



Flat RGB 55/70 Display

Capacitive touch panel with round display, 4/7 buttons with RGB backlight and customisable printed glass

**ZVIFR55D
ZVIFR70D**

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

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1 INTRODUCTION

1.1 FLAT RGB 55/70 DISPLAY

Flat RGB 55 Display and Flat RGB 70 Display are Zennio **multifunction KNX capacitive touch switch with an analogue display**, incorporating a proximity sensor and an internal temperature probe, as well as backlighting for both the display and the buttons.

They are offered at **a reduced size and weight**, with **four or seven capacitive touch buttons** on the corners **and a display** in the middle, as well as **RGBW LED backlight** to confirm the press of the buttons or showing states.

Flat RGB 55/70 Display is a fully customisable solution for the room control where the user needs to control climate systems, lighting, blinds, scenes, etc. Moreover, the **display** offers the possibility of showing useful information to the user about the control states and object values.

The versatility offered by the functionality of buttons is complemented by the built-in **analogue/digital inputs** and the **thermostat** function, as well as an elegant and **fully customisable design of the front glass** – customers can choose their button icons, texts and colours and even personalise the background with their pictures, logos, etc.

The most outstanding features are:

- Dimensions of **55 x 55 mm** and **70 x 70 mm** for installation in standard mounting box, with 55 x 55 and 70 x 70 frames respectively.
- **1.18 inch (1.18") round OLED display** with a resolution of **128 pixels** diameter.
- **Fully customisable** design of the front glass.
- **4 or 7 touch buttons** which can operate as individual or pair controls.
- **RGBW 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, and of setting a timed/automatic locking of the device (**cleaning function**).
- **Welcome greeting on the display** and **Welcome Back object** (binary or scene).
- **Screensaver** function.
- **Two analogue/digital inputs** (for motion detectors, temperature probes, additional switches, etc.).
- **Thermostat** function.
- **Celsius and Fahrenheit** temperature scales for the on-screen indicators, being possible to select them in parameters or through communication object.
- **Proximity sensor** for quick start.
- **Heartbeat** or periodical “still-alive” notification.
- **Clock functionality** (subject to updating through devices with RTC or NTP client).
- **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).

1.2 START-UP AND POWER LOSS

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

- Proximity sensor.
- Button presses.

For a correct calibration of the proximity sensor it is recommended not to approach less than 50 cm from the device during this time.

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 must be parameterized, either related to its **general behavior** (screensaver, sounds, lock procedure of the touch panel...) or to **advanced features** (cleaning function, welcome back object, welcome greeting...).

2.1.1 CONFIGURATION

In the "Configuration" tab, the general settings are displayed.

ETS PARAMETERISATION

This tab shows the following parameters:

- **Device** [[Flat RGB 55 Display \(4 Buttons\)](#) / [Flat RGB 70 Display \(7 Buttons\)](#)]¹: the application program can be downloaded to both device sizes. If the correct option is not selected, commissioning will still be performed correctly, according to the number of available buttons

Note: in ETS, an illustration of the final layout will be shown in the "Configuration" tab of the "Buttons" section (see section 2.3.1).

- **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 2.3 for details.
- **Display** [[enabled](#)]: read-only parameter to make it evident that the "Display" 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: [\[default/rest of options\]](#).

