Tecla 55 X Sign

PC-ABS Capacitive DND/MUR Buttons 55x55

ZVIT55X2

Application Programme Version: [1.0]
User Manual Version: [1.0]_a

www.zennio.com

CONTENTS

1 INTRODUCTION

1.1 TECLA 55 X2 SIGN

Tecla 55 X2 Sign is a polycarbonate capacitive switch with backlit icons, in color, for the selection and notification of room states. In this respect, its main functions are:

- Notification of room state: *Make-Up Room, Do Not Disturb* and *Make-Up in Progress.*

- Checking occupancy status: *Occupied* or *Not Occupied.*

This application program has the following features:

- **2 buttons** which can only be configured individually.

- **Horizontally or vertically-oriented** configuration.

- **Light indicators (LEDs)** which, in addition, could be associated with the functionality of the buttons.

- **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** through binary orders or scenes.

- Possibility of setting a **press detection delay**.

- **Ambient luminosity sensor** for brightness automatic adjustment.

- **Proximity sensor** for quick start.

- **One analogue/digital input** for temperature probe.

- **Heartbeat** or periodical "still-alive" notification.

Note: *Tecla 55 X2 Sign application program can be downloaded to Tecla 55 X2 and vice versa.*

1.2 INSTALLATION

Figure 1 shows the connection outline of Tecla 55 X2 Sign:

1. **Frame (sold separately).**
2. **Metallic levelling plate.**
3. **KNX Connector.**
4. **Programming LED.**
5. **Programming Button.**
6. **Fixing clips.**
7. **Temperature Probe Connector.**
8. **Touch Buttons.**
9. **Proximity and Luminosity Sensor.**
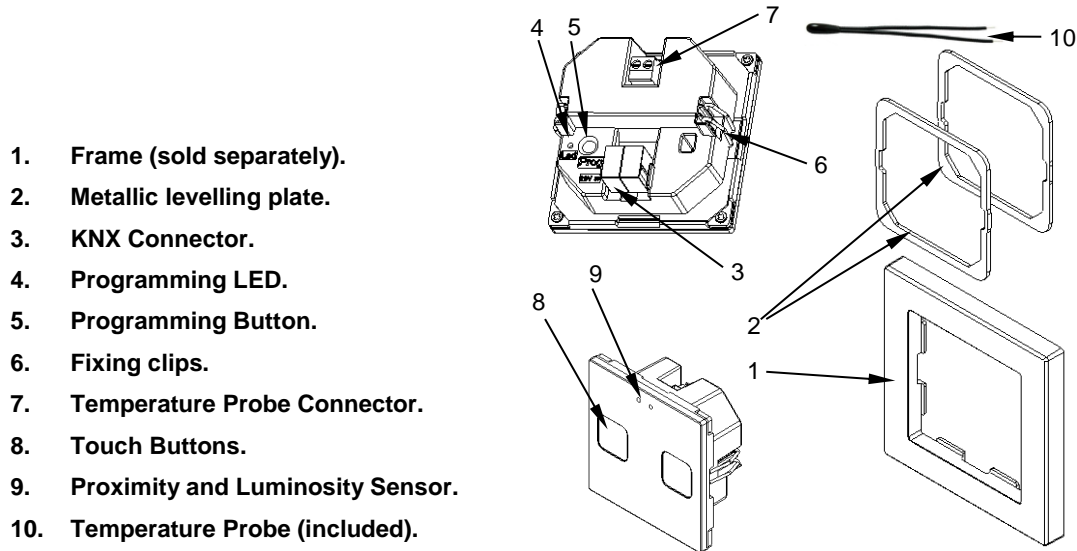10. **Temperature Probe (included).**

Figure 1. Schematic diagram Tecla 55 X2 Sign.

Tecla 55 X2 Sign is connected to the KNX bus through the built-in terminal (3). An external DC power supply is not needed.

A short press on the **programming button** (5) will make the device enter the programming mode. The **programming LED** (4) will then light in red. On the contrary, if this button is held while the device gets connected to the bus, the device will enter the **safe mode**. In such case, the programming LED will blink in red colour.

For detailed information about the technical features of Tecla 55 X2 Sign, as well as on security and installation procedures, please refer to the device **Datasheet**, bundled within the device packaging and also available at www.zennio.com.

