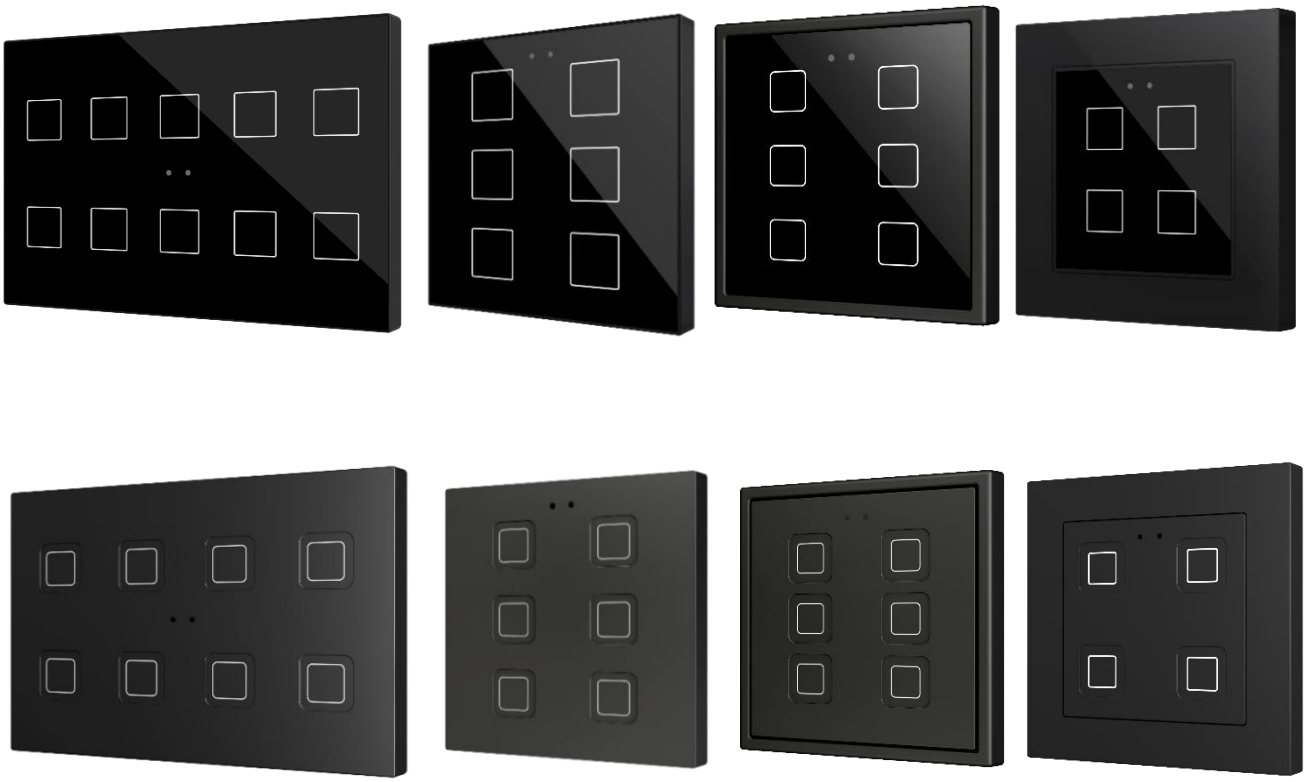


Capacitive Touch Switches

Customisable Capacitive push buttons with 1 to 10 buttons

ZVIFXLXY
ZVIF70XY
ZVIFYV2
ZVIF55XYV2

ZVITXLX
ZVIT70XY
ZVITY
ZVIT55XY

Application Program Version: [2.1]
User Manual Version: [2.1]_b

www.zennio.com

USER MANUAL

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1 INTRODUCTION

1.1 FLAT / TECLA

The **multifunction capacitive touch switches** from Zennio are a fully customisable solution for the control of rooms where user control of air conditioning systems, lighting, blinds, scenes, etc. is required.

They are offered at **a reduced size** and **weight**, with **one, two, four, six, eight or ten** capacitive touch buttons (according to the user's needs) with LED backlight to confirm the press of the buttons as well as showing states.

The versatility offered by the functionality of buttons is complemented by **two built-in analogue/digital inputs,** an **internal temperature sensor** and a **thermostat** function, as well as an elegant design with **fully customisable backlit icons**.

The most outstanding features of Flat / Tecla are:

- **Flat** allows the **front glass** design to be **fully customisable**.
- **Tecla** allows the **backlit icons** to be **fully customisable.**
- **1 / 2 / 4 / 6 / 8 / 10 touch buttons**, which can operate as individual or pair controls.
- **Horizontally or vertically oriented** configuration (only available for the two-button and six-button models).
- **Light indicator (LED)** for every button.
- **Buzzer** for an audible acknowledgement of user actions (with the possibility of disabling it either by parameter or by object).
- Possibility of **locking / unlocking the touch panel** through binary orders or scenes.
- **Welcome Back object** (binary or scene) which is sent to the KNX bus when a pulsation is detected after a certain period (configurable) of inactivity.
- Built-in **temperature sensor.**
- **Ambient luminosity sensor** for brightness automatic adjustment.

- **Proximity sensor** for quick start.
- **Two analogue/digital inputs** (for motion detectors, temperature probes, additional switches, etc.).
- **Thermostat** function.
- **Heartbeat** or periodical “still-alive” notification.
- **KNX Security**. For detailed information about the functionality and configuration of KNX security, consult the specific user manual “KNX Security”, available in the product section of the Zennio web portal (www.zennio.com).

Important: *Please note that the functionalities described in this document and their ETS configuration may be slightly different or not be included depending on the device. For detailed information, please refer to the* ANNEX II. Functionalities per model.

1.2 START-UP AND POWER LOSS

After download or device reset it is necessary to **wait for about 2 minutes without performing any action** in order to make it possible a proper calibration of:

- **Proximity sensor.**
- **Luminosity sensor.**
- **Button sensibility.**

For a correct calibration of the proximity and brightness sensors it is recommended not to remain too close or place anything less than 50cm approximately and do not hit with direct light to the device during this time.

2 CONFIGURATION

Please note that the screenshots and object names shown next may be slightly different depending on the device and on the application program.

2.1 GENERAL

In order to allow the device to perform the desired functions, a number of options must be parameterized, either related to its **general behaviour** (horizontal/vertical orientation, sounds, LED brightness levels…) or to **advanced features** (lock procedure of the touch panel, cleaning function, welcome back object, etc.).

2.1.1 CONFIGURATION

In the "Configuration" tab, the general settings are displayed. Most are checkboxes that enable/disable other functionalities.

ETS PARAMETERISATION

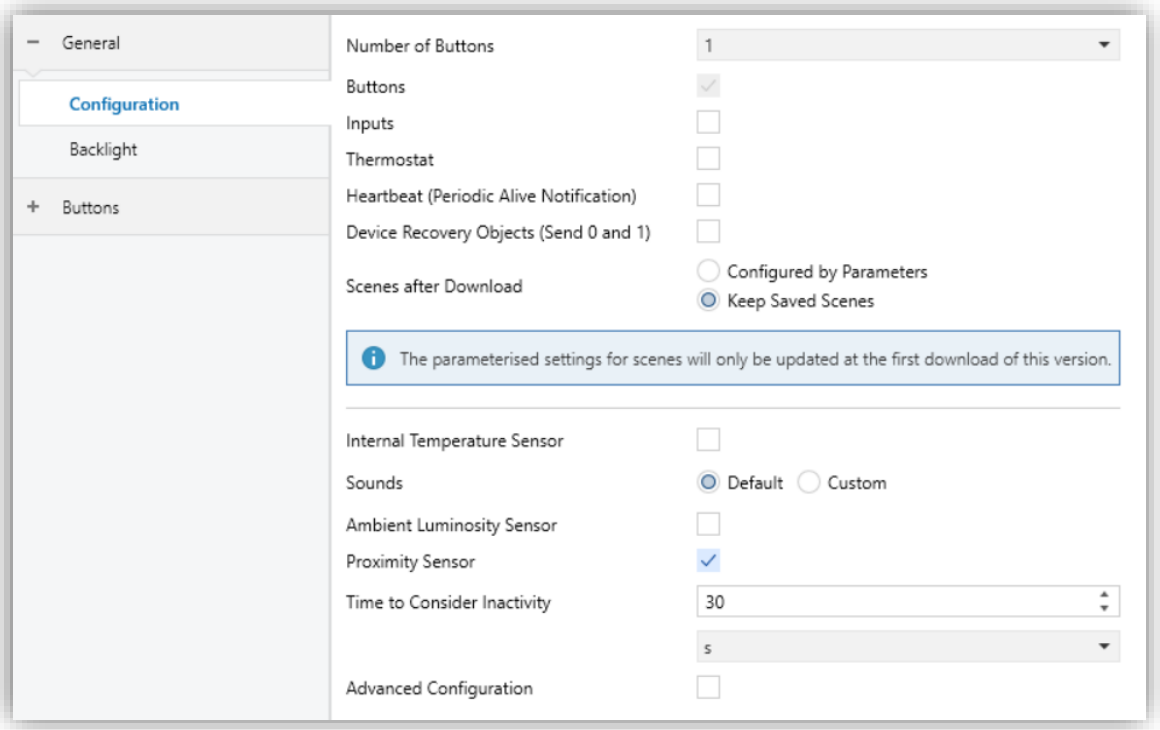


Figure 1. Main configuration.

With regard to the configuration of the capacitive push buttons, the following parameters are available (the presence of some will depend on the device):

- **Number of buttons** [*1 / 2 / 4 / 6 / 8 / 10*][1]: The application program can be downloaded in all possible versions of each device. The values of this parameter depend on the family. If the correct option is not selected, the push buttons will not work.

- **Device Orientation** [*Vertical (Normal) / Horizontal (Rotated)*]: enables **horizontal** or **vertical** orientation to be assigned to the device, for easy identification of the buttons during configuration process (ETS will show a figure with the final distribution of the push buttons).

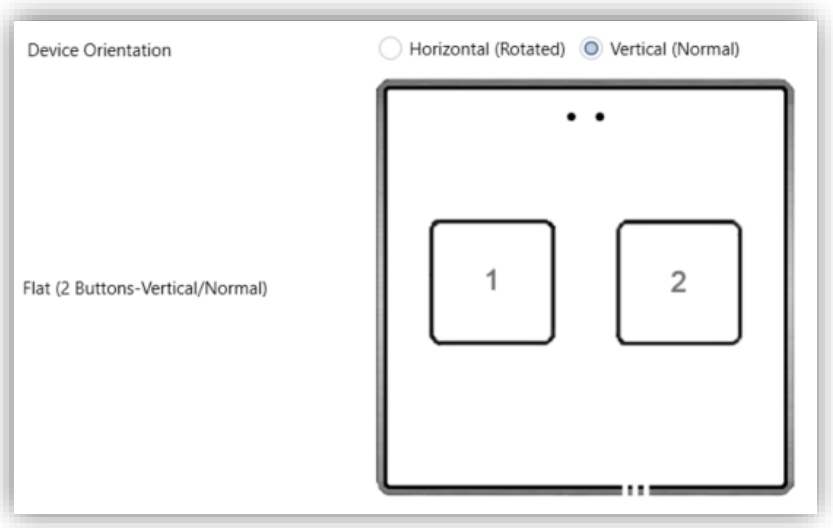
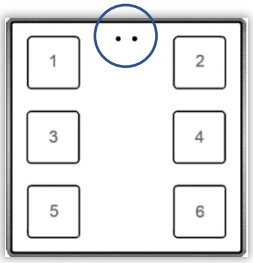


Figure 2. Orientación

To prevent inconsistency in the configuration, please note the following criterium:

Vertical (Normal):

The sensors are centred and at the top of the device.



Horizontal (Rotated):

The sensors are centred and located on the left side of the device.

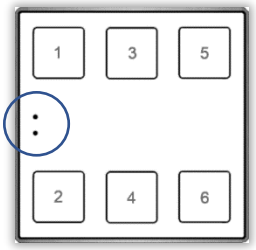


Figure 3. Orientation.

- **Buttons** [*Enabled*]: read-only parameter to make it evident that the “Buttons” tab is always enabled in the tab tree on the left. See section 2.2 for details.

[1] The default values of each parameter will be highlighted in blue in this document, as follows: [*default* / rest of options].

- **Inputs** [*Disabled / Enabled*]: enables or disables the "Inputs" tab in the tree on the left, depending on whether the device will or will not be connected any external accessories. See section 2.3 for details.

- **Thermostat** [*Disabled / Enabled*]: enables or disables the "Thermostat" tab in the tree on the left. See section 2.4 for details.

- **Heartbeat (Periodic Alive Notification)** [*Disabled / Enabled*]: incorporates a one-bit object to the project ("**[Heartbeat] Object to Send '1'**") that will be sent periodically with value "1" to notify that the device is still working (*still alive*).

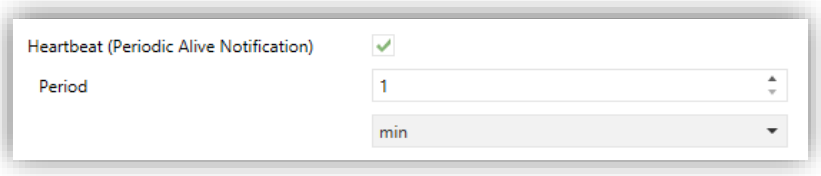


Figure 4. Heartbeat.

Note: *the first sending after download or bus failure takes place with a delay of up to 255 seconds, to prevent bus overload. The following sendings follow the parameterised period.*

- **Device Recovery Objects (Send 0 and 1)** [*Disabled / Enabled*]: this parameter lets the integrator activate two new communication objects ("**[Heartbeat] Device Recovery**"), which will be sent to the KNX bus with values "0" and "1" whenever the device begins operation (for example, after a bus power failure). It is possible to parameterise a certain **delay** [*0…255*][*s*] to this sending.

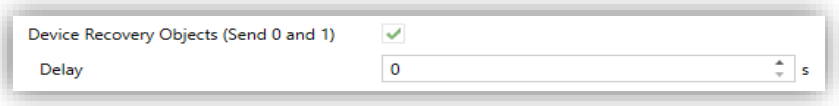


Figure 5. Device Recovery Objects.

