



ATOUGH



KNX-K4Gx-xx

Multitouch Glass Keypad - 13 Keys



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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.

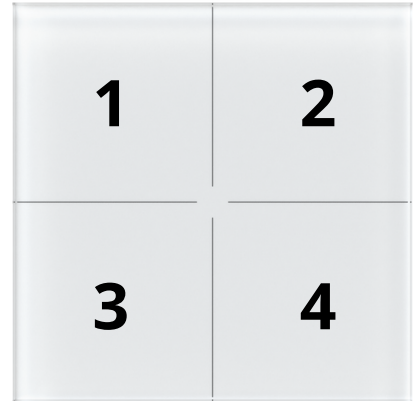
The most prominent features of the KNX-K4Gx-xx are:

- 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.

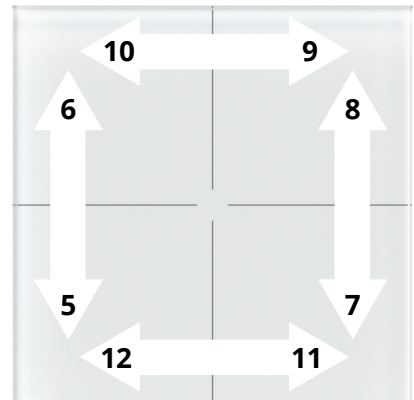


1.2 Button Definition

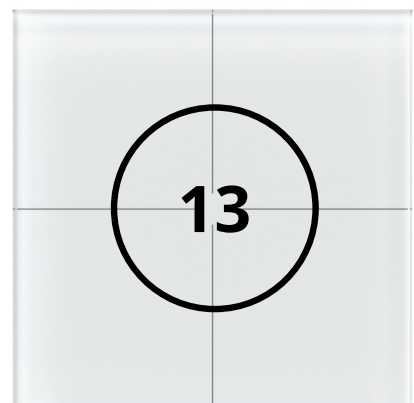
Button	Function
1	Touch button
2	Touch button
3	Touch button
4	Touch button



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.

