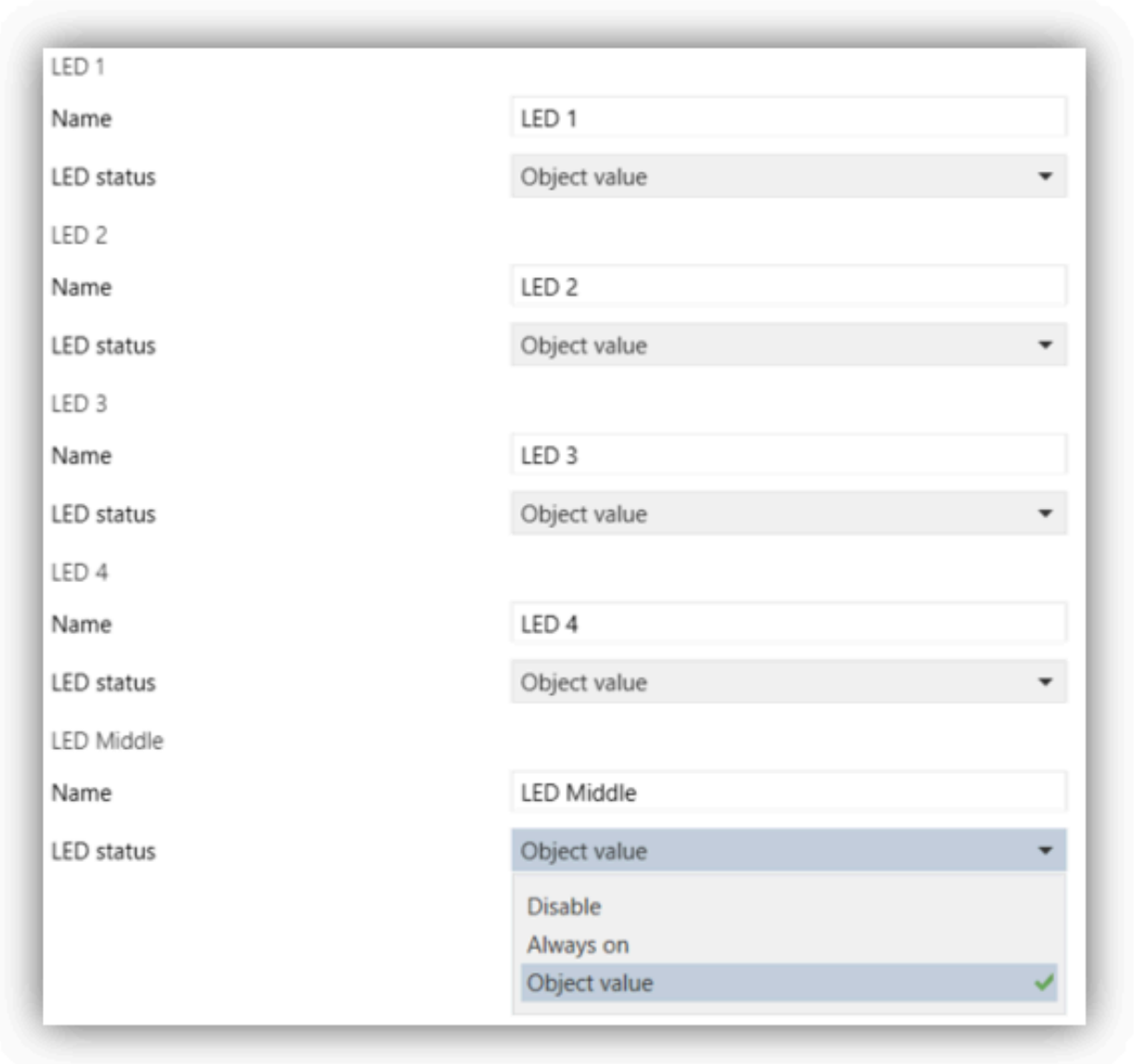
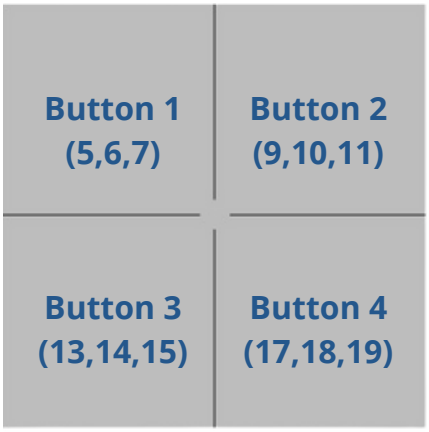