Note: *After download or bus failure, the sending takes place with a delay of up to 6,35 seconds plus the parameterised delay, to prevent bus overload.*

- **Scenes after download** [*Configured by parameters / Keep Saved Scenes*]: Allows to assign the option to update scenes only on the first download of the device version or to delete the saved scenes after the download of the device version.

Note: *if "Keep Saved Scenes" option has been configured, but it is the first download of the device or a different version from the current one, the values*

configured by parameter will be adopted. If new scenes are added in successive downloads, it will be necessary to perform a download by checking the option "Configured by Parameters" to ensure the correct operation of these scenes.

- **Internal Temperature Sensor** [*Disabled / Enabled*]: enables or disables the "Temperature Sensor" tab in the tree on the left. See section 2.1.2 for details.

- **Sounds** [*Default / Custom*]: sets whether the sound functions (button beeps, alarm and doorbell) should work according to the pre-defined configuration or to a user-defined configuration. See section 2.1.4 for details.

- **Ambient luminosity sensor** [*Disabled / Enabled*]: enables setting the ambient luminosity sensor. When the sensor is enabled, a new tab for its configuration is shown. See section 2.1.5 for details.

- **Proximity Sensor** [*Disabled / Enabled*]: enables the proximity sensor. This functionality permits "waking up" the device when detecting presence, see section 2.1.6.

- **Time to Consider Inactivity** [*1…30…255*] [*s/min/h*]: allows setting a time after which, if no pulsation or proximity detection has occurred, the LEDs turn off (or acquire the brightness level configured, see section 2.1.3).

- **Advanced Configuration** [*Disabled / Enabled*]: enables or disables the "Advanced" tab in the tree on the left. See section 2.1.5 for details.

2.1.2 TEMPERATURE SENSOR

The **internal temperature probe** can monitor the ambient temperature of the room, thus making the device capable of reporting it to the KNX bus and of triggering certain actions when the temperature reaches specific values.

Please refer to the specific manual "**Temperature Probe**" (available in the product section at the Zennio homepage, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

2.1.3 BACKLIGHT

Capacitive touch switches are able to manage the brightness of the LED according to two operating modes: normal mode and night mode.

Please refer to the specific manual "**Brightness**" (available in the product section at the Zennio website, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

2.1.4 SOUNDS

Capacitive touch switches can emit a brief beep as acoustic feedback **when a button is pressed**.

Enabling the button sounds can be done either by parameters or through an object, being also possible to define in parameters if the button sounds should be initially enabled or not.

Moreover, these can also emit the following sounds on request (through the corresponding communication objects) if enabled:

- **Doorbell sounds**: a single beep.
- **Alarm sounds**: a sequence of brief beeps with a higher pitch. The sequence will only stop when the alarm object gets deactivated or when the user touches any of the buttons (this, in addition to deactivating the alarm, will trigger the button action).

The range of sounds emitted will be different depending on the sound type selected.

ETS PARAMETERISATION

In case the default button beep sound matches the requirements of the installation and the doorbell and alarm functions are not necessary, the **Sounds** parameter in the general "Configuration" tab (see section 2.1.1) can be set to "Default". This will also imply that the button beeps will be unconditional, as it will not be possible to disable this function through an object.

On the other hand, if set to "Custom", a specific tab named "Sounds" will show up in the tab tree on the left. The initial configuration of this screen is equivalent to the aforementioned default option. However, the following parameters will be configurable.

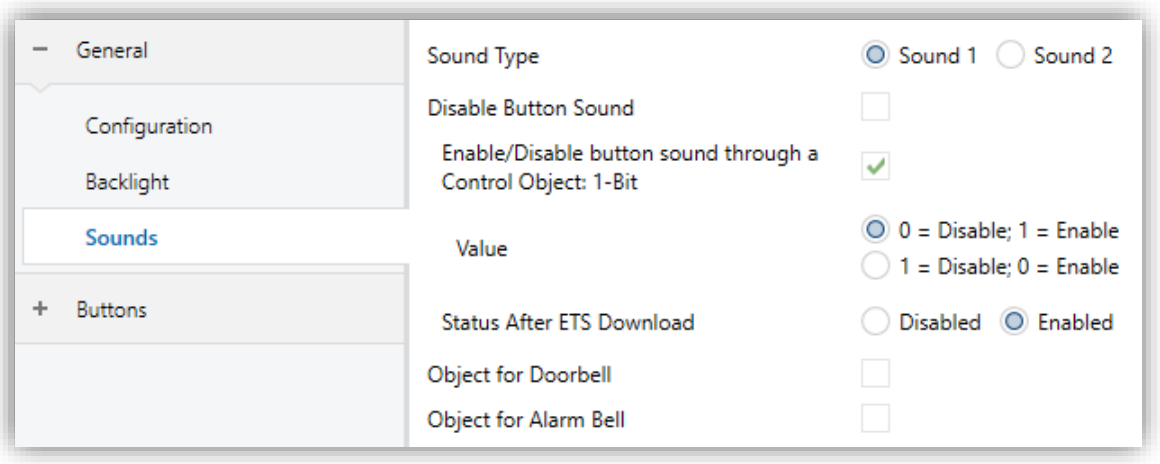


Figure 6. Sounds

The default configuration of this tab is equivalent to the one mentioned above. However, the following parameters can be customized:

- **Sound Type** [*Sound 1 / Sound 2*]: sets which sounds range uses the device.
- **Disable button sound** [*Disabled / Enabled*]: enables the buttons beeping. If enabled, the following parameters will also be available:
  - **Enable / Disable button sounds through a 1-bit object** [*Disabled / Enabled*]: makes it possible to disable / resume the button beeping function in runtime by writing to a specific object ("**[General] Sounds – Disabling button sound**"). If enabled, it will be shown:
    - **Value** [*0 = Disabled; 1 = Enabled / 1 = Disabled; 0 = Enabled*]: configures the values that will disable/enable the acoustic signals after pressing.
  - **Status After ETS Download** [*Enabled / Disabled*]: sets whether the button beeping function should start up enabled or disabled after an ETS download.
- **Object for Doorbell** [*Disabled / Enabled*]: enables or disables the doorbell function. If enabled, a specific object ("**[General] Sounds - Doorbell**") will be included into the project topology.
- **Object for Alarm Bell** [*Disabled / Enabled*]: enables or disables the alarm function. If enabled, a specific object ("**[General] Sounds - Alarm**") will be included into the project topology.

2.1.5 AMBIENT LUMINOSITY SENSOR

Capacitive touch switches incorporate **a luminosity sensor** to receive and monitor ambient brightness measurement.

Please refer to the specific manual "**Proximity and Luminosity**" (available in the product section at the Zennio homepage, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

2.1.6 PROXIMITY SENSOR

Please refer to the specific manual "**Proximity and Luminosity**" (available in the product section at the Zennio homepage, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

2.1.7 ADVANCED CONFIGURATION

Independent tab for the parameterisation of some advanced functions. These functions are explained next.

ETS PARAMETERISATION

After enabling the **Advanced configuration** from "Configuration" screen (see section 2.1.1), a new tab will be incorporated into the tree on the left.

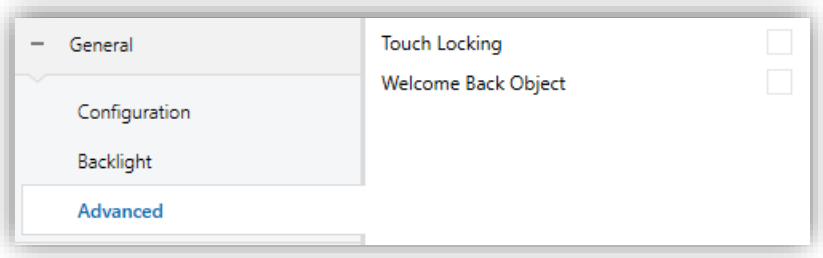


Figure 7. Advanced

- **Touch locking** [*Disabled / Enabled*]: enables or disables the "Touch locking" tab in the tree on the left. See section 2.1.7.1 for details.
- **Welcome back object** [*Disabled / Enabled*]: enables or disables the "Welcome back" tab in the tree on the left. See section 2.1.7.2 for details.

2.1.7.1 TOUCH LOCKING

The touch panel of capacitive touch switches can be optionally locked and unlocked anytime by writing a configurable one-bit value to a specific object provided for this purpose. It can also be done through scene values.

While locked, pressing on the buttons will be ignored: no actions will be performed (and no LEDs will change their states) when the user touches on any of the controls.

ETS PARAMETERISATION

After enabling **Touch Locking** in "Advanced" tab, a new tab will be incorporated into the tree on the left.

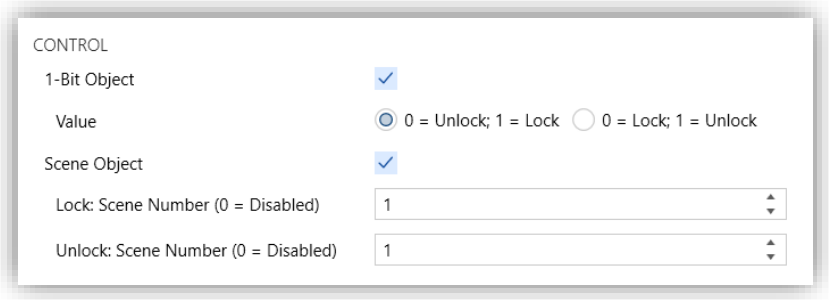


Figure 8. Touch Locking; Control

- **1 Bit Object** [*Disabled / Enabled*]: when marked, the options will show up to select which value should trigger which action.
  - **Value** [*0 = Unlock; 1 = Lock / 0 = Lock; 1 = Unlock*]: these values are received through the object "**[General] Touch Locking**".
- **Scene Object** [*Disabled / Enabled*]: when marked, two specific textboxes will show up to enter the scene numbers (0 - 64) that should trigger each action. These values are to be received through the general "**[General] Scene: Receive**" object.

2.1.7.2 WELCOME BACK OBJECT

Capacitive touch switches can send a specific object (the *welcome back object*) to the KNX bus when the user presses a touch button after a significant amount of time since the last or presence detection. Sending it or not can also depend on an **additional configurable condition** consisting in the evaluation of up to five binary objects.

Any actions that in normal operation may be executed will not be if the welcome back object is sent to the bus. Thus, if the user presses a button and this causes that the welcome back object is sent, the normal action of that button will not be triggered. On the other hand, if the additional condition is not evaluated to true, the device will react normally. Hence, the action corresponding to the button touch will be executed.

The welcome back object can consist in a **one-bit** value or a **scene** value (or both), depending on the parameterisation.

ETS PARAMETERISATION

After enabling **Welcome Back Object**, a new tab will be incorporated into the tree on the left.

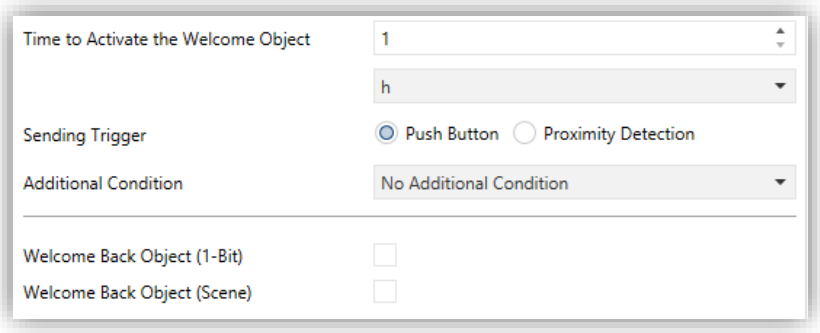


Figure 9. Welcome Back Object.

This screen contains the following parameters:

- **Timeout to Activate the Welcome Object** [*1…255*] [*s/min/h*]: sets the minimum time that should elapse after the last button touch (or presence detection, when the proximity sensor is enabled) before the next one triggers the execution of the welcome back function.

- **Sending Trigger** [*Push Button / Proximity Detection*]: sets whether the welcome back object is sending after a touch in the screen or when the proximity sensor detects presence.

- **Additional Condition**: sets if sending the welcome back object should also depend on an external condition. The option by default is [*No Additional Condition*]. The following are available too:

  - [*Do not send unless all additional conditions are 0*]: the welcome back object will only be sent if all the condition objects are found to have the value “0”.

- [*Do not send unless all additional conditions are 1*]: the welcome back object will only be sent if all the condition objects are found to have the value "1".
- [*Do not send unless at least one of the additional conditions is 0*]: the welcome back object will only be sent if at least one of the condition objects is found to have the value "0".
- [*Do not send unless at least one of the additional conditions is 1*]: the welcome back object will only be sent if at least one of the condition objects is found to have the value "1".

- **Welcome Back Object (1-Bit)** [*Disabled / Enabled*]: checkbox to enable the sending of a 1-bit value (through "**[General] Welcome back**") when the welcome back function is triggered and the condition (if any) evaluates to true. The desired value should set in **Value** [*Send 0 / Send 1*].

- **Welcome Back Object (Scene)** [*Disabled / Enabled*]: checkbox to enable the sending of a scene run request (through "**[General] Scene: send**") when the welcome back function is triggered, and the condition (if any) evaluates to true. The desired value should be set in **Scene Number** [*1…64*].

2.2 BUTTONS

Capacitive touch switches have **one, two, four, six, eight or ten buttons** at the user's disposal for the execution of actions.

The distribution of the buttons will depend on the device chosen and the orientation selected in "Configuration" (see section 2.1.1), being possible to configure them as single button controls or in pairs by **combining any two of them**.

- **Capacitive Touch Switches with only one button**: only one individual control is possible (two-button controls are not available). Moreover, it can only be configured under the normal (vertical) orientation.

- **Capacitive Touch Switches with two buttons**: up to two individual controls or a pair.

- **Capacitive Touch Switches with four buttons:** up to four one-button controls can be configured, or up to two two-button controls.

- **Capacitive Touch Switches with six buttons**: up to six one-button controls, or three two-button controls can be configured.
- **Capacitive Touch Switches with eight buttons**: up to eight one-button controls, or four two-button controls can be configured.
- **Capacitive Touch Switches with ten buttons**: up to ten one-button controls, or five two-button controls can be configured.