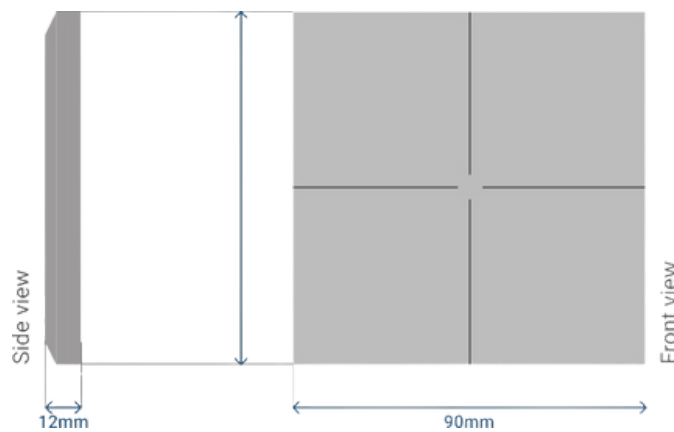


Image 1 - Multitouch glass keypad dimensions

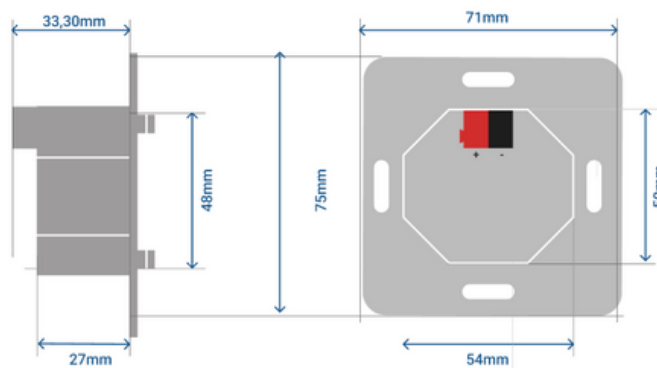


Image 2 - W-KNX BCU dimensions

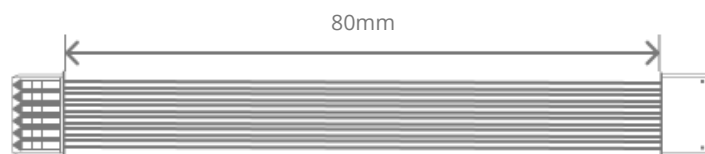


Image 3 - Connecting JST 6 wire cable dimensions

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

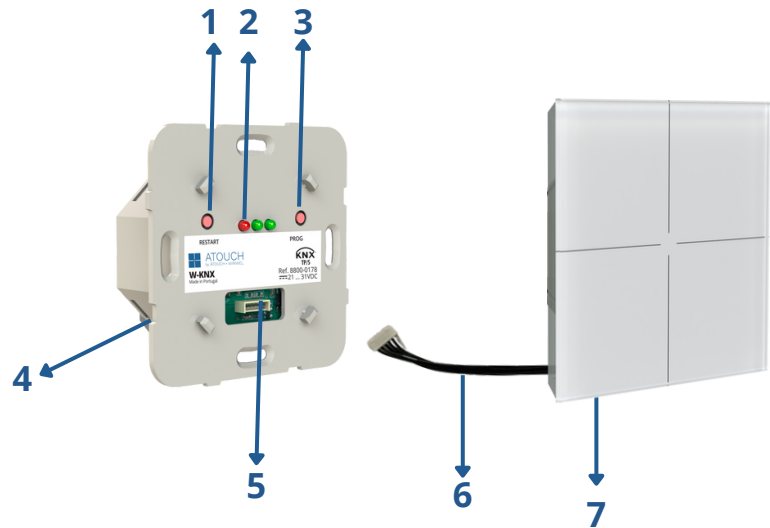


Image 4 - Connection diagram

- 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.

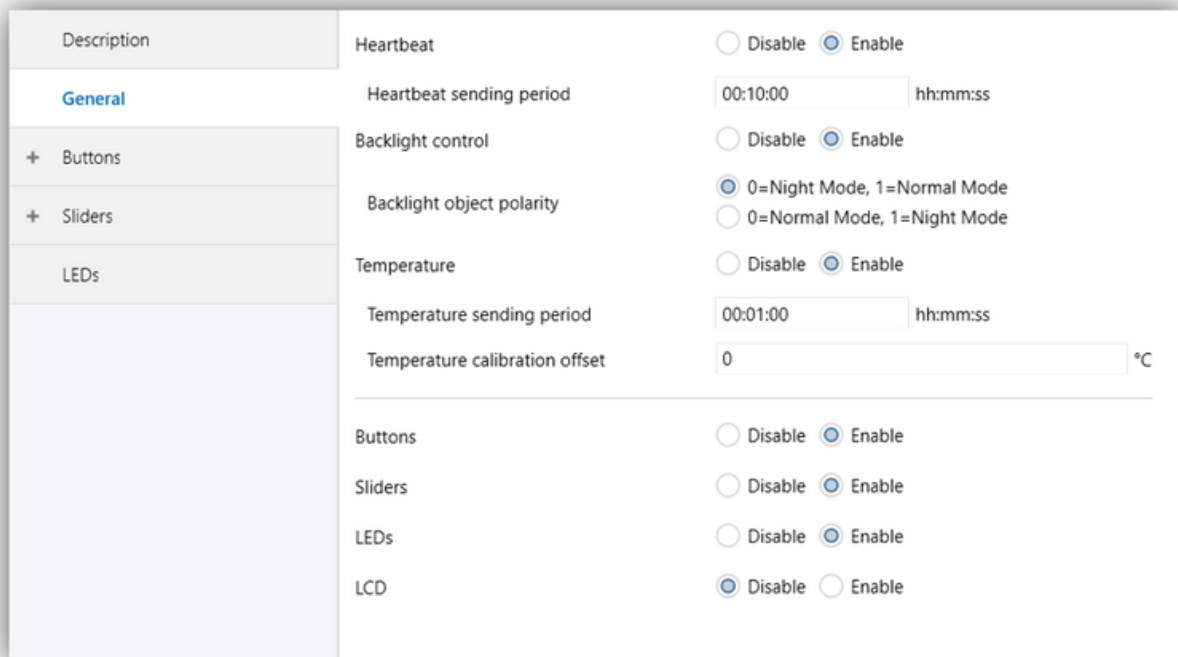



Image 5 - General

 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.