2 CONFIGURATION

After importing the corresponding database in ETS and adding the device into the topology of the project, the configuration process begins by entering the Parameters tab of the device.

2.1 GENERAL

In order to allow the device to perform the desired functions, a number of options related to its general behaviour must be parameterized.

2.1.1 CONFIGURATION

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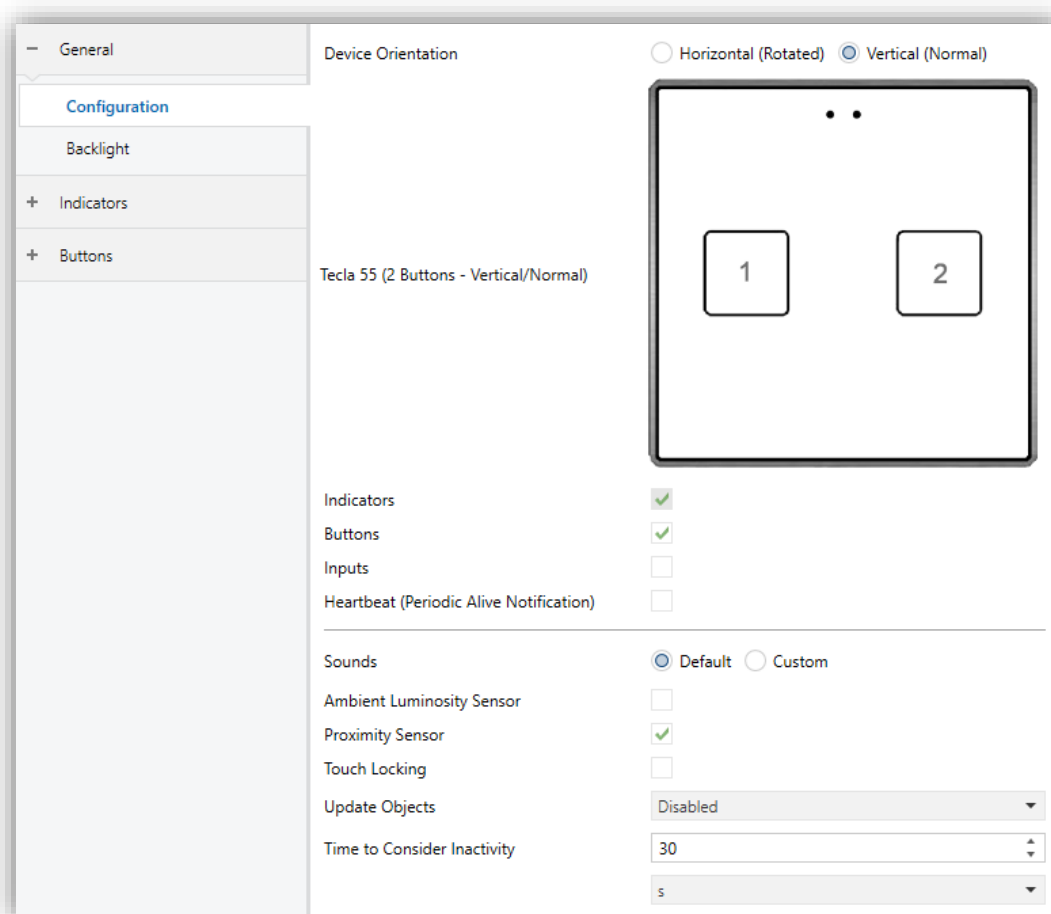
ETS PARAMETERISATION

Figure 2. General

The following parameters are shown:

- **Device Orientation** [*Horizontal (Rotated) / Vertical (Normal)*][1]: enables to assign a **horizontal** or **vertical** orientation to the device, making it easier to identify the push-buttons during the configuration process (ETS will show a figure with the final distribution of the push-buttons).

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

- **Buttons** [*enabled/disabled*]: enables or disables the "Buttons" tab in the tree on the left. See section 0 for details.

- **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 temperature probe. 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*).
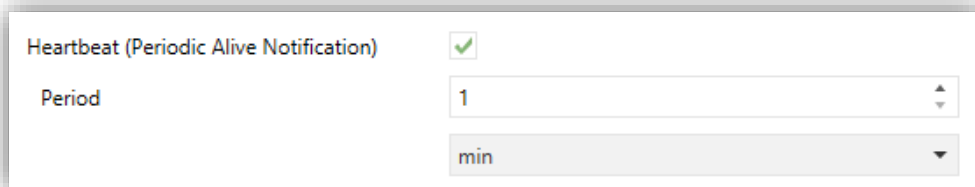

Figure 3. Heartbeat.