2.2.1 CONFIGURATION

The following is a list of the functions that can be assigned to each button.

- **Disabled** (the button will not react to user presses nor **.**
- **Pair A**, **B, C, D or E.** The number of available pairs depends on the selected model), being the function of such pair one of the following:
  - Switch.
  - Two objects (Short press/Long press).
  - Dimmer
  - Shutter.
  - Room State (Outdoor).
- **Individual** (one-button control):
  - Switch.
  - Hold & release.
  - Two Objects (Short press/Long press).
  - Scene.
  - Scaling Constant.
  - Counter Constant.
  - Float Constant.
  - Dimmer.
  - Shutter.
  - LED indicator.
  - Room State (Indoor).
  - Room State (Outdoor).

Apart from the button function itself, the desired behaviour of the button LEDs can be set. The different illumination modes have been detailed in ANNEX I. LED Illumination Modes.

The next sections explain the configuration involved for each of the above functions.

ETS PARAMETERISATION

An independent tab for the parameterisation of the buttons is shown in ETS by default, initially containing only a sub-tab named “Configuration”.

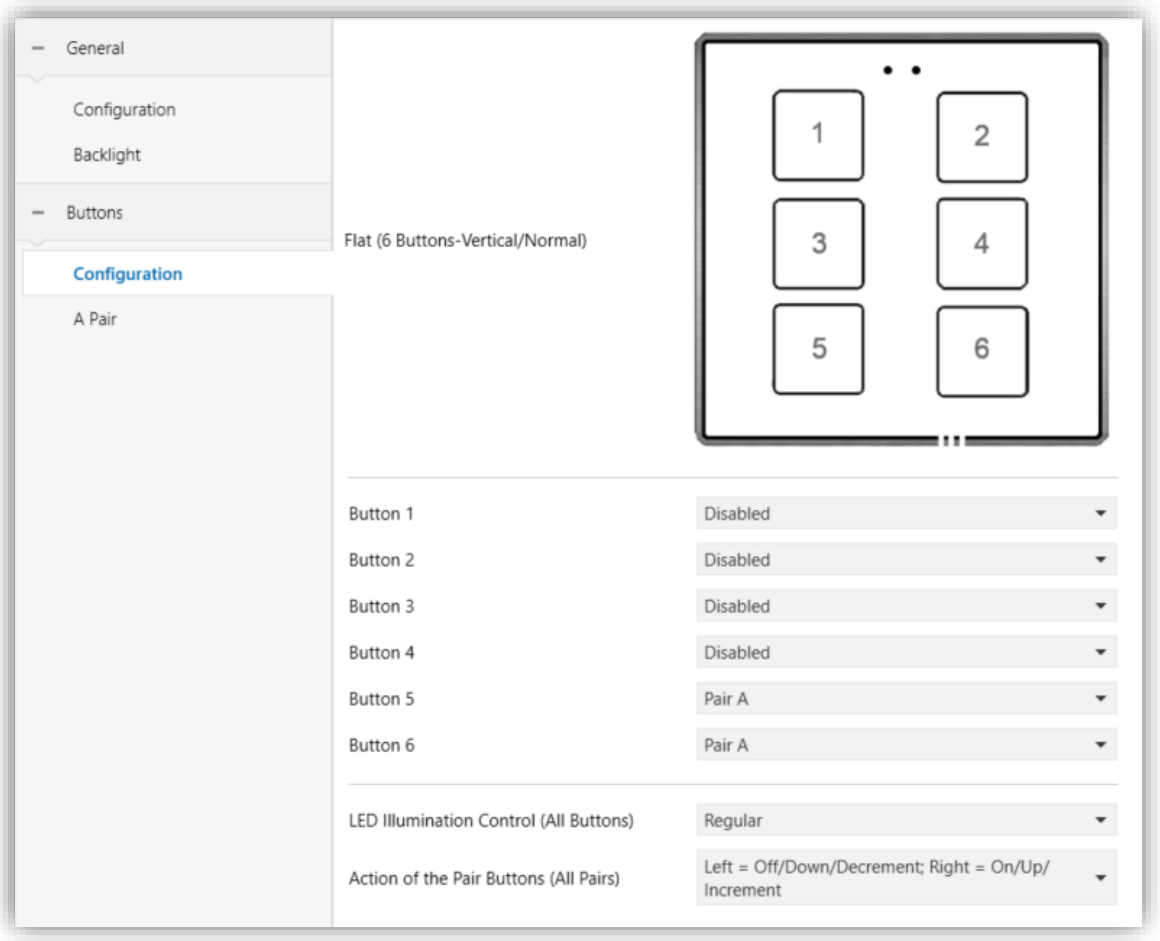


Figure 10. Buttons - Configuration

One drop-down list with the following options is shown per **button**:

- [*Disabled*]. See section 2.2.1 for details.
- [*Individual*]. Selecting this option brings a new tab ("x Button", where "x" depends on the button), which will make it possible to configure the functionality of that particular touch button. See section 2.2.2 for details.
- [*Pair X*]. Sets that this touch button will belong to a two-button control (where X is A, B, C, D or E, depending on the model). Once one pair has been assigned to two buttons (and not before), a new tab ("X Pair") will show up in the tab tree, in order to configure the desired functionality. See section 2.2.3 for details.

A drop-down list (**LED Illumination Control (All buttons)**) is provided at the bottom of the window so a joint behaviour can be configured for the illumination of the LEDs. The options are (please refer to ANNEX I. LED Illumination Modes for details):

- [*Regular*]

- [*State-Dependent (where available)*]
- [*State-Dependent (where available) (both LEDs)*]
- [*Dedicated Object*]
- [*Configure Every Button (Pair) Separately*]: in case of selecting the last option, there will be a specific parameter **for each control** to specifically select the desired behaviour of the LED (or LEDs).

Finally, if at least one two-button control is being configured (either Pair X), an additional parameter (**Action of the pair buttons (All Pairs)**) will be available to determine an operation criterion. The options are:

- [*Left = Off/Down/Decrement; Right = On/Up Increment*]
- [*Right = Off/Down/Decrement; Left = On/Up Increment*]
- [*Every button pair is configured separately*]

2.2.2 INDIVIDUAL

Buttons configured to work as individual (separate) controls can be assigned any of the following control functions:

- **LED indicator**: user presses will not trigger any function although the LED will turn on or off depending on the values received from the bus.
- **Switch**: whenever the user touches the button, a binary value will be sent to the KNX bus. This value is configurable and may be "0", "1" or alternate with every touch according to the sequence 1 → 0 → 1 → …

  Under a "State-dependent" LED illumination, the LED will remain on/off according to the current state (on/off) of the object.
- **Hold & Release**: as soon as the user touches the button, a binary value ("0" or "1", configurable) will be sent to the KNX bus. Moreover, as long as the user releases the button, another value ("0" or "1", also configurable) will be sent through the same object.

  The "State-dependent" LED mode is not available for this function.
- **Two Objects (Short Press/Long Press)**: specific binary values will be sent both after a short or a long press (a different object will be used in each case).

Under a "State-dependent" LED illumination, the LED will remain on/off according to the current state (on/off) of either one object or the other, which can be configured in parameters. However, if **LED Illumination Control** (**All Buttons)** has been set to "State-dependent (where available)", only the short press object will apply.

- **Scene**: after the user touches the button, an order to run a specific scene (configurable) will be sent to the bus. If enabled in parameters, orders to save the scene can also be sent to the bus after a three-second press on the button.

  The "State-dependent" LED mode is not available for this function.

- **Scaling Constant**: sends a percentage value (configurable) to the bus when the user touches the button.

  Under a "State-dependent" LED illumination, the LED will remain on/off depending on whether the current value of the object matches the one parameterised. This object can also be written from the bus, which will update the LED according to the new value.

- **Counter Constant**: sends an integer value (configurable) to the bus when the user touches the button. This value can be one-byte or two-byte sized, as well as signed or unsigned. The available ranges are shown next:

	1-byte	2-byte
Unsigned	0 – 255.	0 – 65535.
Signed	-128 – 127.	-32768 – 32768.

Table 1. Value range – Counter type constant

  The "State-dependent" LED illumination mode is analogous as for the Scaling Constant function.

- **Float Constant**: sends a two-byte floating point value (configurable) to the bus when the user touches the button. The available range is -671088.64 to 670433.28.

  The "State-dependent" LED illumination mode is analogous as for the Scaling Constant and Counter Constant functions.

- **Dimmer**: implements a one-button light control that sends orders to the KNX bus, which can then be executed by light dimmers. These orders can be configured for short press or long press:

  - Action on Short Press:

    - Send On*:* a value of On is sent.
    - Send Off*:* a value of Off is sent.
    - Switch Between On and Off: toggles between sending On and Off. Commutation is initiated according to the lighting percentage status. If a value of 0% is present, an On will be sent. Otherwise, the value sent will be an Off.
    - Scene: the configured scene value is sent.
    - Absolute Dimming: a percentage set in the range [0-100]% is sent.

  - Action on Long Press:

    - Dimming Down*:* the parameterised control step is adjusted downwards.
    - Dimming Up*:* the parameterised control pitch is adjusted upwards.
    - Switch Between Dimming Up and Down*:* toggles between dimming up and down based on the last percentage status value. In case of 0%, it will send the object to increment, and vice versa for the value of 100%. If this value is between 1-99%, it will send the inverse regulation step to the last one sent.

  Note that the device considers that the **current light level** is the value of a specific one-byte object provided to be written from the KNX bus (i.e., to receive feedback from the dimmer). This object is internally updated after a short or long press but linking it to the real dimmer status is highly recommended.

  Under a "state-dependent" LED illumination, the LED will remain on/off according to the value of the aforementioned status object (i.e., off when the value is 0% and on in any other case).

  Note: *after a bus recovery, the light dimmer should send back the status object so the control and the LED update their own state, instead of simply recovering the previous one.*

- **Shutter**: implements a one-button shutter control that sends orders to the KNX bus, which can then be executed by an actuator. Two control types can be configured:

  - Standard: the device will react to both long and short presses, being possible to send the bus the following commands:

    - Move (raise/lower) orders (on **long presses**).
    - Stop/Step orders (on **short presses**).

    Being a one-button control, the direction of the motion will alternate (upwards/downwards) for both the move and the step orders after every long press. However, there are some exceptions to this alternation:

    - On a short press: a step-up order will be sent if the last long press made the shutter move up, or if the current position is found to be 100%. On the other hand, a step-down order will be sent if the last long press made the shutter move down or if the current position is found to be 0%.
    - On a long press: a move-up order will be sent if the last short press caused a step-down order or if the current position is found to be 100%. On the other hand, a move-down order will be sent if the last short press caused a step-up order or if the current position is found to be 0%.

  As usual in the KNX standard, **stop/step** orders are interpreted by the actuators as a request to move the slats one step up or down (in case the shutter is still) or as a request to interrupt the motion of the shutter (in case it is already moving up or down).

  Capacitive touch switches are aware of the **current position of the shutter** through a specific object which should be linked to the analogous object of the shutter actuator in order to receive feedback. This object is initialised with value "50%" after a download or a bus failure; therefore, the actuator is required to update it with the real value after the bus recovery.

  - Hold & Release: the device will send an order to move the shutter when the button is touched, and the order to stop it as soon as it is released. Hence, short or long touches have the same effect: the shutter will remain in motion as long as the user keeps holding the button.

The direction of this motion (upwards or downwards) will **alternate** with every touch, according to the following sequence: downwards → upwards → downwards → …

However, there are some exceptions to this alternation:

- If the position of the shutter is found to be 0%, the next order will lower the shutter.
- If the position of the shutter is found to be 100%, the next order will raise the shutter.

The "state-dependent" LED illumination mode is not available for this function.

- **Room State (Indoor):** allows controlling the room states (*Normal*, *Make-Up Request, Do Not Disturb*). Pressing the button will activate the *Do Not Disturb* or *Make-Up Request* status (as configured) or deactivate it to return to *Normal* status.

  Depending on the parameterisation and the current value of object, after a short press the following values will be transmitted.

Parameterisation	Current Object Value	Transmitted Value
Make-Up Request	Do Not Disturb / Normal	Make-Up Request
	Make-Up Request	Normal
Do Not Disturb	Normal / Make-Up Request	Do Not Disturb
	Do Not Disturb	Normal

Table 2. Room States

  If the LED illumination es "State-dependent", LED will light up when the current object value coincides with the parameterised value.

- **Room State (Outdoor)**: LED illumination of the button indicates whether the room requires cleaning or is in "Do Not Disturb" status. In addition, with a long press, it is possible to query the status of the room (occupied/not occupied) or to change the status of the room to "Make-Up In Progress".

  The following options can be configured:

  ➢ Disabled: the push button does not react to presses.

- Check Occupancy: allows notification of the occupancy status of the room by flashing the indicator LED. Once the press has exceeded the time threshold configured for its detection, a beep will be emitted and the parameterised indicator for the current occupancy status will flash for 5 seconds. After this time, the usual DND/MUR indication returns.

  If a bus failure occurs while an occupancy query is in progress, the device will start with the corresponding room status. It would be necessary to press again to obtain this information.

Example: • *Blink: Occupied*

- *If the occupancy status object is set to "Occupied" and a long press is made → LED flashes for 5 seconds.*
- *If the occupancy status object is set to "Not occupied" and a keystroke is made → Nothing happens*

- Make-Up In Progress: allows notification of the start and end of room cleaning. Once the press has exceeded the time threshold configured for its detection, a beep will be emitted, and different sendings will be made to the bus according to the selected options (not mutually exclusive):

  - 1-Bit Object: a specific object is displayed for the " Make-Up In Progress" status, which will take a On/Off value.
  - Link with Room State Object: the action of the button is linked with the room status object so that each press will send a message to the bus, switching the status between “Make-Up In Progress”/“Normal”.
  - Notification for “Make-Up In Progress” Status: allows notification of the "Make-Up In Progress" status by flashing the corresponding LED indicator.

Example 1: • *1-Bit Object: ✓*

After pressing:

- *Sending* Make-up in progress *object* = 1 (*On*)
- *Room state object → No sending or updating of the status*
- *Notification → No notification of status "Make-up in progress"*

With a new press:

- *Sending* Make-up in progress *object* = 0 (*Off*).