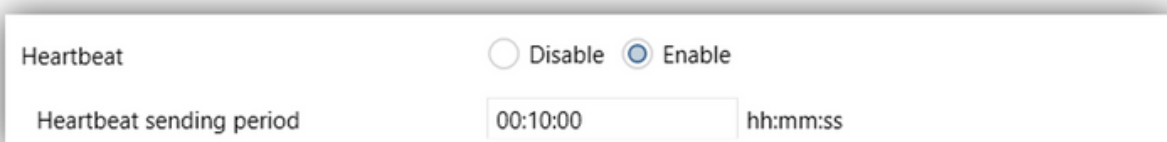
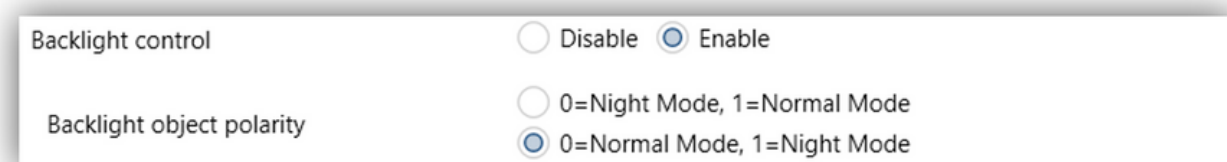


Image 6 - Heartbeat

- Backlight control [disabled/enabled]: if enabled integrates a one-bit object *Backlight* and allows you to define two operation modes via DPT *Day/Night*: 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*.

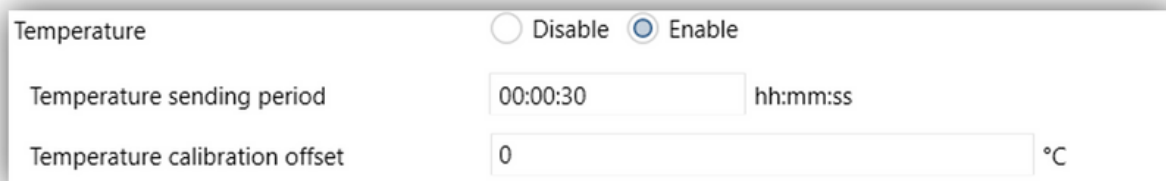


Backlight control Disable Enable

Backlight object polarity 0=Night Mode, 1=Normal Mode
 0=Normal Mode, 1=Night Mode

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.



Temperature Disable Enable

Temperature sending period hh:mm:ss

Temperature calibration offset °C

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.