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 march the period set.*

- **Sounds** [*Default / Custom*]: sets whether the sound functions (button beeps) should work according to the pre-defined configuration or to a user-defined configuration. See section 2.1.3 for details.

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

- **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 2.1.4 for details.

- **Proximity Sensor** [*disabled/enabled*]: enables the proximity sensor. This functionality permits "waking up" the device when detecting presence.

  Please refer to the specific manual "**Proximity and Luminosity Sensor**" (available in Tecla 55 X2 Sign product section at the Zennio homepage, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

- **Touch locking** [*disabled/enabled*]: enables or disables the "Touch locking" tab in the tree on the left. See section 2.1.5 for details.

- **Update Objects** [*Disabled / After Programming / After Reset / After Programming and Reset*]: enables the sending of read requests to update the objects "**[General] Room State**" and "**[General] Presence: Occupancy State**". There are four options available:

  ➢ [*Disabled*]: no read request, therefore objects are not updated.

  ➢ [*After Programming*]: read requests are sent after a complete or partial download, after the parameterised **delay** ([*0…10…255*] [*s/min/h*]).

  ➢ [*After Reset*]: read request are sent when a reset occurs (bus failure or the Reset Device ETS option), after the parameterised **delay** ([*0…10…255*] [*s/min/h*]).

  ➢ [*After Programming and Reset*]: combination of the two above options.

- **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 indicators turn off (or acquire the brightness level configured, see section 2.1.2).

2.1.2 BACKLIGHT

Tecla 55 X2 Sign enables management the indicators brightness according to two operating modes: normal mode and night mode.

Please refer to the specific manual "**Brightness**" (available in the Tecla 55 X2 Sign product section at the Zennio website, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

2.1.3 SOUNDS

Tecla 55 X2 Sign is capable of emitting a brief beep as an **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.

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.
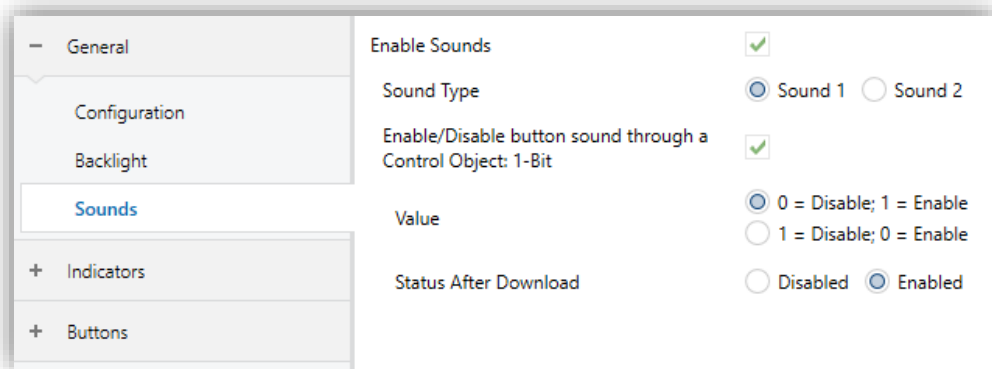

Figure 4. Sounds

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 incorporates 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 = Disable; 1 = Enable / 1 = Disable; 0 = Enable*]: 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.

The project topology shows the following objects by default:

- "**[General] Scene: Receive**" and "**[General] Scene: Send**": objects for respectively receiving and sending scene values from/to the KNX bus whenever it is necessary.

- "**[General] Room State**": enables to set and know the room status. The values available are: *0 = Normal, 1 = Make-Up Room, 2 = Do Not Disturb, 3 = Make-Up in Progress.*

- "**[General] Proximity Sensor**", "**[General] External Proximity Detection**" and "**[General] Proximity Detection**"**:** 1-bit object whose functionality is tied to the proximity sensor. For further information, please refer to the user manual "**Proximity and Luminosity Sensor**" (available in the Tecla 55 X2 Sign product section at the Zennio homepage, www.zennio.com).

2.1.4 AMBIENT LUMINOSITY SENSOR

Tecla 55 X2 Sign incorporates **a luminosity sensor** to receive and monitor ambient brightness measurement.