Example 2: • *1-Bit Object: ✓* • *Link with Room State Object: ✓*

After pressing:

- *Sending* Make-up in progress *object = 1 (On)*
- *Sending* Room State *object = 3 (Make-up in progress)*
- *Notification → No notification of status "Make-up in progress"*

With new press:

- *Sending* Make-up in progress *object = 0 (Off)*
- *Sending* Room State *object = 0 (Normal)*

Example 3: • *1-Bit Object: ✓* • *Link with Room State Object: ✓*

- *Notification for "Make-Up In Progress" Status: ✓*

After pressing:

- *Sending* Make-up in progress *object = 1 (On)*
- *Sending* Room State *object = 3 (Make-up in progress)*
- *Notification → Flashing of the corresponding indicators*

With new press:

- *Sending* Make-up in progress *object = 0 (Off)*
- *Sending* Room State *object = 0 (Normal)*
- *Notification → Flashing of indicators stops.*

ETS PARAMETERISATION

When an individual button has been enabled, a specific tab ("n Button") becomes available under "Buttons" in the tree on the left.

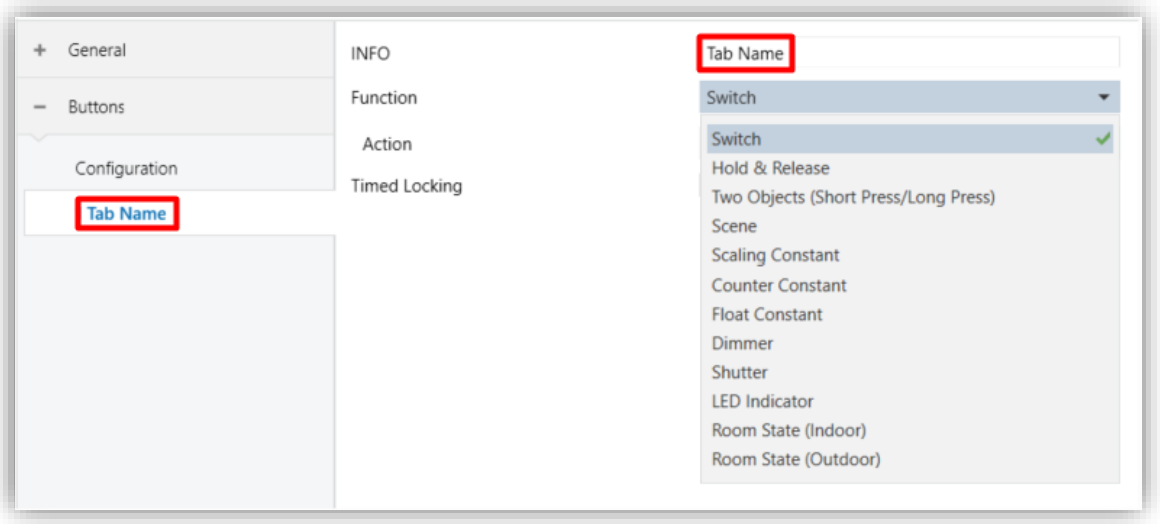


Figure 11. Individual Button.

Textbox **INFO** allows changing the default name of the tab in the left menu, as shows the following figure, identifying each of the enabled controls and their communication objects with the prefix **"[Ix][*INFO*]".**

The main parameter that needs to be configured is:

- **Function** [*Switch / Hold & Release / Two Objects (Short press/Long press) / Scene / Scaling constant / Counter constant / Float constant / Dimmer / Shutter / LED indicator / Room State (Indoor) / Room State (Outdoor)*]: sets the desired function for the button.

However, there is another parameter that appears for all previously selected functions except *Shutter* and *LED indicator*, as its use in these cases is not useful.

- **Timed Locking** [*Disabled / Enabled*]: allows an individual button to be locked for a configured time after being pressed. When marked, a specific parameter appears **Lock Time** [*0...5...60*][*s*]. It starts counting as soon as the button is released.

  After bus failure, the button starts without timed locking. It will start again when it is pressed again. This locking is independent of the general button locking, it has no influence on the locking object.

In case the option "Configure every button (pair) separately" has been selected in the **LED Illumination Control Parameter (All Buttons)** in the "Configuration" tab (see section 2.2.1), the additional parameters will be displayed:

- **LED Illumination Control** [*State-Dependent / Regular / Dedicated Object*]. These values are different for *Room State (Outdoor)* control, whose LED illumination control is particular.

  In case of selecting the latter, the object "**[Ix][] LED – Switch Control**" will be included in the project topology and a new parameter to select the **value** [*0 = Off; 1 = On / 0 = On; 1 = Off*] to switch off and on the LED shows up:

  - **Independent of Activity** [*Disabled / Enabled*]: sets the corresponding LED to illuminate as if it were always in the active state, ignoring the inactivity state. The rest of the controls that have not enabled this functionality will continue to illuminate according to the activity status.

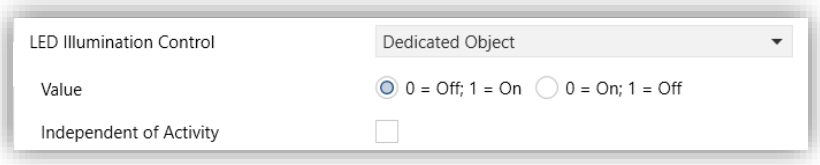


Figure 12. Individual Button – LED Illumination – Dedicated Object

Note: *For further information, please refer to section 2.2.1 and ANNEX I. LED Illumination Modes.*

Depending on the function, some more parameters are involved (as described next). Please note that in the next pages "**[Ix][]**" is used as a general notation for the communication objects, where "n" depends on the particular button pair.

2.2.2.1 LED INDICATOR

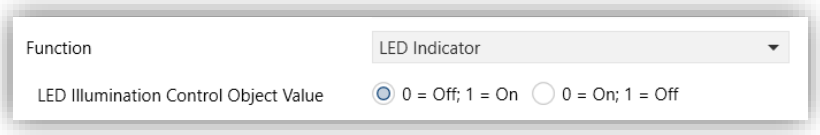


Figure 13. Individual Button – LED indicator.

- **LED illumination control object value** [*0 = Off; 1 = On / 0 = On; 1 = Off*]: sets the behaviour of the LED of the button. The options are like those of the dedicated-object LED illumination available for other control types.

Note: *this parameter does not depend on the option selected for **LED Illumination Control (All Buttons)** (see section 2.2.1).*

After assigning this function to the button, object "**[Ix][] LED – Switch Control**" is included in the project topology, so that the values that determine the state of the LED at a given time can be received from the bus.

2.2.2.2 SWITCH

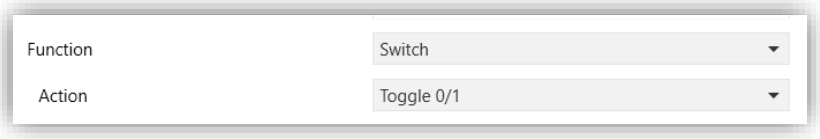


Figure 14. Individual Button - Switch.

- **Action** [*Toggle 0/1 / Send 0 / Send 1*]: sets the value to be sent to the bus (through object "**[Ix][] Switch – Control: "X"**", where X is the parametrised action) when the user touches the button.

2.2.2.3 HOLD & RELEASE

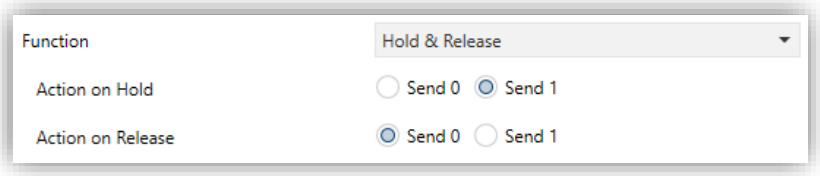


Figure 15. Individual Button - Hold & Release.

- **Action on Hold** [*Send 0 / Send 1*]: sets the value to be sent to the bus (through "**[Ix][] Hold & Release – Switch Control**") when the user touches the button.
- **Action on Release** [*Send 0 / Send 1*]: sets the value to be sent to the bus (again, through "**[Ix][] Hold & Release – Switch Control**") when the user stops touching the button.

2.2.2.4 TWO OBJECTS (SHORT PRESS / LONG PRESS)

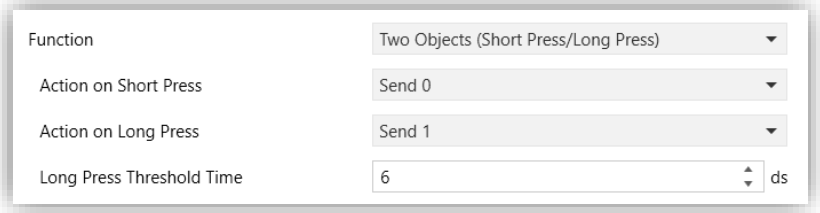


Figure 16. Individual Button - Two Objects (Short Press/Long Press).

- **Action on Short press** [*Send 0 / Send 1 / Toggle 0/1 / Send 1-byte value*]: sets the value to be sent to the bus (through "**[Ix][] Two objects - Short Press Control: "X",** where X is the parametrised action) when the user short-presses the button.

  In case of selecting the latter, an additional parameter (**Value** [*0...255*]) will be displayed to enter the desired one-byte value.

- **Action on Long press** [*Send 0 / Send 1 / Toggle 0/1 / Send 1-byte value*]: sets the value to be sent to the bus (through "**[In][] Two objects - Long Press Control: "X"**, where X is the parametrised action) when the user long-presses the button.

- **Long Press Threshold Time** [*0…6…50][ds*]: sets the minimum time the user should hold the button in order to consider it a long press.

2.2.2.5 SCENE

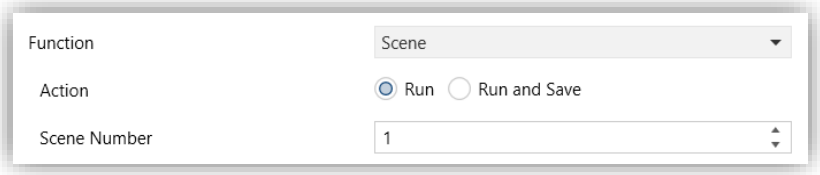


Figure 17. Individual Button - Scene.

- **Action** [*Run / Run and Save*]: sets whether the value to be sent to the KNX bus (through "**[General] Scene: send**") when the user touches the button will always be a scene run request or –depending on the length of button press– a scene run or save request.

- **Scene number** [*0…1…64*]: number of the scene to be sent to the bus, both in the case of the run requests and the save requests.

2.2.2.6 SCALING CONSTANT / COUNTER CONSTANT / FLOAT CONSTANT

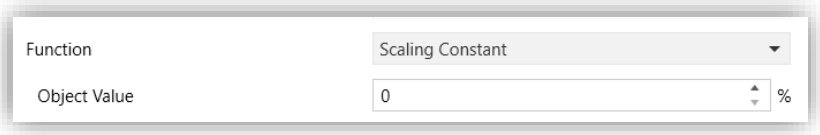


Figure 18. Individual Button - Scaling Constant

- **Object Value** [*0…100*][%]: sets the value to be sent to the KNX bus when the user touches the button. The available range and the object through which the value is sent depend for each case, as the table below shows.

  In case of selecting Counter Constant, two specific parameters (**Size** and **Signed**) will be displayed to respectively define the size of the constant ("1 byte" or "2 bytes") and whether it is a signed or unsigned value. Depending on that, the range and the name of the object will vary.

	Available Values	Name of the Object
Scaling Constant	0% – 100%	[Ix][] Percentage - Control
Counter Constant	0 – 255 -128 – 127 0 – 65535 -32768 – 32767	[Ix][] Integer – 1-Byte Unsigned Control [Ix][] Integer – 1-Byte Signed Control [Ix][] Integer – 2-Bytes Unsigned Control [Ix][] Integer – 1-Byte Signed Control
Float Constant	-671088.64 – 670433.28	[Ix][] Float – 2-Byte Float

Table 3. Constant type numerical control

2.2.2.7 DIMMER

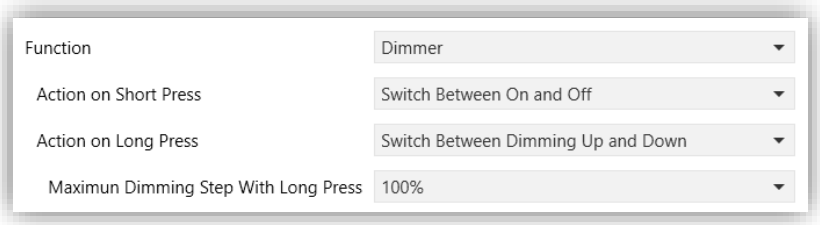


Figure 19. Individual Button - Dimmer

Depending on which action is configured for short press, a different object is used. In the case of switching On/Off commands, they are sent via the one-bit object **"[Ix][] Light - Switch Control"**. If the sending of an absolute dimming is chosen, it is used the object **"[Ix][] Light - Absolute Dimming"**. However, to launch a scene, the object involved will be **"[General] Scene: send"**.

As for the increment / decrement / stop on long press commands, they will be sent via the four-bit object **"[Ix][] Light - Dimming Control"**.

On the other hand, the "**[Ix][] Light – Percentage Status**" one-byte object may be linked to the light level status object of the dimmer (in fact, this object is only intended to receive

values from the bus, not to send them). As explained at the beginning of this section, the state-dependent LED lighting will be determined by the value of this object (LED off at 0% and on at any other level).

The parameters for this function are:

- **Action on Short Press** [*Send Off / Send On / Switch Between On and Off / Absolute Dimming / Scene*]: sets the value to be sent to the bus (via the corresponding object) when the user makes a short press on the button.

  If the fourth option is selected, an additional parameter appears (**Value** [*0...50...100*]%) to enter the desired percentage value. With the last option, another parameter called **Scene Number** appears with possible values between [*1...64*].

- **Action on Long Press** [*Dimming Down / Dimming Up / Switch Between Dimming Up and Down*]: sets the action to send to the bus when the user performs a long press on the button.