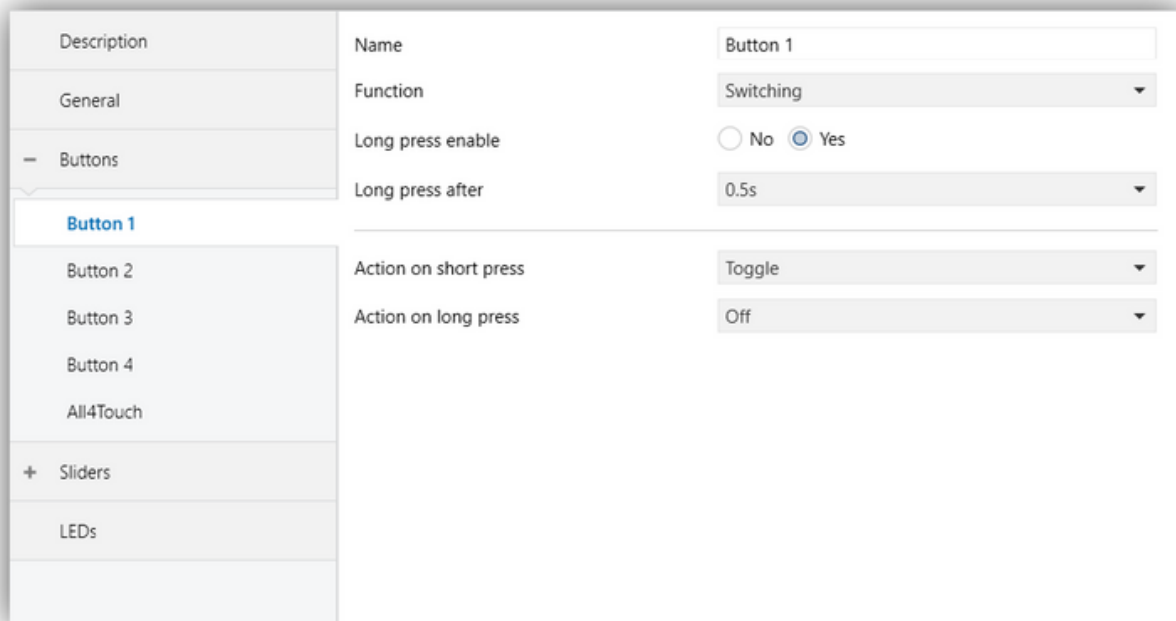


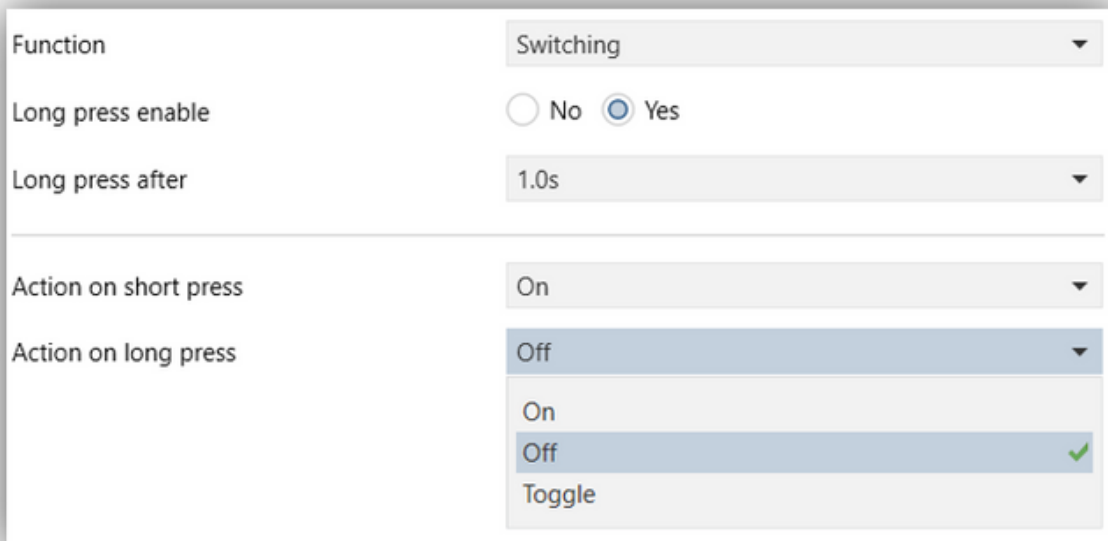
Image 9 - Buttons Configuration

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).



The screenshot shows a configuration window for the Switching function. It includes the following settings:

- Function:** Switching (selected in a dropdown menu)
- Long press enable:** Radio buttons for No and Yes, with Yes selected.
- Long press after:** 1.0s (selected in a dropdown menu)
- Action on short press:** On (selected in a dropdown menu)
- Action on long press:** A dropdown menu is open, showing options: On, Off (highlighted with a green checkmark), and Toggle.