Please refer to the specific manual "**Luminosity and Proximity Sensor**" (available in the Tecla 55 X2 Sign product section at the Zennio homepage, www.zennio.com) for detailed information about the functionality and the configuration of the related parameters.

2.1.5 TOUCH LOCKING

The touch panel of Tecla 55 X2 Sign 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 indicators will change their states) when the user touches on any of the controls.

ETS PARAMETERISATION

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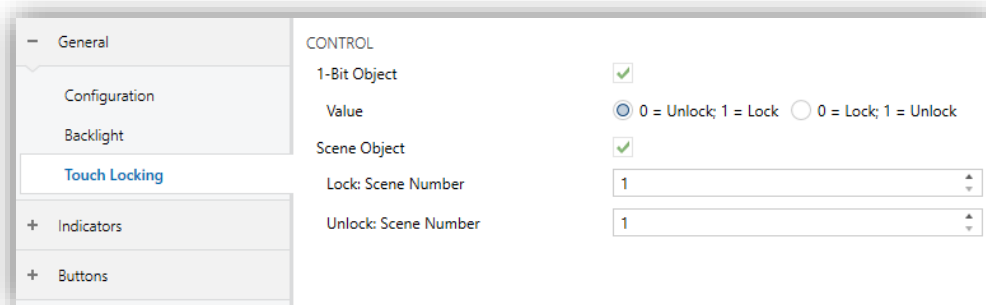

Figure 5. Touch Locking

- **1-Bit Object** [*disabled/enabled*]: when marked, a specific drop-down list 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** [*1…64*] that should trigger each action. These values are to be received through the general "**[General] Scene: Receive**" object.

2.2 INDICATORS

Tecla 55 X2 Sign features two LED indicators to notify the status of the room at any time.

Each indicator will be associated by parameter with a status, *Make-Up Room* or *Do Not Disturb*, and will light up depending on the room status.

The indicators will remain off when the room status is *Normal* or *Make-Up In Progress*, unless a specific notification is configured for the last one (see section 2.3.4).

ETS PARAMETERISATION

Tecla 55 X2 Sign application program will always include the "Indicators" tab, but the action associated with them will be parameterized in the "Configuration" subtab:
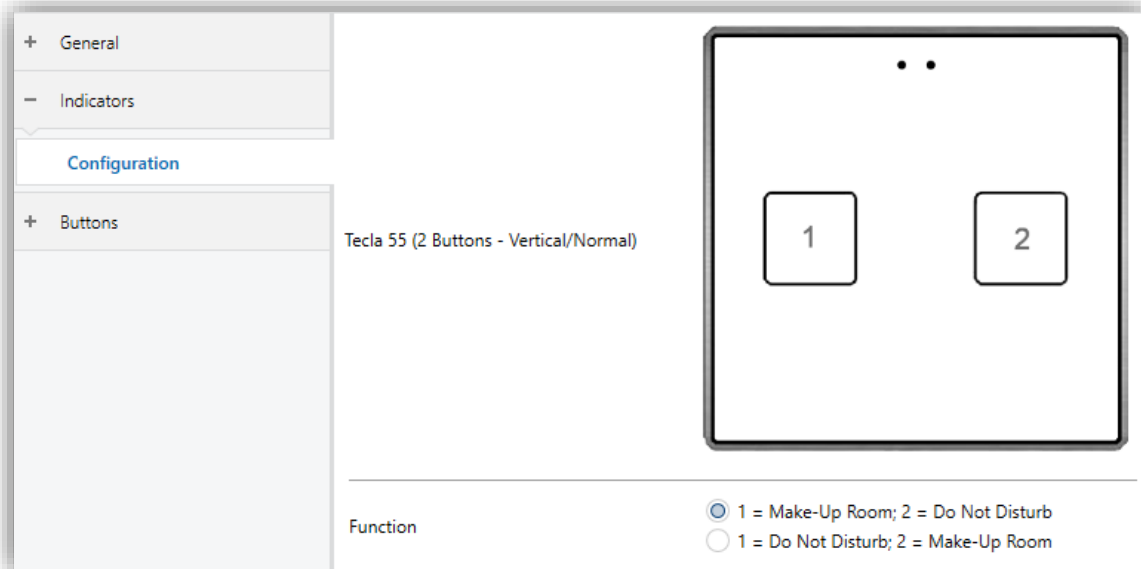
Figure 6. Indicators

According to the layout of indicators **1** and **2,** which will depend on the orientation selected in "Configuration" (see section 2.1.1), the **Function** parameter [*1 = Make-Up Room; 2 = Do Not Disturb / 1 = Do Not Disturb; 2 = Make-Up Room*] sets which one will turn on when the room status (depending on the value of the object "**[General] Room status**") is *Make-Up Room* and which one for the *Do Not Disturb* status.