  - **Maximum Dimming Step With Long Press** [*100% / 50% / 25% / 12,5% / 6,25% / 3,1% / 1,5%*]: defines the dimming step to be sent (through "**[Ix][] Light - Dimming Control**") to the light dimmer with every long press.

    Note: *since dimmers typically do not apply the new light level immediately (i.e., the step is performed progressively) and since capacitive touch switches send an order to interrupt the step dimming once the user releases the button, it is advisable to configure a step of 100%.*

    This way, the user can perform any dimming step by simply leaving the button pressed and then releasing it, without needing to make successive button presses.

2.2.2.8 SHUTTER

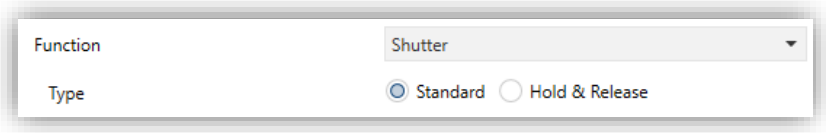


Figure 20. Individual Button - Shutter

The (alternating) move up/down orders for Standard type will be sent through the "**[Ix][] Shutter – Move Control**" one-bit object, while the (alternating) step up/down orders will be through the "**[Btn] [Ix] Shutter - Stop/Step Control**" one-bit object. ". In case of Hold/Release, the movement commands will be sent by the same object as standard but as there are no steps, the sending to stop the shutter will be done by the object "**[Ix][] Shutter - Stop Control**".

Additionally, a one-byte object ("**[Ix][] Shutter – Percentage Status**") is provided to link it to the position status object of the shutter actuator (in fact, this object is only intended to receive values from the bus, not to send them).

The parameters for this function are:

- **Type** [*Standard / Hold & Release*]: sets the desired control type.

2.2.2.9 ROOM STATE (INDOOR)

When this function is assigned to the button, the object for the control "**[Ix][] Room State - Control**" is enabled. This object will also be a status indicator, as well as two other one-bit objects to indicate the status of the room individually ("**[Ix][] Room State – Make-Up Room (status)**" and "**[Ix][] Room Status - Do Not Disturb (status)**").

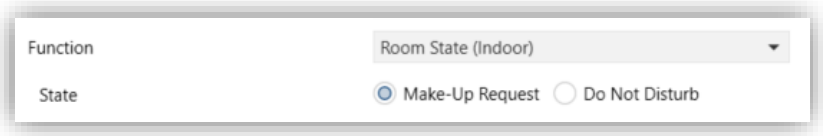


Figure 21. Individual Button – Room state

- **State** [*Make-up Request / Do Not Disturb*]: sets the state that is activated with this button. Commutes between *Normal* ("0") and the selected state: *Make-up room* ("1") and *Do not disturb* ("2").

2.2.2.10 ROOM STATE (OUTDOOR)

When this function is assigned to the button, the object for the control "**[Ix][] Room State**" is enabled. This object will also be a status indicator, as well as two other one-bit objects to indicate the status of the room individually ("**[Ix][] Room State – Make-Up Room (status)**" and "**[Ix][] Room Status - Do Not Disturb (status)**").

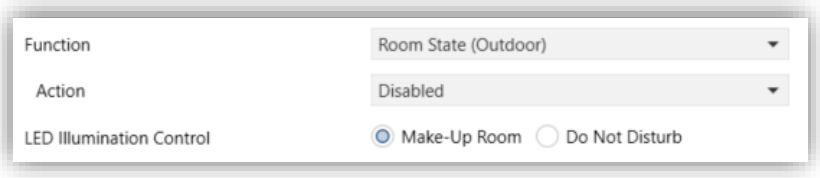


Figure 22. Individual Button - Sign: Disabled

- **Action** [*Disabled / Check Occupancy / Make-Up In Progress*]: determines the action to be executed when the button is clicked. Depending on the selected action, different objects and parameters are available.

- **LED Illumination Control** [*Make-Up Room / Do Not Disturb*]: defines the state of the room for which the LED illumination is activated.

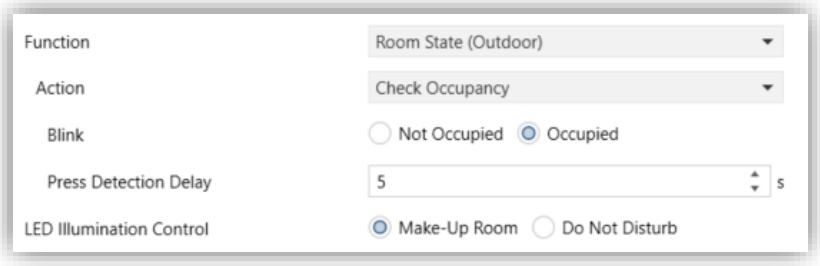


Figure 23. Individual Button - Sign: Check Occupancy

For *Check Occupancy*, the object "**[Ix][] Presence - Occupancy State**" is used to determine whether the room is occupied or not.

- **Blink** [*Not Occupied / Occupied*]: sets the occupancy status for which the LED blinks when a press is made.

- **Press Detection Delay** [*0…5…15*][*s*]: defines the time the user must hold down the button to be able to consider a press.

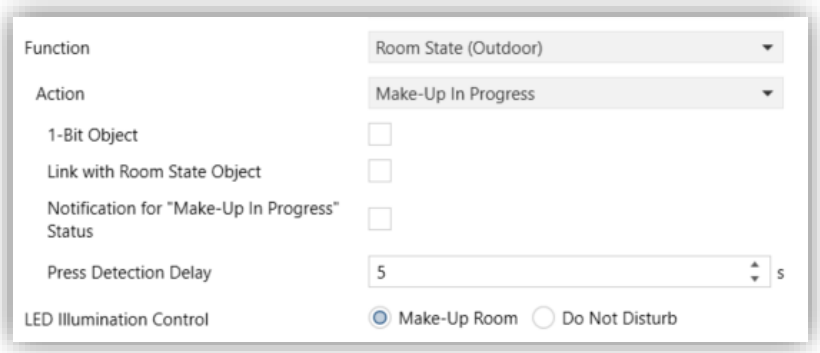


Figure 24. Individual Button - Sign: Make-Up in Progress

For *Make-Up in Progress*:

- **1-Bit Object** [*Disabled / Enabled*]: enables the binary object "**[Ix][] Make-Up In Progress**" which will permit the activation of "Make-Up In Progress" status of the room.

- **Link with Room State Object** [*Disabled / Enabled*]: if the current status of the room is different from " Make-Up In Progress " and a press is made, the object "[Ix][] Room State" will be sent to the bus updating it to that status. A further press will change the status to "Normal".

- **Notification for "Make-Up in Progress" Status** [*Disabled / Enabled*]: offers the possibility to notify via flashing that the room is being cleaned. The flashing will stop with a new press, notifying the end of cleaning.

- **Press Detection Delay** [*0…5…15*][*s*]: defines the time the user must hold down the button to be able to consider a press.

2.2.3 PAIR

Buttons configured to work as a joint control can be assigned the following functions:

- **Switch**: pressing one of the two buttons will make capacitive touch switches send a binary value to the bus, while pressing on the other will make it send the inverse binary value. It is possible to configure which one does what.

  Under a "State-dependent" LED illumination (see ANNEX I. LED Illumination Modes), the LED of the corresponding button will remain on/off according to the current state (on/off) of the switch. On the other hand, under a "State-dependent (both LEDs)" LED illumination, both will remain on while the switch is in the "on" state, and off while in the "off" state.

- **Two Objects (Short Press/Long Press)**: permits sending specific binary values both after a short or a long press on any of the two buttons (i.e., they will work as a joint control; for independent buttons, please configure them as individual). Different objects will be used for the short and long presses.

  - Moreover, it is possible (in parameters) to make the "State-dependent" and "State-dependent (both LEDs)" LED illumination modes (see

ANNEX I. LED Illumination Modes) depend on either one object or the other. However, if **LED Illumination Control (All Buttons)** has been set to "State-dependent (where available)" only the short press object will be considered.

- **Dimmer**: short-pressing one of the two buttons will make capacitive touch switches send a switch-on order to the bus, while doing so on the other button will make it send a switch-off order.

  Long presses will make it send a step dimming order (the value of which is configurable) to make a dimmer increase or decrease the light level (and a stop order as soon as the user releases the push button). It is possible to configure which button does what.

- Under a "State-dependent" LED illumination (see ANNEX I. LED Illumination Modes).

  ), the LED of the corresponding button will remain on/off according to whether the current value of the light level status object (which should be updated by the actual dimmer) is greater than 0% or not. On the other hand, under a "State-dependent (both LEDs)" LED illumination, both together will remain on or off depending on such value.

- **Shutter**: this option permits making use of the two buttons to control a shutter actuator connected to the bus. Two alternative control methods are possible:

  - Standard: a long press will make the device send to the KNX bus an order to start moving the shutter (upwards or downwards, depending on the button), while a short press will make it send a stop order (which will be interpreted as an order to step up or to step down –depending on the button– if the shutter was not in motion and such function is available).

  - Hold & Release: as soon as the button is held, the device will send the KNX bus an order to start moving the shutter (upwards or downwards, depending on the button). Once the button is released, it will send an order to stop.

    - The "State-dependent" and "State-dependent (both LEDs)" LED illumination modes are not available for this function (only the "Regular" and "Dedicated object" LED illumination are available). See

ANNEX I. LED Illumination Modes for details.

- **Room State (Outdoor)**: whether the room requires cleaning or is in "Do not disturb" status by illumination of the LEDs. In addition, the status of the room (occupied/unoccupied) can be queried with a long press and the status of the room can be changed to "Make-Up in progress".

  Each button of the pair can be configured independently, but their function will influence each other depending on the parameterisation applied. The functions of each button can be as follows:

  - Disabled: as long as it remains disabled, the pushbutton will have no functionality: pressing it will not execute any action, nor will any change in the lighting of the indicators be produced.

  - Check Occupancy: by enabling a button with this functionality, the occupancy status of the room can be known by means of the flashing of the indicators.

    Once the button has exceeded the time threshold configured for its detection, a beep will be emitted, and the indicators parameterised for the current occupancy status will flash for 5 seconds.

  - Make-Up in Progress: by enabling a button with this functionality, the start and end of room cleaning can be notified.

    Once the button has exceeded the time threshold configured for its detection, a beep will be emitted and different sendings will be made to the bus according to the selected options:

    - 1-Bit Object for activation/deactivation of the "Cleaning in progress" function.

    - Link with Room State Object: the action of the button is linked to the room status object so that each press of the button sends a message to the bus, switching the status between Make-Up in progress / Normal.

    - Notification for “Make-Up in Progress” Status: by flashing of the indicators. A further press is required to notify the end of cleaning.

  The options mentioned above are not exclusive, so that those that have been enabled can be executed simultaneously.

In this way, situations of overlapping LED illumination can occur. If make-up in progress and occupancy check notifications are active at the same time, the first one will stop and the LEDs set for the latter will light up. At the end of the occupancy check, the make-up in progress flashes again.

Example 1: 2 buttons "Check Occupancy"

Left Button: • *Occupied: Blink Left Indicator* • *Not Occupied: Blink Left Indicator*

Right Button: • *Occupied: Blink Both Indicators* • *Not Occupied: Blink Both Indicators*

With the occupancy status as "Not occupied", the following is expected.

- *Long press on the right button → Both indicators flash for 5 seconds.*
- *Long press on the right button → Only the right indicator flashes for 5 seconds.*
- *Long press on the right button → Both indicators flash for 5 seconds.*

Example 2: 2 buttons "Make-Up in Progress"

Left Button: • *1-Bit Object: ✓* • *Link with Room State Object: ✓* • *Notification for "Make-up In Progress" status: ✓*

Right Button: • *1-Bit Object: ✗* • *Link with Room State Object: ✗* • *Notification for "Make-up In Progress" status: ✗*

Since the 1-bit object is common, even if the right button has not enabled it, it will be visible, because the left button has enabled it.

After pressing the left button:

- *Sending of Make-up In Progress object = 1 (On)*
- *Sending of Room State object = 3 (Make-up In Progress)*
- *Notification → Blink the corresponding indicators*

After pressing the right button:

- *There is no object sending ("Make-Up in Progress" object value becomes 0, but Room State object remains 03)*
- *Notification → Blink the corresponding indicators*

After pressing the left button:

- *Sending of Make-up In Progress object = 1 (On)*
- *Sending of Room State object = 3 (Make-up In Progress)*
- *Notification → Blink the corresponding indicators*

ETS PARAMETERISATION

Once two buttons have been assigned to a particular pair, a specific tab ("X Pair") becomes available under "Buttons" in the tab tree.

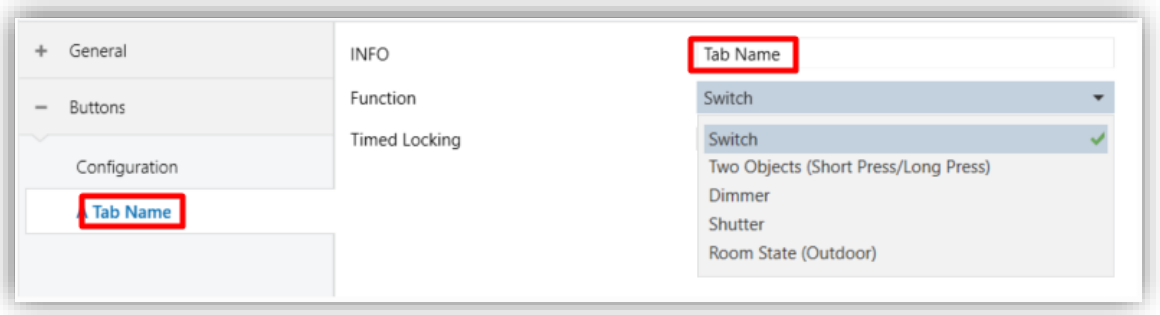


Figure 25. Button Pair.

Textbox **INFO** allows changing the default name of the tab in the left menu, as shows the following figure, identifying each of the enabled pairs and their communication objects with the prefix **"[PX][*INFO*]".**

The main parameter that needs to be configured is:

- **Function** [*Switch / Two objects (Short press / Long press) / Dimmer / Shutter / Room State (Outdoor)*]: sets the desired function for the button pair.

However, there is another parameter that appears for all previously selected functions except *Shutter*, as its use in these cases is not useful.