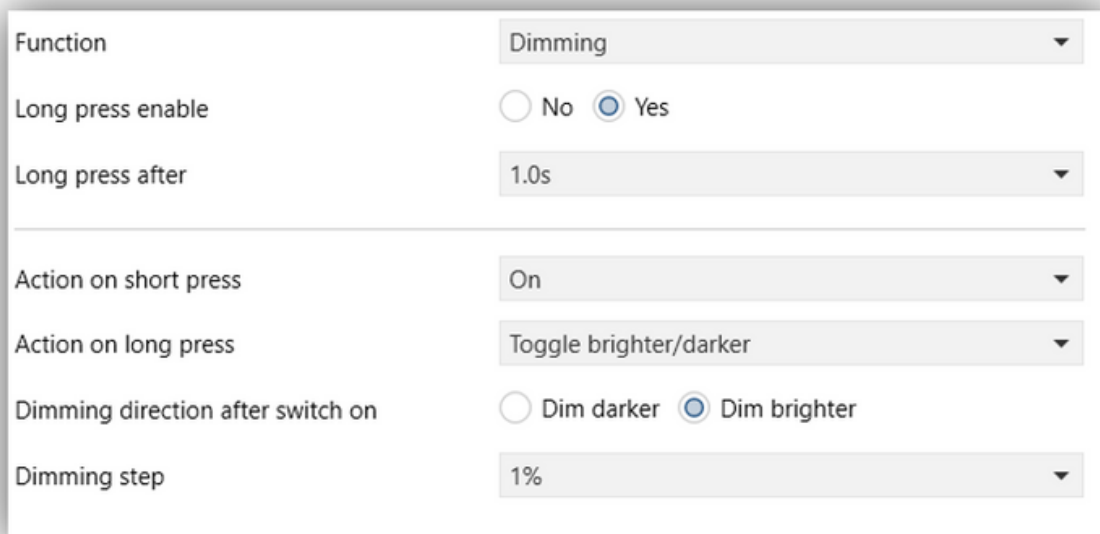
Image 10 - Individual Button – Switching Function

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%).



Function	Dimming
Long press enable	<input type="radio"/> No <input checked="" type="radio"/> Yes
Long press after	1.0s
<hr/>	
Action on short press	On
Action on long press	Toggle brighter/darker
Dimming direction after switch on	<input type="radio"/> Dim darker <input checked="" type="radio"/> Dim brighter
Dimming step	1%

Image 11 - Individual Button – Switching Function

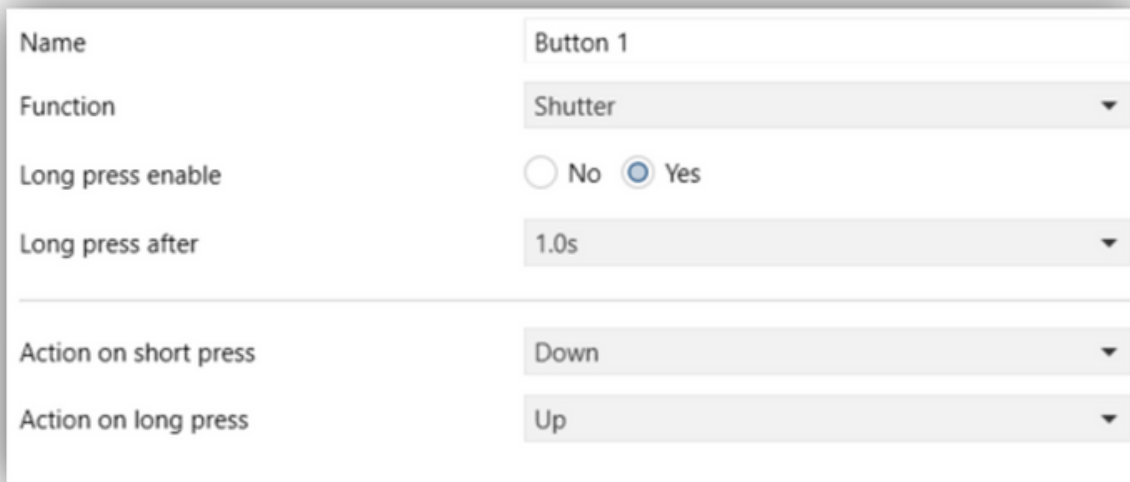
2.2.3 Shutter

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*.