2.3 BUTTONS

Tecla 55 X2 Sign has **two capacitive buttons** which can be configured as **single button controls**. Its layout will depend on the chosen orientation (see section 2.1.1):
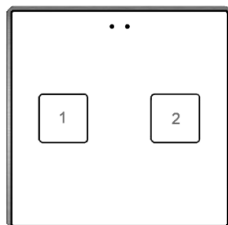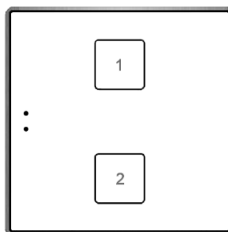

Figure 7. Normal orientation.

Figure 8. Rotated orientation.

2.3.1 CONFIGURATION

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

- **Disabled:** button will not react to user presses. See section 2.3.2.

- **Check Occupancy:** shows the occupancy status of the room. See section 2.3.3.

- **Make-Up In Progress:** changes the status of the room to *Make-Up In Progress*. See section 2.3.4.

The buttons will have a **time threshold** configured to perform their function. The purpose of this delay is that the functionality of the buttons is exclusive to the hotel staff, remaining hidden to the guests.

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".
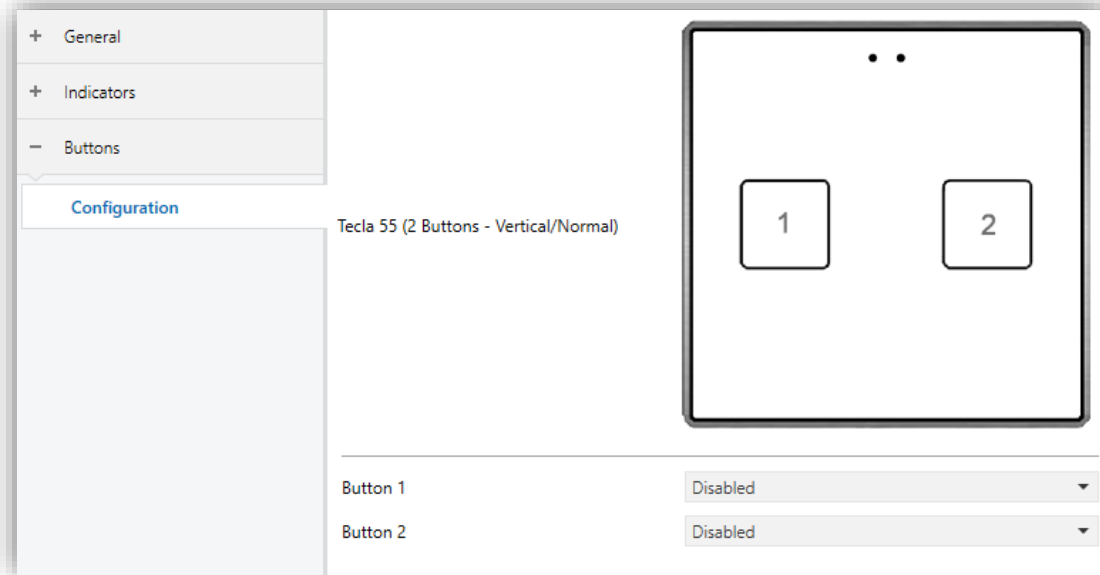

Figure 9. Buttons

For each **button**, whose position depends on the orientation selected in "Configuration" (see section 2.1.1), a list with the following options is displayed:

- [*Disabled*]. See section 2.3.2 for details.

- [*Check Occupancy*]. Selecting this option brings the tab "Button X: Check Occupancy", which will make it possible to configure the functionality of that particular touch button. See section 2.3.3 for details.

- [*Make-Up In Progress*]. Selecting this option brings the tab "Button X: Make-Up In Progress", which will make it possible to configure the functionality of that particular touch button. See section 2.3.4 for details.