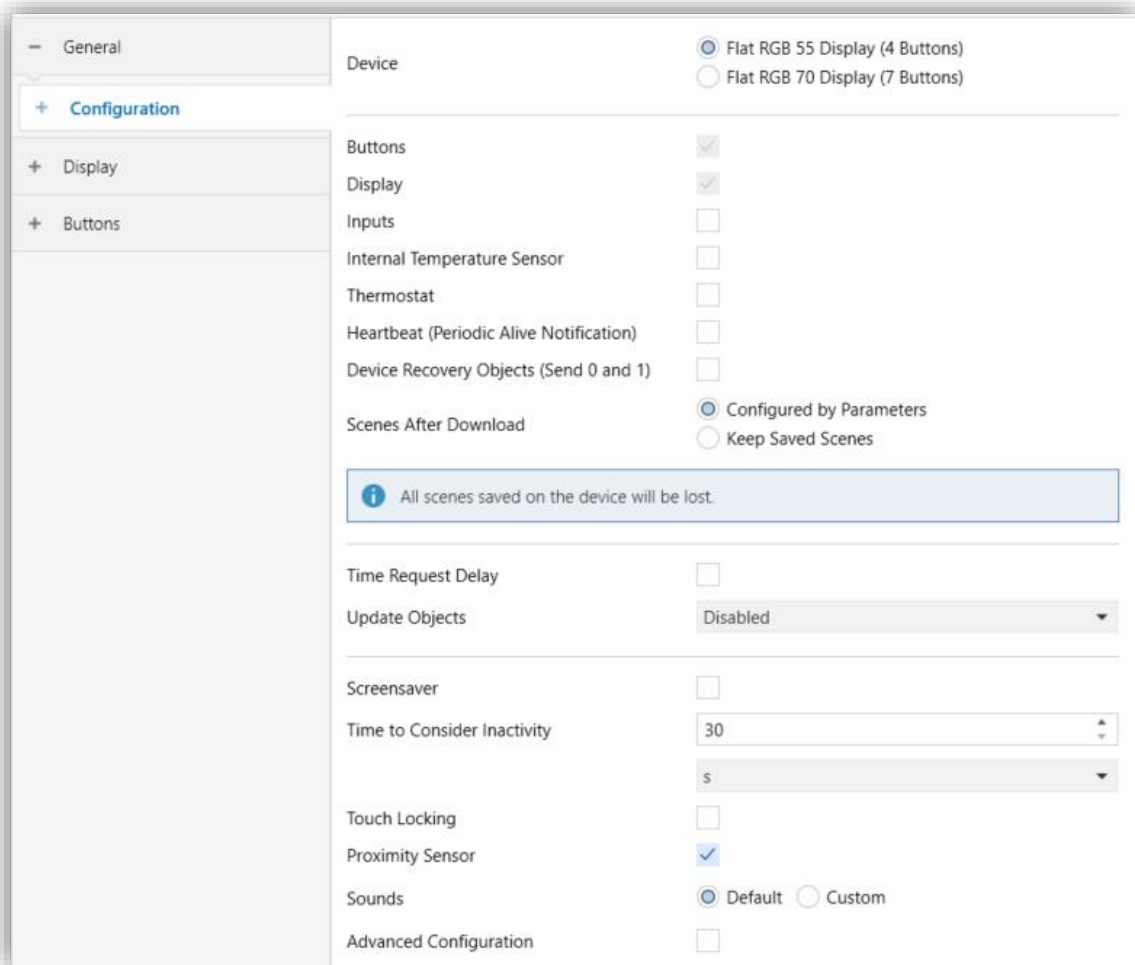


Figure 1. Configuration

- **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 **¡Error! No se encuentra el origen de la referencia.** for details.
- **Internal Temperature Sensor** [\[disabled / enabled\]](#): enables or disables the “Internal Temp. Sensor” tab in the tree on the left. See section **¡Error! No se encuentra el origen de la referencia.** for details.

Note: to ensure correct temperature sensor measurement, when it is enabled, the **Time to Consider Inactivity** parameter will be limited.
- **Thermostat** [\[disabled / enabled\]](#): enables or disables the “Thermostat” tab in the tree on the left. See section 2.5 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*).

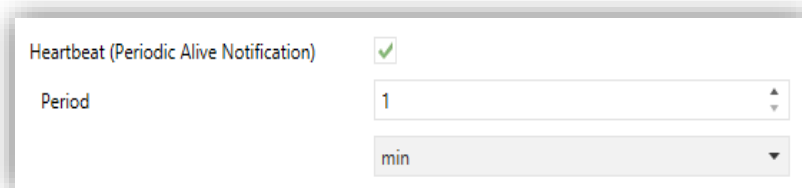


Figure 2. Heartbeat

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.

- **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.

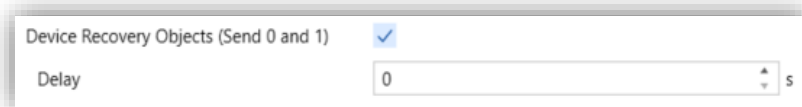


Figure 3. Device Recovery Objects

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.