Name	Button 1
Function	Shutter
Long press enable	<input type="radio"/> No <input checked="" type="radio"/> Yes
Long press after	1.0s
Action on short press	Down
Action on long press	Up

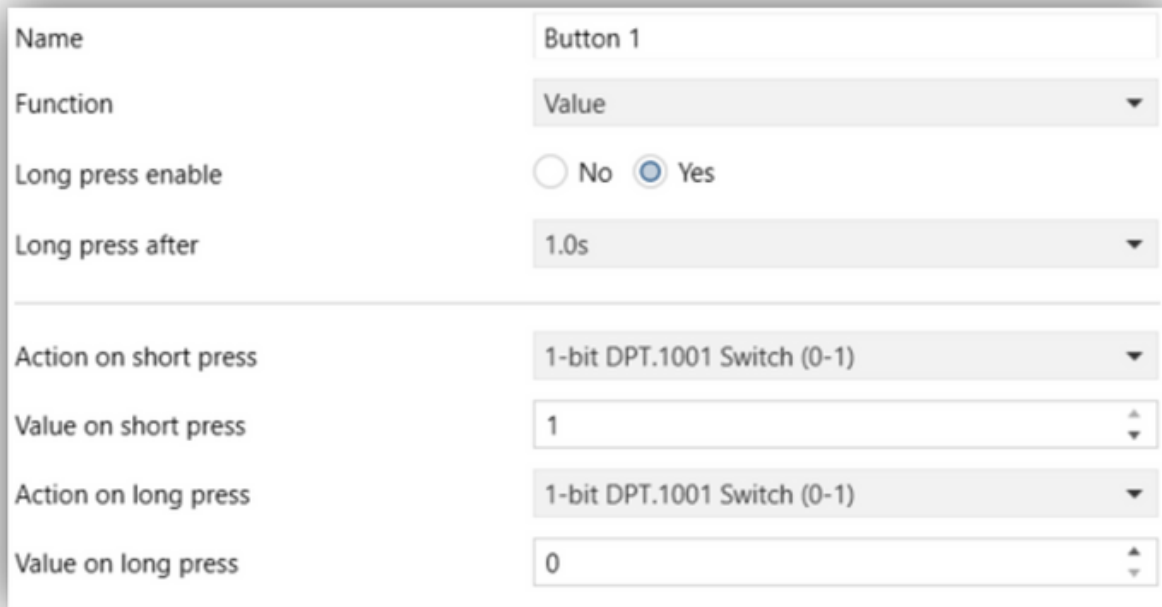
Image 12 - Individual Button – Shutter Function

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)*.



Name	Button 1
Function	Value
Long press enable	<input type="radio"/> No <input checked="" type="radio"/> Yes
Long press after	1.0s
Action on short press	1-bit DPT.1001 Switch (0-1)
Value on short press	1
Action on long press	1-bit DPT.1001 Switch (0-1)
Value on long press	0

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.