- **Timed Locking** [*Disabled / Enabled*]: allows a pair of buttons to be locked for a configured time after being pressed. When marked, a specific parameter appears **Lock Time** [*0...5...60*][*s*]. It starts counting as soon as the button is released.

  After bus failure, the pair starts without timed locking. It will start again when it is pressed again. This locking is independent of the general button locking, it has no influence on the locking object.

In case the option "Configure every button (pair) separately" has been selected in the **LED Illumination Control Parameter (All Buttons)** in the "Configuration" tab (see section 2.2.1), the additional parameters will be displayed (except for *Sign* function):

- **LED Illumination Control** [*State-Dependent / State-dependent (both LEDs) / Regular / Dedicated Object*]. These values are different for *Room State (Outdoor)* control, whose LED illumination control is particular.

  In case of selecting the latter, the object "**[PX][] LED – Switch Control**" will be included in the project topology and a new parameter to select the **value** [*0 = Off; 1 = On / 0 = On; 1 = Off*] to switch off and on the LED shows up.

  - **Independent of Activity** [*Disabled / Enabled*]: sets the corresponding LEDs to illuminate as if it were always in the active state, ignoring the inactivity state. The rest of the controls that have not enabled this functionality will continue to illuminate according to the activity status.

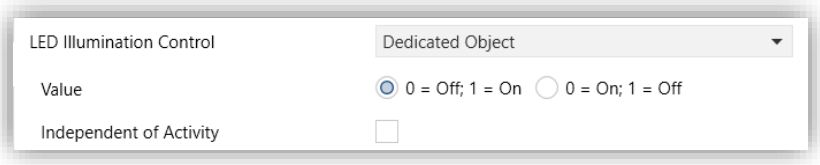


Figure 26. Button Pair – LED Illumination – Dedicated Object

Note: *For further information, please refer to section 2.2.1 and ANNEX I. LED Illumination Modes.*

Depending on the function, some more parameters are shown, as described next. Please note that in the next pages the general notation "**[PX][]**" is used for the name of the communication objects, as "X" depends on the button pair (A, B, C, D or E).

2.2.3.1 SWITCH

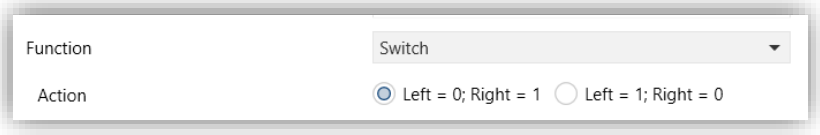


Figure 27. Pair Buttons – Switch

- **Action** [*Left=0; Right=1 / Left=1; Right=0*]: assigns each of the two buttons the value to be sent through "**[PX][] Switch - Control**" (which has the Write flag enabled, so the state of the switch can be updated from external devices).

Note: *this parameter will remain hidden unless having selected "Every button pair is configured separately" in* ***Action of the pair buttons (All Pairs)****.*

2.2.3.2 TWO OBJECTS (SHORT PRESS/LONG PRESS)

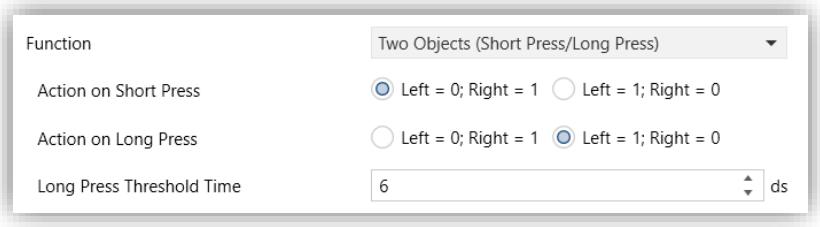


Figure 28. Pair Buttons - Two Objects (Short Press/Long Press).

- **Action on Short Press** [*Left = 0; Right = 1 / Left = 1; Right = 0*]: sets the value that will be sent through "**[PX][] Two objects - Short Press Control**" after the user short-presses one of the two buttons.

  Note: *this parameter will remain hidden unless having selected "Every button pair is configured separately" in* ***Action of the pair buttons (All Pairs)****.*

- **Action on Long Press** [*Left = 0; Right = 1 / Left = 1; Right = 0*]: sets the value that will be sent through "**[PX][] Two objects - Long Press Control**" after the user long-presses one of the two buttons.

  Note: *this parameter will remain hidden unless having selected "Every button pair is configured separately" in* ***Action of the pair buttons (All Pairs)****.*

- **Long Press Threshold Time** [*5…6…50*][*ds*]: sets the minimum time the user should hold the button in order to consider it a long press. The available range is 5 to 50 tenths of a second, being 5 tenths the default value.

2.2.3.3 DIMMER



Figure 29. Pair Buttons - Dimmer.

The switch orders will be sent through the "**[PX][] Light – Switch Control**" one-bit object, while the increase/decrease orders will be through the "**[PX][] Light – 4-bits Dimming Control**" four-bit object.

On the other hand, the "**[PX][] Light – Percentage Status**" one-byte object may be linked to the light level status object of the dimmer (in fact, this object is only intended to receive values from the bus, not to send them).

The parameters for this function are:

- **Action** [*Left = Off; Right = On / Left = On; Right = Off*]: assigns each of the two buttons the order to be sent.

  Note: *this parameter will remain hidden unless having selected "Every button pair is configured separately" in* ***Action of the pair buttons (All Pairs)****.*

- **Maximum Dimming Step With Long Press** [*100% / 50% / 25% / 12,5% / 6,25% / 3,1% / 1,5%*]: defines the dimming step to be sent to the light dimmer with every increase / decrease order.

  Note: *since dimmers typically do not apply the new light level immediately (i.e., the step regulation is performed progressively) and since capacitive touch switches send an order to interrupt the step dimming once the user releases the button, it is advisable to configure a step of 100%. This way, the user can perform any dimming step by simply leaving the button pressed and then releasing it without needing to make successive button presses.*

2.2.3.4 SHUTTER

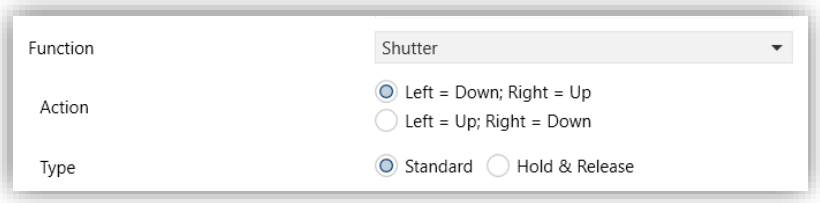


Figure 30. Pair Buttons - Shutter.

The move orders will be sent through "**[PX][] Shutter – Move Control**", while the stop orders will be sent through "**[PX][] Shutter - Stop/Step Control**" (for Standard type) or "**[PX][] Shutter – Stop Control**" (for Hold & Release type). The parameters for this function are:

- **Action** [*Left = Down; Right = Up / Left = Up; Right = Down*]: assigns each of the two buttons the order to be sent.

  Note: *this parameter will remain hidden unless having selected "Every button pair is configured separately" in* ***Action of the pair buttons (All Pairs)****.*

- **Type** [*Standard / Hold & Release*]: sets the desired behaviour of the buttons.

2.2.3.5 ROOM STATE (OUTDOOR)

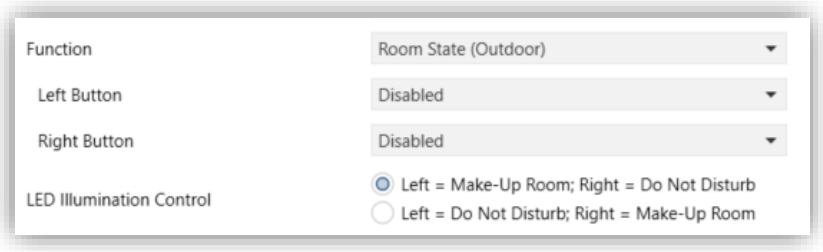


Figure 31. Pair Buttons - Sign: Disabled

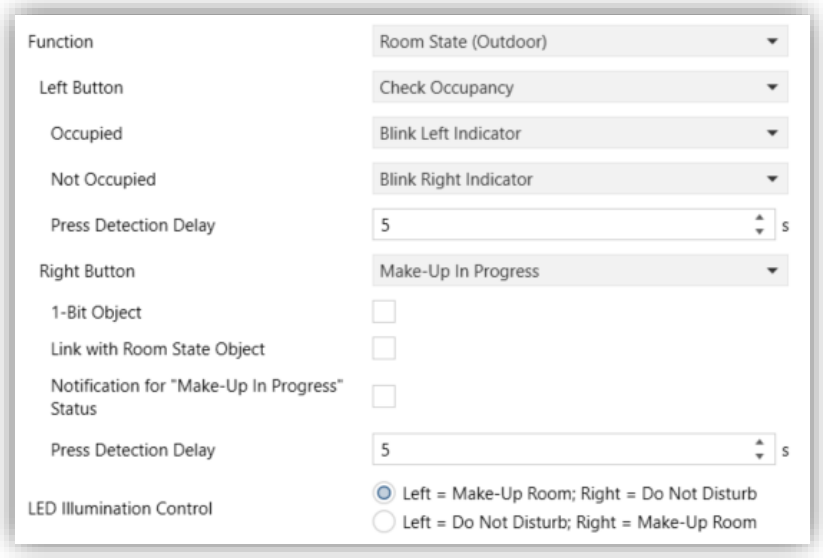


Figure 32. Pair Buttons - Sign: Check Occupancy + Make-Up in Progress

- **Left Button** [*Disabled / Check Occupancy / Make-Up In Progress*]

  ➢ If "Check Occupancy" is selected, it is possible to configure which indicators should blink according to the value acquired by the object "**[PX][] Presence - Occupancy State**":

  - **Occupied** [*Blink Left Indicator / Blink Right Indicator / Blink Both Indicators / Nothing*]: sets the action on the indicators after consultation when the room state is *Occupied*.

- **Not Occupied** [*Blink Left Indicator / Blink Right Indicator / Blink Both Indicators / Nothing*]: sets the action on the indicators after consultation when the room status is *Not Occupied*.
- **Press Detection Delay** [*1…5…15*][*s*]: defines the time the user must hold down the button to be able to consider a press.

➢ If "Make-Up in Progress" is configured, the following options (not mutually exclusive) are offered for activation and/or notification of the " Make-Up in Progress " status:

- **1-Bit Object** [*Disabled / Enabled*]: enables the binary object "**[Ix][] Make-Up In Progress**" which will permit the activation of "Make-Up In Progress" status of the room.
- **Link with Room State Object** [*Disabled / Enabled*]: if the current status of the room is different from " Make-Up In Progress " and a press is made, the object "[Ix][] Room State" will be sent to the bus updating it to that status. A further press will change the status to "Normal".
- **Notification for "Make-Up in Progress" Status** [*Disabled / Enabled*]: offers the possibility to notify via flashing that the room is being cleaned. The flashing will stop with a new press, notifying the end of cleaning.
  - **Type** [*Blink Left Indicator / Blink Right Indicator / Blink Both Indicators*]: sets the action on the indicators when the room status is "Make-Up in Progress".
- **Press Detection Delay** [*1…5…15*][*s*]: determines how long the press must be held for it to be considered.

- **Right Button** [*Disabled / Check Occupancy / Make-Up In Progress*]: When "Check Occupancy" or "Make-Up in Progress" is enabled, the same parameters are available as in the previous button.

- **LED illumination Control** [*Left = Make-Up Room; Right = Do Not Disturb / Left = Do Not Disturb; Right = Make-Up Room*]: sets which LED will be illuminated when the room status (depending on the value of the object "[PX][] Room State") is " Make-Up Room" and which for the "Do Not Disturb" status.

2.3 INPUTS

The majority of Capacitive Touch Switches from Zennio incorporates **two analog/digital inputs**. Each one has three possible configurations, which are explained below.

2.3.1 BINARY INPUT

Please refer to the specific user manual "**Binary Inputs**", available in the Tecla X product section, at the Zennio website (www.zennio.com).

2.3.2 TEMPERATURE PROBE

Please refer to the specific user manual "**Temperature Probe**", available in the Tecla X product section, at the Zennio website (www.zennio.com).

2.3.3 MOTION DETECTOR

Please refer to the specific user manual "**Motion Detector**", available in the Tecla X product section, at the Zennio website (www.zennio.com).

2.4 THERMOSTAT

Capacitive touch switches implement **one Zennio thermostat** which can be enabled and fully customised.

Please refer to the specific manual "**Zennio Thermostat**" (available in the product section at the Zennio website, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

ANNEX I. LED ILLUMINATION MODES

The LED backlight of every button, by default (in most functions), will turn on for a brief instant whenever the button is touched. This behaviour is referred to as the "**Regular Illumination**".

However, in most cases it is possible to assign different behaviours to the LEDs. Which options are available will depend on the function parameterised for the button, but will always include some of the following:

- **Regular Illumination**: the LED will light for an instant once the button is touched.
- **State-Dependent Illumination**: the LED will or will not light, depending on the value of the communication object that corresponds to the function implemented by the button. The exact correspondence between the different values of the object and the different states of the LED may be slightly different from one type of control to another and is detailed for each function.
- **State-Dependent Illumination (both LEDs)**: only applies to buttons configured as pair controls. The two LEDs of the control will light or not, depending on the value of the related object and on the particular control type parameterised for that pair of buttons. The only difference compared to the previous case is that, under "both LEDs", the two LEDs will always turn off or on simultaneously, as if it were a unique indicator consisting of two LEDs.
- **Dedicated Object**: the LED will light or not depending on the value ("0" or "1", configurable) of a binary, independent object. In the case of the pair controls, the value "0" will make one of the LEDs lights (leaving the other one off), while the value "1" will make them switch their states.

Table 4 illustrates which of the above are configurable for each function.

		Disabled	Regular	State-dep.	State-dep. (both LEDs)	Dedicated object
PAIR	Switch		✓	✓	✓	✓
	Two Objects		✓	✓	✓	✓
	Dimmer		✓	✓	✓	✓
	Shutter		✓			✓
INDIVIDUAL	Switch		✓	✓		✓
	Hold & Release		✓			✓
	Two Objects		✓	✓		✓
	Scene		✓			✓
	Constants		✓	✓		✓
	Dimmer		✓	✓		✓
	Shutter		✓			✓
	LED Indicator					✓
	Room State (Indoor)		✓	✓		✓
DISABLED		✓				

Table 4. Functions vs. LED Illumination Options.