Image 23 - LEDs Configuration

3. Appendix

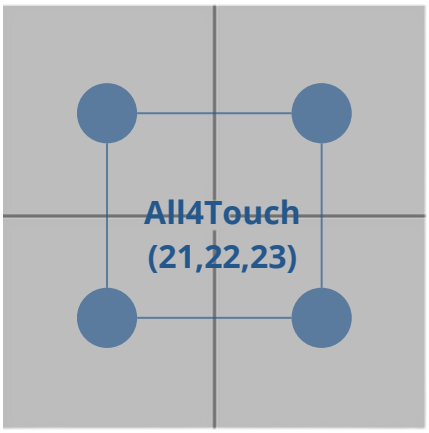
3.1 Communication Objects

Below is the table of Buttons “X” objects



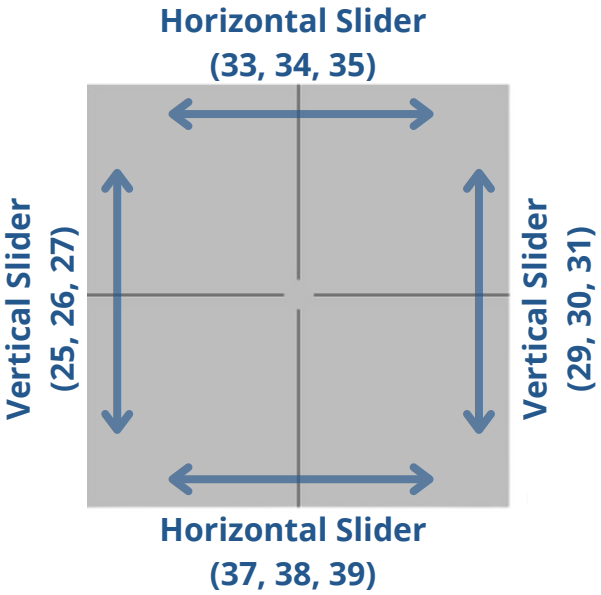
Number	Name	Object Function	Size	Flags					Data Type (DPT)
5, 9, 13, 17	Button X Output A	Switch	1 bit	C	R	-	T	-	Switch
		Shutter Up/Down	1 bit	C	R	-	T	-	Up/Down
		1-Byte	1 byte	C	R	-	T	-	Counter pulses (0..255)
		1-Byte Signed	1 byte	C	R	-	T	-	Counter pulses (-128..127)
		2-Byte	2 bytes	C	R	-	T	-	Pulses
		2-Byte Signed	2 bytes	C	R	-	T	-	Pulses difference
		Temperature	2 bytes	C	R	-	T	-	Temperature (°C)
		RGB	3 bytes	C	R	-	T	-	RGB Value 3x(0..255)
		Percentage	1 byte	C	R	-	T	-	Percentage (0..100%)
		Scene	1 byte	C	R	-	T	-	Scene Control
		Red	1 byte	C	R	-	T	-	Percentage (0..100%)
6, 10, 14, 18	Button X Output B	Switch	1 bit	C	R	-	T	-	Switch
		Dimming	4 bit	C	R	-	T	-	Dimming Control
		1-Byte	1 byte	C	R	-	T	-	Counter pulses (0..255)
		1-Byte Signed	1 byte	C	R	-	T	-	Counter pulses (-128..127)
		2-Byte	2 bytes	C	R	-	T	-	Pulses
		2-Byte Signed	2 bytes	C	R	-	T	-	Pulses difference
		Temperature	2 bytes	C	R	-	T	-	Temperature (°C)
		Shutter Step/Stop	1 bit	C	R	-	T	-	Step
		Green	1 byte	C	R	-	T	-	Percentage (0..100%)
7, 11, 15, 19	Button X Output C	Blue	1 byte	C	R	-	T	-	Percentage (0..100%)