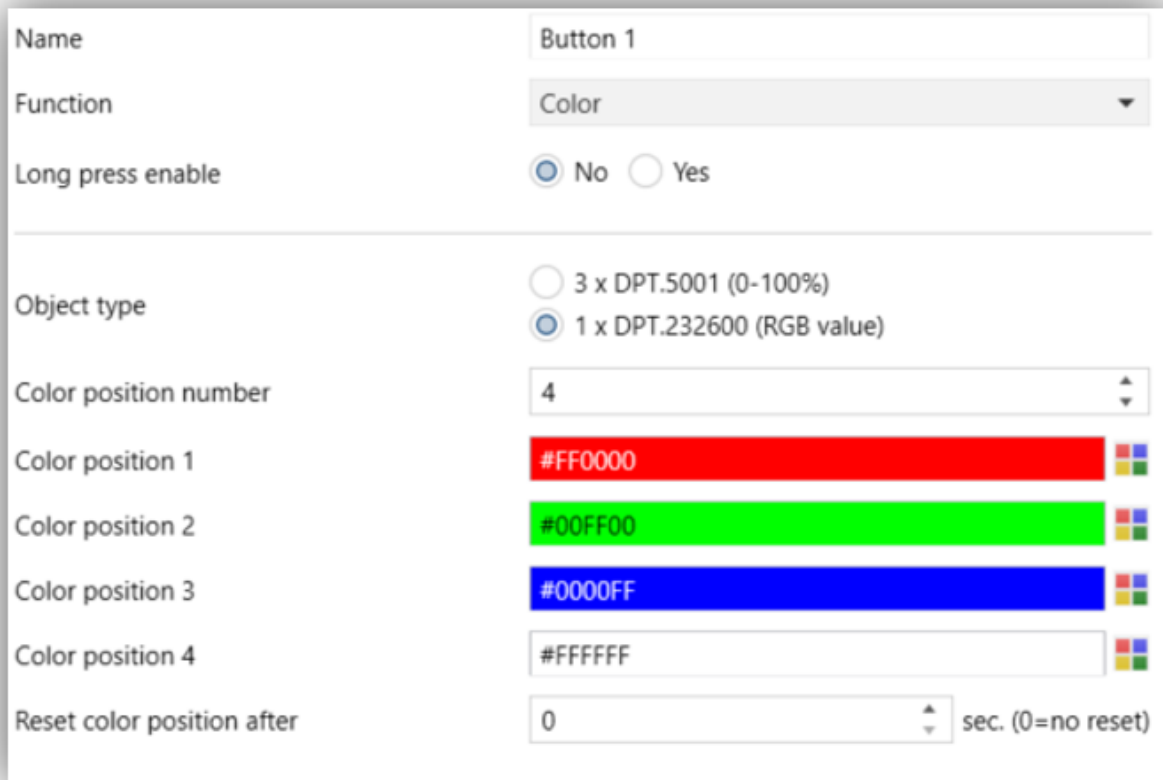
Object type - this parameter is used to determine the RGB color object value:

■ 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.



The screenshot shows the configuration interface for 'Button 1'. The 'Function' is set to 'Color'. The 'Long press enable' option is set to 'No'. The 'Object type' is set to '1 x DPT.232600 (RGB value)'. The 'Color position number' is set to 4. The color positions are: Color position 1: #FF0000 (Red), Color position 2: #00FF00 (Green), Color position 3: #0000FF (Blue), and Color position 4: #FFFFFF (White). The 'Reset color position after' is set to 0 seconds.

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.

Name	Button 1
Function	Scene
Long press enable	<input checked="" type="radio"/> No <input type="radio"/> Yes
Scene number	1
Scene mode	<input checked="" type="radio"/> Recall <input type="radio"/> Store

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).

Description	Name	Slider Left
General	Function	Dimming
+ Buttons	Action on swipe up	Dim brighter
- Sliders	Action on swipe down	Dim darker
Slider 1	Dimming step	1%
Slider 2		
Slider 3		
Slider 4		
LEDs		

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).

Name	Slider Left
Function	Switching
Action on swipe up	On
Action on swipe down	Off

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%).

Name	Slider Left
Function	Dimming
Action on swipe up	Dim brighter
Action on swipe down	Dim darker
Dimming step	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.

Name	Slider Left
Function	Shutter
Default Value: Slider Left	
Action on swipe up	Up
Action on swipe down	Down

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)*.

Name	Slider Left
Function	Value
Action on swipe up	1-bit DPT.1001 Switch (0-1)
Value on swipe up	0
Action on swipe down	1-bit DPT.1001 Switch (0-1)
Value on swipe down	0


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.