Note: *Regarding the LEDs, it is interesting to distinguish the following cases*:

- *Disabled button: the LED will remain off, and the button will have no function.*
- *Button configured as "Individual" with "LED Indicator" function: the button will still have no function. The LED may be turned on/off through a binary object.*
- *Button configured as "Individual"/"Pair" with "Room State (Outdoor)" function: this is a specific case, the illumination control is carried out by the functionality of the control itself.*
- *Button configured as any other control type: the behaviour of the LED will be configurable according to the following table (being also possible to leave it turned off).*

Although the behaviour of the LEDs can be configured independently for each control, it is also possible to define a **general behaviour for all of them** thus not being then necessary to configure the same option multiple times.

In case of opting for a general configuration, the options are:

- **Regular.**
- **State-Dependent (where available)**. Functions where “state-dependent” is not available will use the regular illumination.
- **State-Dependent (where available) (both LEDs)**. Functions where “state-dependent” is not available will use the regular illumination.
- **Dedicated Object**. One binary communication object per control will be included in the project topology so that the LED of every control turns on/off depending on its own object.

ETS PARAMETERISATION

For details on the parameterisation of the LED illumination modes please refer to the pages that cover the specific function being assigned to the button (see section 2.2).

In case of desiring a **similar behaviour for all of the LEDs**, please find the parameter **LED Illumination Control (All buttons)** in the options of the “General” configuration.

ANNEX II. FUNCTIONALITIES PER MODEL

		Flat XL	Flat 70	Flat X	Flat 55
Dimensions (mm)	Width	120	70,5	81,9	55,5
	Height	82	70,5	81,9	55,5
	Thickness	37	21,6	36,7	35,8
Backlit icons		✓	✓	✓	✓
Luminosity sensor		✓	✓	✓	✓
Proximity sensor		✓	✓	✓	✓
Humidity sensor		-	-	-	-
Thermostat		✓	✓	✓	✓
In-built temperature sensor		✓	✓	✓	-
Acoustic signal		✓	✓	✓	✓
Heartbeat		✓	✓	✓	✓
Customisable		✓	✓	✓	✓
Number of buttons		4/6/8/10	1/2/4/6	1/2/4/6	1/2/4
Vertical or horizontal installation		✓	✓	✓	✓
Available colours		4	4	4	4
Installation in European standard mounting box		✓	-	✓	✓
Installation in Italian, American or Australian standard mounting box		✓	-	-	-
Number of analogue-digital inputs		2	2	2	2
Backlit display		-	-	-	-
Touch locking		✓	✓	✓	✓
Welcome back object		✓	✓	✓	✓
Installation with frame		-	✓	-	✓
KNX Security		-	✓	-	-

Table 5. Flat Model

		Tecla XL	Tecla 70	Tecla X	Tecla 55	Tecla 55 Sign
Dimensions (mm)	Width	119,4	70,5	82,5	55,5	55,5
	Height	79,8	70,5	82,5	55,5	55,5
	Thickness	23,2	21,6	33,1	25,6	25,6
Customisable backlit icons		✓	✓	✓	✓	-
Luminosity sensor		✓	✓	✓	✓	✓
Proximity sensor		✓	✓	✓	✓	✓
Thermostat		✓	✓	✓	✓	-
In-built temperature sensor		✓	✓	✓	-	-
Heartbeat		✓	✓	✓	✓	✓
Acoustic signal		✓	✓	✓	✓	✓
Number of buttons		4/6/8/10	1/2/4/6	1/2/4/6/8	1/2/4/6	2
Vertical or horizontal installation		✓	✓	✓	✓	✓
Available colours		3	-	3	3	3
Installation in European standard mounting box		✓	-	✓	✓	✓
Installation in Italian, American or Australian standard mounting box		✓	-	-	-	-
Number of analogue-digital inputs		-	2	-	1	1
Touch locking		✓	✓	✓	✓	✓
Welcome back object		✓	✓	✓	✓	-
Installation with frame		-	✓	-	✓	✓
KNX Security		-	✓	-	-	-

Table 6. Tecla Model

ANNEX III. COMMUNICATION OBJECTS

- **"Functional range"** shows the values that, with independence of any other values permitted by the bus according to the object size, may be of any use or have a particular meaning because of the specifications or restrictions from both the KNX standard or the application program itself.

- The objects shown in this table are from a model of 10 buttons. Please note that certain objects will not be available in models with less push buttons.

Number	Size	I/O	Flags	Data type (DPT)	Functional Range	Name	Function
1	1 Bit	O	C R - T -	DPT_Trigger	0/1	[Heartbeat] Object to Send '1'	Sending of '1' Periodically
2	1 Bit	O	C R - T -	DPT_Trigger	0/1	[Heartbeat] Device Recovery	Send 0
3	1 Bit	O	C R - T -	DPT_Trigger	0/1	[Heartbeat] Device Recovery	Send 1
4	1 Byte	I	C - W - -	DPT_SceneNumber	0 - 63	[General] Scene: Receive	0 - 63 (Run Scene 1-64)
5	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[General] Scene: Send	0 - 63/128 - 191 (Run/Save Scene 1-64)
6	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Touch Locking	0 = Unlock; 1 = Lock
	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Touch Locking	0 = Lock; 1 = Unlock
7	1 Bit	O	C - - T -	DPT_Switch	0/1	[General] Welcome Back Object	Switch Object Sent on Wake Up
8	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Sounds - Disabling Button Sound	0 = Disable Sound; 1 = Enable Sound
	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Sounds - Disabling Button Sound	0 = Enable Sound; 1 = Disable Sound
9	1 Bit	I	C - W - -	DPT_Ack	0/1	[General] Sounds - Doorbell	1 = Play a Doorbell Sound; 0 = Nothing
	1 Bit	I	C - W - -	DPT_Ack	0/1	[General] Sounds - Doorbell	0 = Play a Doorbell Sound; 1 = Nothing
10	1 Bit	I	C - W - -	DPT_Alarm	0/1	[General] Sounds - Alarm	1 = Play Alarm Intermittent Sounds; 0 = Stop Alarm Sounds
	1 Bit	I	C - W - -	DPT_Alarm	0/1	[General] Sounds - Alarm	0 = Play Alarm Intermittent Sounds; 1 = Stop Alarm Sounds
11, 12, 13, 14, 15	1 Bit	I	C - W - -	DPT_Switch	0/1	[General] Welcome Back Object - Additional Condition	Additional Condition Object x
16	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Proximity Sensor	0 = Disable; 1 = Enable
17	1 Bit	I	C - W - -	DPT_Start	0/1	[General] External Proximity Detection	1 = Detection
18	1 Bit	O	C - - T -	DPT_Start	0/1	[General] Proximity Detection	Send 1 when Proximity is Detected
19	1 Bit	O	C - - T -	DPT_Bool	0/1	[General] Luminosity (1-Bit)	0 = Over Threshold; 1 = Under Threshold
	1 Bit	O	C - - T -	DPT_Bool	0/1	[General] Luminosity (1-Bit)	0 = Under Threshold; 1 = Over Threshold

20	1 Byte	O	C R - - -	DPT_Scaling	0% - 100%	[General] Luminosity (Percentage)	0% ... 100%
21	2 Bytes	O	C R - - -	DPT_Value_Lux		[General] Luminosity (Lux)	0 Lux ... 670760 Lux
22	1 Bit	I	C - W - -	DPT_DayNight	0/1	[General] Backlight Mode	0 = Night Mode; 1 = Normal Mode
	1 Bit	I	C - W - -	DPT_DayNight	0/1	[General] Backlight Mode	0 = Normal Mode; 1 = Night Mode
23	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[General] Display - Brightness	0% ... 100%
24	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[General] Display - Contrast	0% ... 100%
25, 32, 39, 46, 53, 60, 67, 74, 81, 88	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Switch – Control: "0"	1-Bit Generic Control
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Switch – Control: "1"	1-Bit Generic Control
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Switch – Control: "0/1"	1-Bit Generic Control
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Hold & Release – Switch Control	1-Bit Generic Control
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Two Objects – Short Press Control: "0"	1-Bit Generic Control
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Two Objects – Short Press Control: "1"	1-Bit Generic Control
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Two Objects – Short Press Control: "0/1"	1-Bit Generic Control
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Light – Off Control	(Short Press) Send Off
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Light – On Control	(Short Press) Send On
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Light – Switch Control	(Short Press) Switch between On and Off
	1 Bit		C - - T -	DPT_Step	0/1	[Ix][] Shutter – Stop/Step Control	(Short press) 0 = Stop shutter/Step up; 1 = Stop shutter/Step down
	1 Bit		C - - T -	DPT_Trigger	0/1	[Ix][] Shutter – Stop Control	(End pressing) Stop shutter
	1 Bit	E	C - W T -	DPT_Occupancy	0/1	[Ix][] Presence – Occupancy State	0 = Not Occupied; 1 = Occupied
	1 Bit	E	C R - T -	DPT_Switch	0/1	[Ix][] Make-Up in Progress	0 = Off; 1 = On
26, 33, 40, 47, 54, 61, 68, 75, 82, 89	4 Bit	E	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix][] Light – Dimming Control	(Long Press) Dimming Down
	4 Bit	E	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix][] Light – Dimming Control	(Long Press) Dimming Up
	4 Bit	E	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix][] Light – Dimming Control	(Long Press) Switch between Dimming Up and Down
27, 34, 41, 48, 55, 62, 69, 76, 83, 90	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Two Objects – Short Press Control: "0"	1-Bit Generic Control
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Two Objects – Short Press Control: "1"	1-Bit Generic Control
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] Two Objects – Short Press Control: "0/1"	1-Bit Generic Control
	1 Bit		C - - T -	DPT_UpDown	0/1	[Ix][] Shutter – Move Control	(Long press) 0 = Up; 1 = Down
	1 Bit		C - - T -	DPT_UpDown	0/1	[Ix][] Shutter – Move Control	(Start pressing) Siwtch between up and down

	1 Bit		C R - T -	DPT_Boolean	0/1	[Ix][] Room State – Do Not Disturb (Status)	0 = No Active; 1 = Active
28, 35, 42, 49, 56, 63, 70, 77, 84, 91	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] LED – Switch Control	0 = Off; 1 = On
	1 Bit	E	C - W T -	DPT_Switch	0/1	[Ix][] LED – Switch Control	0 = On; 1 = Off
29, 36, 43, 50, 57, 64, 71, 78, 85, 92	1 Bit		C R - T -	DPT_Boolean	0/1	[Ix][] Room State – Make-Up Room (Status)	0 = No Active; 1 = Active
30, 37, 44, 51, 58, 65, 72, 79, 86, 93	1 Byte	E	C - W T -	DPT_Value_1_Ucount	0 - 255	[Ix][] Two Objects – Short Press Control: 1-Byte	Send Selected 1-Byte Value on Short Press
	1 Byte	E	C - W T -	DPT_Scaling	0% - 100%	[Ix][] Percentage – Control	0% … 100%
	1 Byte	E	C - W T -	DPT_Value_1_Count	-128 - 127	[Ix][] Integer – 1-Byte Signed Control	-128 … 127
	1 Byte	E	C - W T -	DPT_Value_1_Ucount	0 - 255	[Ix][] Integer – 1-Byte Unsigned Control	0 … 255
	2 Bytes	E	C - W T -	DPT_Value_2_Count	-32768 - 32767	[Ix][] Integer – 2-Byte Signed Control	-32768 … 32767
	2 Bytes	E	C - W T -	DPT_Value_2_Ucount	0 - 65535	[Ix][] Integer – 2-Byte Unsigned Control	0 … 65535
	2 Bytes	E	C - W T -	9.xxx	-671088,64 - 670433,28	[Ix][] Float – 2-Byte Float	-671088.64 … 670760.96
	1 Byte	E	C - W T -	DPT_Scaling	0% - 100%	[Ix][] Light – Percentage Status	0 – 100 %
	1 Byte	E	C - W T -	DPT_Scaling	0% - 100%	[Ix][] Shutter – Percentage Status	0% = Top; 100% = Bottom
	1 Byte	E	C - W T -	DPT_Room_State	0/1	[Ix][] Room State – Control	0 = Normal; 1 = Make-Up Room; 2 = Do Not Disturb
	1 Byte	E	C - W T -	DPT_Room_State	0/1	[Ix][] Room State	0 = Normal; 1 = Make-Up Room; 2 = Do Not Disturb; 3 = Make-Up in Progress
31, 38, 45, 52, 59, 66, 73, 80, 87, 94	1 Byte	E	C - W T -	DPT_Value_1_Ucount	0 - 255	[Ix][] Two Objects – Long Press Control: 1-Byte	Send Selected 1-Byte Value on Long Press
	1 Byte	E	C - W T -	DPT_Scaling	0% - 100%	[Ix][] Light – Absolute Dimming	(Short Press) Send Selected 1-Byte Value
95, 102, 109, 116, 123	1 Bit	E	C - W T -	DPT_Switch	0/1	[PX][] Switch - Control	1-Bit Generic Control
	1 Bit	E	C - W T -	DPT_Switch	0/1	[PX][] Two Objects – Short Press Control	1-Bit Generic Control
	1 Bit	E	C - W T -	DPT_Switch	0/1	[PX][] Light – Switch Control	0 = Off; 1 = On
	1 Bit		C - - T -	DPT_Step	0/1	[PX][] Shutter – Stop/Step Control	0 = Stop/Step Up; 1 = Stop/Step Down
	1 Bit		C - - T -	DPT_Trigger	0/1	[PX][] Shutter – Stop Control	0/1 = Stop
	1 Bit	E	C - W T -	DPT_Occupancy	0/1	[PX][] Presence – Occupancy State	0 = Not Occupied; 1 = Occupied
96, 103, 110, 117, 124	4 Bit	E	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1…0x7 (Dec.) 0x9…0xF (Inc.)	[PX][] Light – 4-bits Dimming Control	4-Bit Dimming Control
97, 104, 111, 118, 125	1 Bit	E	C - W T -	DPT_Switch	0/1	[PX][] Two Objects – Short Press Control	1-Bit Generic Control
	1 Bit		C - - T -	DPT_UpDown	0/1	[PX][] Shutter – Move Control	0 = Up; 1 = Down