- **Time Request Delay** [[disabled](#) / [enabled](#)]: sets a sending **Delay** [[1...65535](#)] [[s](#) / [min](#) / [h](#)] for the time request when the device starts up.
 - **Update Objects** [[Disabled](#) / [After Programming](#) / [After Reset](#) / [After Programming and Reset](#)]: enables the sending of read requests to update status objects and indicators. If enabled, the following parameter will appear:
 - **Delay** [[0...10...65535](#)] [[s](#) / [min](#) / [h](#)]: set a delay time until the start of sending read requests.
 - **Screensaver** [[disabled](#) / [enabled](#)]: enables or disables the “Screensaver” tab in the tree on the left. See section 2.1.3 for details.
 - **Run Button Action on Screensaver Exit** [[disabled](#) / [enabled](#)]: this option allows the action associated with the control to be executed when a button is pressed while the screensaver is active.
 - **Time to Consider Inactivity** [[30...255](#)] [[s](#)] / [[1...255](#)] [[min](#)] / [[1...18](#)] [[h](#)]: allows setting a time after which, if no pulsation or proximity detection has occurred, the LEDs and display turn off (or acquire the brightness level configured, see section 2.1.7).
- Note:** if the internal temperature sensor is enabled, the units will be restricted to seconds.
- **Touch Locking** [[disabled](#) / [enabled](#)]: enables or disables the possibility of locking the touch by object. When enabled, a new tab is added in the tree on the left (see section 2.1.4).
 - **Proximity Sensor** [[disabled](#) / [enabled](#)]: enables the proximity sensor. This functionality permits “waking up” the device display when detecting presence. See section 2.1.5 for details.
 - **Sounds** [[Default](#) / [Custom](#)]: sets whether the sound functions (button beeps and doorbell) should work according to the pre-defined configuration or to a user-defined configuration (see section 2.1.6).
 - **Advanced Configuration** [[disabled](#) / [enabled](#)]: enables or disables the “Advanced” tab in the tree on the left. See section 2.1.8 for details.

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 (e.g., when the user touches a button that has been configured to send scene commands)
- “[General] Activity”: 1-bit object that allows to force activity or inactivity state in the device. See section 2.1.7 for details.
- “[General] Proximity Sensor”, “[General] External Proximity Detection” and “[General] Proximity Detection”: 1-bit object whose functionality is tied to the proximity sensor. See section 2.1.5 for details.
- “[General] Time of Day”: 3-byte object for setting the internal time of the device, for example, by linking it to a KNX clock. This object also allows read requests, so the current time of the device can be checked. It is also automatically sent after time changes made by the user from the screen itself.

Important: *the time of day must be set through the bus by means of an external reference. In the absence of power, the clock will become outdated.*

- “[General] External Temperature”: 2-byte object through which the device can receive the temperature values from the bus.
- “[General] Display - Brightness”: 1-byte percentage object for changing the display brightness level.
- “[General] LEDs Base Colour”: 1-byte object that allows the LED colour to be changed during runtime.

2.1.2 INTERNAL 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 SCREENSAVER

The screensaver is a special page that will only be shown after a **period of inactivity**, configurable by parameter.

It is possible to choose whether the **time** is to be displayed, by means of an **analogue clock** or by means of a **digital clock**, the current **temperature** or, only if a digital clock is chosen, **both** (which will be displayed alternately every 5 seconds).

To exit the screen saver, press on the screen or move closer to the screen if the proximity sensor is activated. It can be set by parameter if, while the screen saver is active, pressing the touch panel will only cause the screen saver to be interrupted, or if the action corresponding to the button pressed must also be executed (see section 2.1.1).