Name	Slider Left
Function	Color
Object type	<input type="radio"/> 3 x DPT.5001 (0-100%) <input checked="" type="radio"/> 1 x DPT.232600 (RGB value)
Color position number	1
Color position 1	#FF0000
Condition on swipe down	<input type="radio"/> Reset color position <input checked="" type="radio"/> Send color value
RGB value	#000000
Reset color position after	0 sec. (0=no reset)

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.

Name	Slider Left
Function	Scene
Scene number on swipe up	1
Scene number on swipe down	1

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.

LED 1	
Name	LED 1
LED status	Object value
LED 2	
Name	LED 2
LED status	Object value
LED 3	
Name	LED 3
LED status	Object value
LED 4	
Name	LED 4
LED status	Object value
LED Middle	
Name	LED Middle
LED status	<div style="border: 1px solid #ccc; padding: 2px;"> Object value <ul style="list-style-type: none"> Disable Always on Object value ✓ </div>

Image 23 - LEDs Configuration

3. Appendix

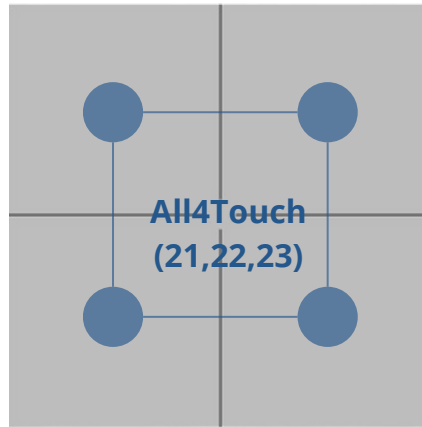
3.1 Communication Objects

Below is the table of Buttons “X” objects

Button 1 (5,6,7)	Button 2 (9,10,11)
Button 3 (13,14,15)	Button 4 (17,18,19)

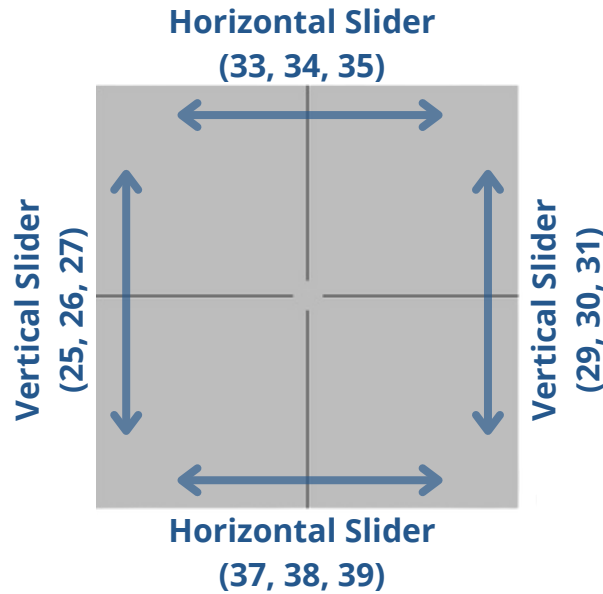
Number	Name	Object Function	Size	Flags	Data Type (DPT)
5, 9, 13, 17	Button X Output A	Switch	1 bit	C R - T -	Switch
		Shutter Up/Down	1 bit	C R - T -	Up/Down
		1-Byte	1 byte	C R - T -	Counter pulses (0..255)
		1-Byte Signed	1 byte	C R - T -	Counter pulses (-128..127)
		2-Byte	2 bytes	C R - T -	Pulses
		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
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
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)
				C	R	T	-	
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
22	All4Touch Output B	Red	1 byte	C	R	T	-	Percentage (0..100%)
		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	1 bit	C	R	-	T	-	Switch	
		Shutter Up/Down	1 bit	C	R	-	T	-	Up/Down	
		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	
		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



ATOUCH

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