2.3.2 DISABLED

While a button stays disabled, it will not be functional: touching on it will not cause the execution of actions, nor will make the associated LED light.

ETS PARAMETERISATION

This function has no related parameters.

2.3.3 CHECK OCCUPANCY

By enabling a button with this functionality, the occupancy status of the room will be known through 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 parameterized for the current occupancy status will blink for 5 seconds.

ETS PARAMETERISATION

When an individual button is enabled as "Check Occupancy" in "Configuration" tab (see section 2.3.1), the "Button X: Check Occupancy" subtab becomes available in the tree on the left.

Figure 10. Button X: Check Occupancy.

This tab provides two parameters to set which indicators should flash according to the value acquired by the object "**[General] Presence: Occupancy State**":

- **Occupied** [*Blink Indicator 1 / Blink Indicator 2 / Blink Both Indicators*]: sets the action on the indicators after checking when the room status is *Occupied*.

- **Not Occupied** [*Blink Indicator 1 / Blink Indicator 2 / Blink Both Indicators*]: sets the action on the indicators after checking when the room status is *Not Occupied*.

Additionally, the parameter **Press Threshold Time** [_1...5...15_] [_x1s_] determines the time during which no pulse is considered.

2.3.4 MAKE-UP IN PROGRESS

By enabling a button with this functionality, **notifying the start and end of room make-up** will be possible.

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

- **1-Bit Object** for activation/deactivation of the _Make-Up In Progress_ function.

- **Room State Object:** the action of the button is linked to the room status object so that each press will send a message to the bus switching the status between _Make-Up In Progress / Normal_.

In addition, the **_make-up in progress_ status could be notified** by the flashing of the indicators. A new press will be necessary to notify the end of make-up.

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

> **_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 is enabled as "Make-Up In Progress" in "Configuration" tab (see section 2.3.1), the "Button X: Make-Up In Progress" subtab becomes available in the tree on the left.
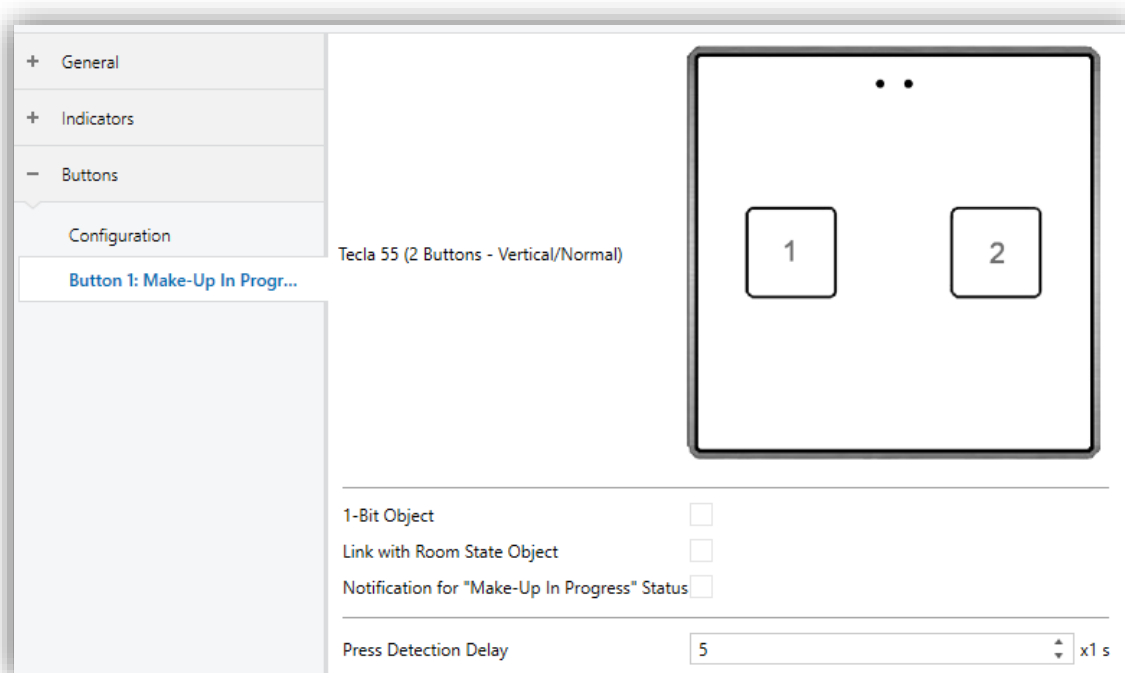

Figure 11. Button X: Make-Up In Progress.