	1 Bit	E	C R - T -	DPT_Boolean	0/1	[PX][] Room State – Do Not Disturb (Status)	0 = No Active; 1 = Active
98, 105, 112, 119, 126	1 Bit	E	C - W T -	DPT_Switch	0/1	[PX][] LED – Switch Control	0 = Off; 1 = On
	1 Bit	E	C - W T -	DPT_Switch	0/1	[PX][] LED – Switch Control	0 = On; 1 = Off
	1 Bit		C R - T -	DPT_Switch	0/1	[PX]][] Make-Up in Progress	0 = Off; 1 = On
99, 106, 107, 120, 127	1 Bit	E	C R - T -	DPT_Boolean	0/1	[PX][] Room State – Make-Up Room (Status)	0 = No Active; 1 = Active
100, 107, 114, 121, 128	1 Byte	E	C - W T -	DPT_Scaling	0% - 100%	[PX][] Light – Percentage Status	0 – 100%
	1 Byte	E	C - W T -	DPT_Room_State	0/1	[PX][] Room State	0 = Normal; 1 = Make-Up Room; 2 = Do Not Disturb; 3 = Make-Up in Progress
130	1 Byte	I	C - W - -	DPT_SceneControl	0-63; 128-191	[Thermostat] Scenes	0 – 63 (Execute 1 – 64); 128 – 191 (Save 1 – 64)
131	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00º - 670433.28º	[Tx] Temperature Source 1	External Sensor Temperature
132	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00º - 670433.28º	[Tx] Temperature Source 2	External Sensor Temperature
133	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00º - 670433.28º	[Tx] Effective Temperature	Effective Control Temperature
134	1 Byte	I	C - W - -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Tx] Special Mode	1-Byte HVAC Mode
135	1 Bit	I	C - W - -	DPT_Ack	0/1	[Tx] Special Mode: Comfort	0 = Nothing; 1 = Trigger
	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] Special Mode: Comfort	0 = Off; 1 = On
136	1 Bit	I	C - W - -	DPT_Ack	0/1	[Tx] Special Mode: Standby	0 = Nothing; 1 = Trigger
	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] Special Mode: Standby	0 = Off; 1 = On
137	1 Bit	I	C - W - -	DPT_Ack	0/1	[Tx] Special Mode: Economy	0 = Nothing; 1 = Trigger
	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] Special Mode: Economy	0 = Off; 1 = On
138	1 Bit	I	C - W - -	DPT_Ack	0/1	[Tx] Special Mode: Protection	0 = Nothing; 1 = Trigger
	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] Special Mode: Protection	0 = Off; 1 = On
139	1 Bit	I	C - W - -	DPT_Window_Door	0/1	[Tx] Window Status (Input)	0 = Closed; 1 = Open
140	1 Bit	I	C - W - -	DPT_Trigger	0/1	[Tx] Comfort Prolongation	0 = Nothing; 1 = Timed Comfort
141	1 Byte	O	C R - T -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Tx] Special Mode Status	1-Byte HVAC Mode
142	2 Bytes	I	C - W - -	DPT_Value_Temp	-273.00º - 670433.28º	[Tx] Setpoint	Thermostat Setpoint Input
	2 Bytes	I	C - W - -	DPT_Value_Temp	-273.00º - 670433.28º	[Tx] Basic Setpoint	Reference Setpoint
143	1 Bit	I	C - W - -	DPT_Step	0/1	[Tx] Setpoint Step	0 = Decrease Setpoint; 1 = Increase Setpoint
144	2 Bytes	I	C - W - -	DPT_Value_Tempd	-671088.64º - 670433.28º	[Tx] Setpoint Offset	Float Offset Value
145	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00º - 670433.28º	[Tx] Setpoint Status	Current Setpoint
146	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00º - 670433.28º	[Tx] Basic Setpoint Status	Current Basic Setpoint

147	2 Bytes	O	C R - T -	DPT_Value_Tempd	-671088.64º - 670433.28º	[Tx] Setpoint Offset Status	Current Setpoint Offset
148	1 Bit	I	C - W - -	DPT_Reset	0/1	[Tx] Setpoint Reset	Reset Setpoint to Default
	1 Bit	I	C - W - -	DPT_Reset	0/1	[Tx] Offset Reset	Reset Offset
149	1 Bit	I	C - W - -	DPT_Heat_Cool	0/1	[Tx] Mode	0 = Cool; 1 = Heat
150	1 Bit	O	C R - T -	DPT_Heat_Cool	0/1	[Tx] Mode Status	0 = Cool; 1 = Heat
151	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] On/Off	0 = Off; 1 = On
152	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] On/Off Status	0 = Off; 1 = On
153	1 Bit	I/O	C R W - -	DPT_Switch	0/1	[Tx] Main System (Cool)	0 = System 1; 1 = System 2
154	1 Bit	I/O	C R W - -	DPT_Switch	0/1	[Tx] Main System (Heat)	0 = System 1; 1 = System 2
155	1 Bit	I	C - W - -	DPT_Enable	0/1	[Tx] Enable/Disable Secondary System (Cool)	0 = Disable; 1 = Enable
156	1 Bit	I	C - W - -	DPT_Enable	0/1	[Tx] Enable/Disable Secondary System (Heat)	0 = Disable; 1 = Enable
157, 163	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Tx] [Sx] Control Variable (Cool)	PI Control (Continuous)
158, 164	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Tx] [Sx] Control Variable (Heat)	PI Control (Continuous)
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Tx] [Sx] Control Variable	PI Control (Continuous)
159, 165	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Cool)	2-Point Control
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Cool)	PI Control (PWM)
160, 166	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Heat)	2-Point Control
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Heat)	PI Control (PWM)
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable	2-Point Control
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable	PI Control (PWM)
161, 167	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] PI State (Cool)	0 = PI Signal 0%; 1 = PI Signal Greater than 0%
162, 168	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] PI State (Heat)	0 = PI Signal 0%; 1 = PI Signal Greater than 0%
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Tx] [Sx] PI State	0 = PI Signal 0%; 1 = PI Signal Greater than 0%
169, 173	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00º - 670433.28º	[Ix] Current Temperature	Temperature Sensor Value
170, 174	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Overcooling	0 = No Alarm; 1 = Alarm
171, 175	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Overheating	0 = No Alarm; 1 = Alarm
172, 176	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Probe Error	0 = No Alarm; 1 = Alarm
177	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00º - 670433.28º	[Internal Probe] Current Temperature	Temperature Sensor Value
178	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Internal Probe] Overcooling	0 = No Alarm; 1 = Alarm
179	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Internal Probe] Overheating	0 = No Alarm; 1 = Alarm
180	1 Byte	I	C - W - -	DPT_SceneNumber	0 - 63	[Motion Detector] Scene Input	Scene Value
181	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Motion Detector] Scene Output	Scene Value
182, 216	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Ix] Luminosity	0-100%
183, 217	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Open Circuit Error	0 = No Error; 1 = Open Circuit Error
184, 218	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Short Circuit Error	0 = No Error; 1 = Short Circuit Error
185, 219	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Ix] Presence State (Scaling)	0-100%

186, 220	1 Byte	O	C R - T -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Ix] Presence State (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
187, 221	1 Bit	O	C R - T -	DPT_Switch	0/1	[Ix] Presence State (Binary)	Binary Value
	1 Bit	O	C R - T -	DPT_Start	0/1	[Ix] Presence: Slave Output	1 = Motion Detected
188, 222	1 Bit	I	C - W - -	DPT_Window_Door	0/1	[Ix] Presence Trigger	Binary Value to Trigger the Presence Detection
189, 223	1 Bit	I	C - W - -	DPT_Start	0/1	[Ix] Presence: Slave Input	0 = Nothing; 1 = Detection from slave device
190, 224	2 Bytes	I/O	C R W - -	DPT_TimePeriodSec	0 - 65535	[Ix] Presence: Waiting Time	0-65535 s.
191, 225	2 Bytes	I/O	C R W - -	DPT_TimePeriodSec	0 - 65535	[Ix] Presence: Listening Time	1-65535 s.
192, 226	2 Bytes	I/O	C R W - -	DPT_TimePeriodMin	0 - 65535	[Ix] Presence: Safety Time	0-1440 min.
193, 227	1 Byte	I/O	C R W - -	DPT_Value_1_Ucount	0 - 255	[Ix] Presence: Filter Detections Number	2-5
194, 228	1 Byte	I/O	C R W - -	DPT_Value_1_Ucount	0 - 255	[Ix] Presence: Filter Detection Window	15-60 s.
195, 229	1 Bit	I	C - W - -	DPT_Enable	0/1	[Ix] Presence: Enable	According to parameters
196, 230	1 Bit	I/O	C R W - -	DPT_DayNight	0/1	[Ix] Presence: Day/Night	According to parameters
197, 231	1 Bit	O	C R - T -	DPT_Occupancy	0/1	[Ix] Presence: Occupancy State (Master Output)	0 = Not Occupied; 1 = Occupied
	1 Bit	I	C - W - -	DPT_Occupancy	0/1	[Ix] Presence: Occupancy State (Master Input)	0 = Not Occupied; 1 = Occupied
198, 232	1 Bit	I	C - W - -	DPT_Switch	0/1	[Ix] Presence: Access Guest/Employee	0 = Guest; 1 = Employee
	1 Bit	I	C - W - -	DPT_Switch	0/1	[Ix] Presence: Access Guest/Employee	0 = Employee; 1 = Guest
199, 233	1 Bit	I	C - W - -	DPT_Bool	0/1	[Ix] Presence: Sold/Unsold Room	0 = Unsold; 1 = Sold
	1 Bit	I	C - W - -	DPT_Bool	0/1	[Ix] Presence: Sold/Unsold Room	0 = Sold; 1 = Unsold
200, 234	1 Bit	I	C - W - -	DPT_Start	0/1	[Ix] External Motion Detection	0 = Nothing; 1 = Motion detected by an external sensor
201, 206, 211, 235, 240, 245	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Ix] [Cx] Detection State (Scaling)	0-100%
202, 207, 212, 236, 241, 246	1 Byte	O	C R - T -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Ix] [Cx] Detection State (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
203, 208, 213, 237, 242, 247	1 Bit	O	C R - T -	DPT_Switch	0/1	[Ix] [Cx] Detection State (Binary)	Binary Value
204, 209, 214, 238, 243, 248	1 Bit	I	C - W - -	DPT_Enable	0/1	[Ix] [Cx] Enable Channel	According to parameters
205, 210, 215, 239, 244, 249	1 Bit	I	C - W - -	DPT_Switch	0/1	[Ix] [Cx] Force State	0 = No Detection; 1 = Detection

250, 256	1 Bit	I	C - W - -	DPT_Enable	0/1	[Ix] Input Lock	0 = Unlock; 1 = Lock
251, 257	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Short Press] 0	Sending of 0
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Short Press] 1	Sending of 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Short Press] 0/1 Switching	Switching 0/1
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Short Press] Move Up Shutter	Sending of 0 (Up)
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Short Press] Move Down Shutter	Sending of 1 (Down)
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Short Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Short Press] Brighter	Increase Brightness
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Short Press] Darker	Decrease Brightness
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Short Press] Brighter/Darker	Switch Bright/Dark
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Short Press] Light On	Sending of 1 (On)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Short Press] Light Off	Sending of 0 (Off)
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Short Press] Light On/Off	Switching 0/1
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Short Press] Run Scene	Sending of 0 - 63
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Short Press] Save Scene	Sending of 128 - 191
	1 Bit	I/O	C R W T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] Edge	Sending of 0 or 1
	1 Byte	O	C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Short Press] Constant Value (Integer)	0 - 255
	1 Byte	O	C - - T -	DPT_Scaling	0% - 100%	[Ix] [Short Press] Constant Value (Percentage)	0% - 100%
	2 Bytes	O	C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Short Press] Constant Value (Integer)	0 - 65535
	2 Bytes	O	C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Short Press] Constant Value (Float)	Float Value
252, 258	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Short Press] Shutter Status (Input)	0% = Top; 100% = Bottom
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Short Press] Dimming Status (Input)	0% - 100%
253, 259	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Long Press] 0	Sending of 0
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Long Press] 1	Sending of 1

	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Long Press] 0/1 Switching	Switching 0/1
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Long Press] Move Up Shutter	Sending of 0 (Up)
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Long Press] Move Down Shutter	Sending of 1 (Down)
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Long Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Long Press] Brighter	Long Pr. -> Brighter; Release -> Stop
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Long Press] Darker	Long Pr. -> Darker; Release -> Stop
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Long Press] Brighter/Darker	Long Pr. -> Brighter/Darker; Release -> Stop
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Long Press] Light On	Sending of 1 (On)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Long Press] Light Off	Sending of 0 (Off)
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Long Press] Light On/Off	Switching 0/1
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Long Press] Run Scene	Sending of 0 - 63
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Long Press] Save Scene	Sending of 128 - 191
	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] [Switch/Sensor] Alarm: Breakdown or Sabotage	1 = Alarm; 0 = No Alarm
	2 Bytes	O	C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Long Press] Constant Value (Float)	Float Value
	2 Bytes	O	C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Long Press] Constant Value (Integer)	0 - 65535
	1 Byte	O	C - - T -	DPT_Scaling	0% - 100%	[Ix] [Long Press] Constant Value (Percentage)	0% - 100%
	1 Byte	O	C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Long Press] Constant Value (Integer)	0 - 255
254, 260	1 Bit	O	C - - T -	DPT_Trigger	0/1	[Ix] [Long Press/Release] Stop Shutter	Release -> Stop Shutter
255, 261	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Long Press] Dimming Status (Input)	0% - 100%
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Long Press] Shutter Status (Input)	0% = Top; 100% = Bottom

Join and send us your inquiries about Zennio devices:

https://support.zennio.com

Zennio Avance y Tecnología S.L.
C/ Río Jarama, 132. Nave P-8.11
45007 Toledo, Spain.

Tel. +34 925 232 002.

www.zennio.com
info@zennio.com