Notes:

- *When showing the welcome greeting (see section 2.1.8.2), screensaver will not become active.*
- *When screensaver will be active and a pop-up will be active (see touch locking 2.1.4, cleaning function 2.1.8.1 or welcome greeting 2.1.8.2) this pop-up will become show up over screensaver.*

ETS PARAMETERISATION

After enabling **Screensaver** from the "Configuration" tab (Section 2.1.1) a new tab is added to the left tree:

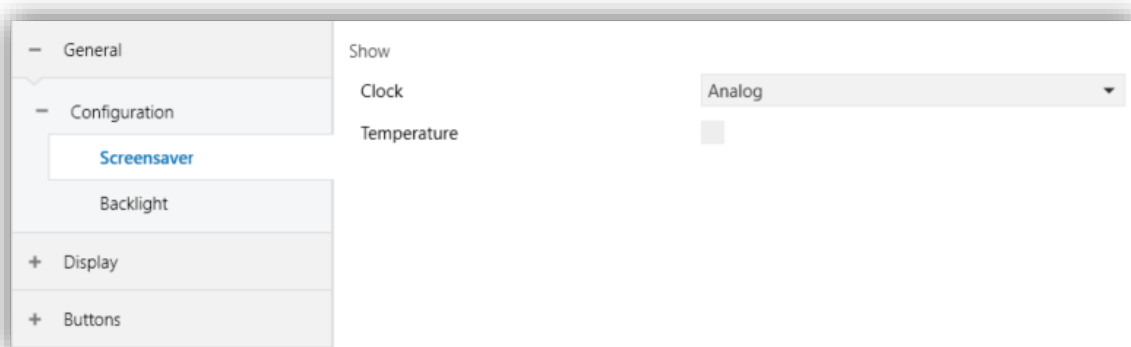


Figure 4. Configuration - Screensaver

- **Clock** [Disabled / Digital / Analog]: determines whether an analogue or digital clock is displayed or not. If "Analog" is selected, the parameter **Temperature** cannot be enabled.
- **Temperature** [disabled / enabled]: determines whether to display the current temperature or not.

2.1.4 TOUCH LOCKING

The touch panel of Flat RGB 55/70 Display 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, user presses on the touch buttons will be ignored: no actions will be performed when the user presses on any of the controls. However, if configured, an icon will be shown on the display for three seconds if the user touches a button during the lock state.

ETS PARAMETERISATION

After enabling **Touch Locking** from the "Configuration" tab (Section 2.1.1) a new tab is added to the left tree:

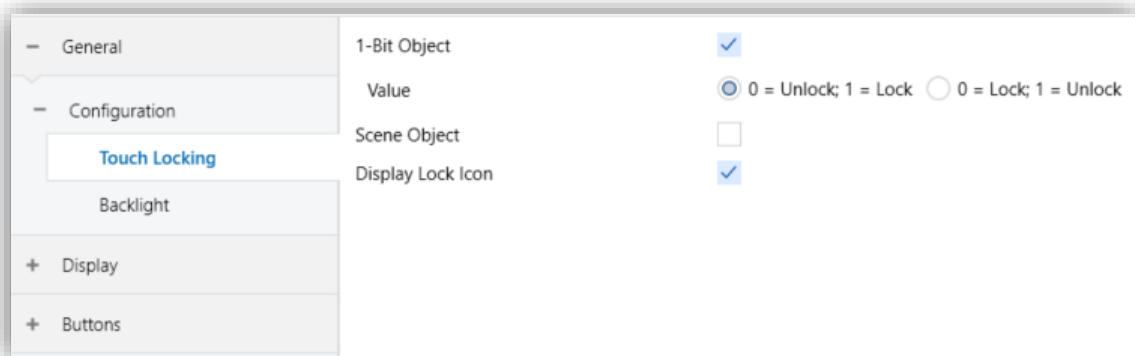


Figure 5. Configuration - Touch Locking

- **1-Bit Object** [disabled / enabled]: enables the 1-bit object "[General] Touch Locking" to trigger the touch lock.
 - **Value** [0 = Unlock, 1 = Lock / 0 = Lock, 1 = Unlock]: parameter to select which value should trigger which action when received through the indicated object.