Below is the table of All4Touch objects



Number	Name	Object Function	Size	Flags					Data Type (DPT)
21	All4Touch Output A	Switch	1 bit	C	R	-	T	-	Switch
		Shutter Up/Down	1 bit	C	R	-	T	-	Up/Down
		1-Byte	1 byte	C	R	-	T	-	Counter pulses (0..255)
		1-Byte Signed	1 byte	C	R	-	T	-	Counter pulses (-128..127)
		2-Byte	2 bytes	C	R	-	T	-	Pulses
		2-Byte Signed	2 bytes	C	R	-	T	-	Pulses difference
		Temperature	2 bytes	C	R	-	T	-	Temperature (°C)
		RGB	3 bytes	C	R	-	T	-	RGB Value 3x(0..255)
		Percentage	1 byte	C	R	-	T	-	Percentage (0..100%)
		Scene	1 byte	C	R	-	T	-	Scene Control
		Red	1 byte	C	R	-	T	-	Percentage (0..100%)
22	All4Touch Output B	Switch	1 bit	C	R	-	T	-	Switch
		Dimming	4 bit	C	R	-	T	-	Dimming Control
		1-Byte	1 byte	C	R	-	T	-	Counter pulses (0..255)
		1-Byte Signed	1 byte	C	R	-	T	-	Counter pulses (-128..127)
		2-Byte	2 bytes	C	R	-	T	-	Pulses
		2-Byte Signed	2 bytes	C	R	-	T	-	Pulses difference
		Temperature	2 bytes	C	R	-	T	-	Temperature (°C)
		Shutter Step/Stop	1 bit	C	R	-	T	-	Step
		Green	1 byte	C	R	-	T	-	Percentage (0..100%)
23	All4Touch Output C	Blue	1 byte	C	R	-	T	-	Percentage (0..100%)

Below is the table of All4Touch objects



Number	Name	Object Function	Size	Flags					Data Type (DPT)
25, 29, 33, 37	Slider X Output A	Switch	1bit	C	R	-	T	-	Switch
		Shutter Up/Down	1bit	C	R	-	T	-	Up/Down
		Switch	1bit	C	R	-	T	-	Switch
		Percentage	1byte	C	R	-	T	-	Percentage (0..100%)
		1-Byte	1byte	C	R	-	T	-	Counter pulses (0..255)
		1-Byte Signed	1 byte	C	R	-	T	-	Counter pulses (-128..127)
		2-Byte	2 bytes	C	R	-	T	-	Pulses
		2-Byte Signed	2 bytes	C	R	-	T	-	Pulses difference
		RGB	3 bytes	C	R	-	T	-	RGB Value 3x(0..255)
		Scene	1 byte	C	R	-	T	-	Scene Control
		Temperature	2 bytes	C	R	-	T	-	Temperature (°C)
		Red	1 byte	C	R	-	T	-	Percentage (0..100%)
26, 30, 34, 38	Slider X Output B	Dimming	4 bit	C	R	-	T	-	Dimming Control
		Shutter Step/Stop	1 bit	C	R	-	T	-	Step
		Switch	1 bit	C	R	-	T	-	Switch
		Percentage	1 byte	C	R	-	T	-	Percentage (0..100%)
		1-Byte	1 byte	C	R	-	T	-	Counter pulses (0..255)
		1-Byte Signed	1 byte	C	R	-	T	-	Counter pulses (-128..127)
		2-Byte	2 bytes	C	R	-	T	-	Pulses
		2-Byte Signed	2 bytes	C	R	-	T	-	Pulses difference
		Temperature	2 bytes	C	R	-	T	-	Temperature (°C)
		Green	1 byte	C	R	-	T	-	Percentage (0..100%)
27, 31, 35, 39	Slider X Output C	Blue	1 byte	C	R	-	T	-	Percentage (0..100%)

Below is the table of All4Touch objects

Number	Name	Object Function	Size	Flags					Data Type (DPT)
1	Heartbeat	Trigger	1 bit	C	-	-	T	-	Trigger
2	Enable/Disable	Enable/Disable	1 bit	C	R	W	-	-	Enable
3	Backlight	Enable/Disable	1 bit	C	R	W	-	-	Switch
4	Temperature	Value	2 bytes	C	R	-	T	-	Temperature (°C)
41	Led 1 Status	Switch	1 bit	C	-	W	-	-	Switch
42	Led 2 Status	Switch	1 bit	C	-	W	-	-	Switch
43	Led 3 Status	Switch	1 bit	C	-	W	-	-	Switch
44	Led 4 Status	Switch	1 bit	C	-	W	-	-	Switch
45	Led Middle Status	Switch	1 bit	C	-	W	-	-	Switch

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