This tab offers the following options, which are not mutually exclusive, for the activation and/or notification of *Make-Up In Progress* status:

- **1-Bit Object** [*disabled*/*enabled*]: enables or disables the binary object "**[PX] Make-Up In Progress**" that will activate or deactivate the *Make-Up In Progress* of the room.

- **Link with Room State Object** [*disabled*/*enabled*]. If the current status of the room is other than *Make-Up In Progress* and a press is made, the "**[General] Room State**" object will be sent to the bus updating it to that status. A new 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 made-up. The flashing will stop with another press, notifying the end of the making-up process.

  - ➤ **Type** [*Blink Both Indicators / Blink Indicator 1 / Blink Indicator 2*]: sets the action on the indicators when the room status is *Make-Up In Progress*.

As in the check occupancy option, the **Press Threshold Time** [*1...5...15*] [*x1s*] will determine how long the pulsing must be maintained to be considered.

2.4 INPUTS

Tecla 55 X2 Sign incorporates **a single analogue/digital input** configurable as a **temperature probe**, to connect a temperature from Zennio.

2.4.1 TEMPERATURE PROBE

Please refer to the specific user manual "**Temperature Probe**", available in the Tecla 55 Sign product section, at the Zennio website (www.zennio.com).

ANNEX I. 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.

Number	Size	I/O	Flags	Data type (DPT)	Functional Range	Name	Function
1	1 Bit		C - - T -	DPT_Trigger	0/1	[Heartbeat] Object to Send '1'	Sending of '1' Periodically
2	1 Byte		C - - T -	DPT_SceneNumber	0 - 63	[General] Scene: Send	0 - 63 (Run Scene 1-64)
3	1 Byte	I	C - W - -	DPT_SceneNumber	0 - 63	[General] Scene: Receive	0 - 63 (Run Scene 1-64)
4	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Touch Locking	0 = Unlock; 1 = Lock
4	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Touch Locking	0 = Lock; 1 = Unlock
5	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Sounds - Disabling Button Sound	0 = Disable Sound; 1 = Enable Sound
5	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Sounds - Disabling Button Sound	0 = Enable Sound; 1 = Disable Sound
6	1 Byte	I/O	C R W T U	DPT_Room_State	0/1	[General] Room State	0 = Normal; 1 = Make-Up Room; 2 = Do Not Disturb; 3 = Make-Up in Progress
7	1 Bit	I	C - W T U	DPT_Occupancy	0/1	[General] Presence: Occupancy State	0 = Not Occupied; 1 = Occupied
8	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Proximity Sensor	0 = Disable; 1 = Enable
9	1 Bit	I	C - W - -	DPT_Start	0/1	[General] External Proximity Detection	1 = Detection
10	1 Bit		C - - T -	DPT_Start	0/1	[General] Proximity Detection	Send 1 when Proximity is Detected
11	1 Bit		C - - T -	DPT_Bool	0/1	[General] Luminosity (1-Bit)	0 = Over Threshold; 1 = Under Threshold
11	1 Bit		C - - T -	DPT_Bool	0/1	[General] Luminosity (1-Bit)	0 = Under Threshold; 1 = Over Threshold
12	1 Byte	O	C R - - -	DPT_Scaling	0% - 100%	[General] Luminosity (Percentage)	0% ... 100%
14	1 Bit	I	C - W - -	DPT_DayNight	0/1	[General] Backlight Mode	0 = Night Mode; 1 = Normal Mode
14	1 Bit	I	C - W - -	DPT_DayNight	0/1	[General] Backlight Mode	0 = Normal Mode; 1 = Night Mode
17, 18	1 Bit	O	C R - T -	DPT_Switch	0/1	[Bx] Make-Up In Progress	0 = Off; 1 = On
19	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00º - 670433.28º	[Ix] Current Temperature	Temperature Sensor Value
20	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Overcooling	0 = No Alarm; 1 = Alarm
21	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Overheating	0 = No Alarm; 1 = Alarm
22	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Probe Error	0 = No Alarm; 1 = Alarm

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