- **Scene Object** [[disabled](#) / [enabled](#)]: enables the touch locking and unlocking when receiving the configured scene value through the object (“**[General] Scene: receive**”).
 - **Lock: Scene Number (0 = Disabled)** [[0...1...64](#)]: scene number that locks the touch.
 - **Unlock: Scene Number (0 = Disabled)** [[0...1...64](#)]: scene number that unlocks the touch.
- **Display Lock Icon** [[disabled](#) / [enabled](#)]: sets whether to display a padlock icon in the centre of the screen when the device is locked and the user attempts to touch a button.

2.1.5 PROXIMITY SENSOR

Flat RGB 55/70 Display incorporates a **proximity sensor** in order to “wake” the device upon detecting presence.

ETS PARAMETERISATION

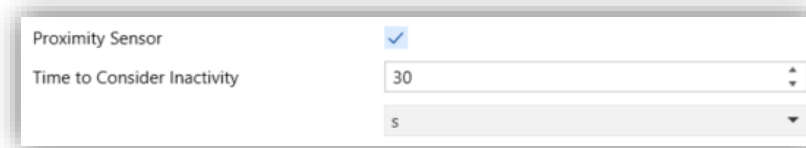


Figure 6. Proximity Sensor

- **Proximity Sensor** [[disabled](#) / [enabled](#)]: enables the proximity sensor functionality. This allows the device to “wake” upon detecting presence via the proximity sensor. Whenever the device is in the idle state, a “1” will be sent via the “**[General] Proximity detection**” object when proximity is detected. This object is always available, even if the proximity sensor is not enabled.

It is also possible to enable or disable the sensor at runtime using the object “**[General] Proximity Sensor**”.

On the other hand, the object “**[General] External Proximity Detection**” is always available and allows simulating a proximity detection equivalent to detecting proximity by the internal sensor. In this way it would be possible to delegate proximity detection to another device.

- **Time to Consider Inactivity** [\[30...255\] \[s\]](#) / [\[1...255\] \[min\]](#) / [\[1...18\] \[h\]](#): allows setting a time after which, if no pulsation or proximity detection has occurred, the LEDs and display turn off (or acquire the brightness level configured, see section 2.1.7).

Note: *if the internal temperature sensor is enabled, the units will be restricted to seconds.*

2.1.6 SOUNDS

The device emits **3 types of sounds**, depending on the action performed:

- **Press Confirmation:** short beep indicating that the user has pressed a button. This only applies to step controls, i.e., controls that walk through a certain range of values and that do not send a value after every touch, but only the final value after the last press. For this action, the user can choose between two different sounds.
- **Sending Confirmation:** a slightly longer and sharper beep than the previous one. It indicates the sending of an object to the bus as a result of a press.
- **Alert notification:** high-pitched sound with high volume, which is reproduced intermittently in exceptional cases. Each case is specified in its corresponding section.

Note: *the range of sounds emitted when these actions are performing will be different depending on the sound selected type.*

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

Important: *under no circumstances the ring tone will be muted.*

ETS PARAMETERISATION

After enabling the “Custom” configuration of **Sounds** from “Configuration” screen (see section 2.1.1), a new tab will be incorporated into the tree on the left.

The initial configuration of this screen is equivalent to the default setting. However, the following parameters can be customized:

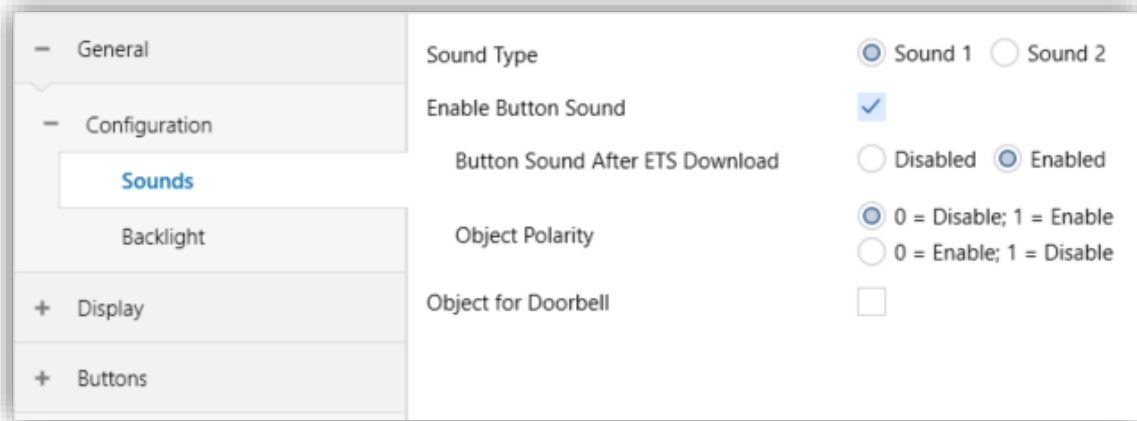


Figure 7. Configuration - Sounds

- **Sound Type** [[Sound 1](#) / [Sound 2](#)]: parameter to select which sounds range incorporates the device.
- **Enable Button Sound** [[disabled](#) / [enabled](#)]: enables or disables the acoustic signals when the actions derived from the button clicks are executed. If enabled, makes it possible to disable / resume the button beeping function in runtime by writing to a specific object (“**[General] Sounds - Disabling Button Sound**”) and the following parameters will appear:
 - **Button Sound After ETS Download** [[disabled](#) / [enabled](#)]: sets whether the button beeping function should start up enabled (default option) or disabled after an ETS download.
 - **Object Polarity** [[0 = Disable; 1 = Enable](#) / [0 = Enable; 1 = Disable](#)]: parameter to select which value should trigger which action when received through the indicated object
- **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.
 - **Value** [[0 = No Action, 1 = Doorbell](#) / [0 = Doorbell, 1 = No Action](#)]: parameter to select which value should trigger which action when received through the indicated object.

2.1.7 BACKLIGHT

Flat RGB 55/70 Display enables management the display and LEDs brightness according to two operating modes: **normal** mode and **night** mode. The second one is optional. It is provided for temporary situations and environments where an excess of brightness may disturb the user. In such case, it will be possible to switch the mode by means of a one-bit object and/or a scene object.

Within each mode, each LED can commute between three levels: **OFF** (which not necessarily means “no light”), **ON** (which not necessarily means “light on”) or **inactivity** which determines the LED illumination level after the time to consider inactivity (see section 2.1.1). The display commutes between two levels: **active** or **inactive**. The last one is set, as for the LED, after the time to consider inactivity.

It is also possible to set the display to turn completely off after a certain time without interaction with the device. It is important to note that **activity time and turn off time begin to be considered at the same moment**, so, if the turn off time is shorter than the activity time, the display will directly turn off without attenuation.

When in idle state, both the LED and the display will return to the level set for activity in case of user interaction with the device.

In addition to the custom brightness levels according to the active mode, there will be an object to modify the brightness of the display. The backlight will be applied over the brightness level of the object:

Example: if the general brightness has a value of 80% and the display brightness level is 50%, then the final display backlight will be 40% ($50\% \times 80\% / 100$).

ETS PARAMETERISATION

Devices with display which incorporate this module have by default a 1-byte object (“**[General] Display - Brightness**”) that allow modifying its brightness level. In the “Backlight” tab will be configured all aspect related to the backlighting of the display and LED:

The screenshot shows the Zennio configuration interface for the Flat RGB 55/70 Display. The left sidebar contains a tree view with 'General', 'Configuration', 'Backlight', 'Display', and 'Buttons'. The 'Backlight' section is selected and highlighted in blue. The main area displays the configuration for the Backlight, organized into three sections: Normal Mode, Night Mode, and Mode Control.

Normal Mode (checked):

- LEDs: OFF, Brightness Level: 20 %
- LEDs: ON, Brightness Level: 100 %
- LEDs: Inactivity, Brightness Level: 0 %
- Display: Backlight Level - Active: 100 %
- Display: Backlight Attenuation: Turn Off the Screen After Turn Off Time
- Display: Backlight Level - Attenuated: 60 %
- Note: Inactivity Time Taken from the Parameter "Time to Consider Inactivity"
- Display: Time to Turn Off: 3 min

Night Mode (checked):

- LEDs: OFF, Brightness Level: 1 %
- LEDs: ON, Brightness Level: 10 %
- LEDs: Inactivity, Brightness Level: 0 %
- Display: Backlight Level - Active: 50 %
- Display: Backlight Attenuation: Turn Off the Screen After Turn Off Time
- Display: Backlight Level - Attenuated: 20 %
- Note: Inactivity Time Taken from the Parameter "Time to Consider Inactivity"
- Display: Time to Turn Off: 3 min

Mode Control:

- Control Object: 1-Bit (checked)
- Value:
 - ☒ 0 = Normal Mode; 1 = Night Mode
 - ☐ 0 = Night Mode; 1 = Normal Mode
- Control Object: Scene: ☐
- Backlight Mode after ETS Download:
 - ☒ Normal Mode
 - ☐ Night Mode

Figure 8. Backlight

- **Normal Mode** [enabled]: the following parameters set the LEDs brightness levels for each state in normal mode:
 - **LEDs: OFF, Brightness Level** [0...20...100] [%].
 - **LEDs: ON, Brightness Level** [0...100] [%].
 - **LEDs: Inactivity, Brightness Level** [0...100] [%].
 - **Display: Backlight Level - Active** [1...100] [%].
 - **Display: Backlight Attenuation**: sets the display behaviour after the no-activity time or turn off time has elapsed. The available options are:

- “Turn Off the Screen After Turn Off Time”: the display remains on until the **time to turn off** is exceeded.

If the inactivity time is greater than the turn off time, the display will switch off without previous attenuation. If the inactivity time is less than the turn off time, the display acquires the attenuated backlight level after the inactivity time and switches off after the turn off time.

Example. Assuming the following setting:

- Time to Consider Inactivity: 1 min.
- Display: Backlight Attenuation: Turn off the screen after a long period of inactivity.
- Display: Backlight Level - Attenuated: 60%.
- Display: Time to Turn Off: 3 min

After one minute of inactivity the display illumination goes down to 60%. After two more minutes the display turns off completely.

On the other hand, if we invert the inactivity time and the off time:

- Time to Consider Inactivity: 3 min.
- Display: Time to Turn Off: 1 min.

After one minute of inactivity the display is completely turned off, so the attenuated backlight level is never achieved.

- “Attenuate the Screen After Inactivity Time”: the display remains at maximum brightness until the inactivity time is exceeded. After this time, the display will change to the attenuation level.
- “Max Illumination Always”: the display will not attenuate or turn off at any time.

If either of the first two options is selected, sending “0” by the object “[General] Activity” will cause the immediate attenuation or or shutdown, depending on whether the brightness was at its maximum or was attenuated.

Depending on the option chosen, certain parameter will be shown:

- **Display: Backlight Level - Attenuated** [0...60...100] [%]: percentage of display brightness after reaching inactivity time. This parameter is not available if the option “Max Illumination Always” is selected.
- **Display: Time to Turn Off** [1...3...65535] [s / min / h]: time that must elapse without activity (non-interacting) for the display to turn off. This parameter will be only available when the option “Turn Off the Screen After Turn Off Time” is selected.
- **Night Mode** [[disabled](#) / [enabled](#)]: in case of being this mode necessary, this checkbox needs to be marked. The parameters to be configured are the same as those of the normal mode, changing only the default values:
 - **LEDs: OFF, Brightness Level** [0...1...100] [%].
 - **LEDs: ON, Brightness Level** [0...50...100] [%].
 - **LEDs: Inactivity, Brightness Level** [0...100] [%].
 - **Display: Backlight Level - Active** [0...50...100] [%].
 - **Display: Backlight Attenuation** [[Turn Off the Screen After Turn Off Time](#) / [Attenuate the Screen After Inactivity Time](#) / [Max Illumination Always](#)].
 - **Display: Backlight Level - Attenuated** [0...20...100] [%].
 - **Display: Time to Turn Off** [1...3...65535] [s / min / h].
- **Mode Control:** allow managing the transition between normal mode and night mode through two types of objects:
 - **Control Object: 1-Bit** [[disabled](#) / [enabled](#)]: after marked, switching the mode by writing to the binary object “[**General**] **Backlight Mode**” will be possible. Then the **Value** to activate which mode [[0 = Normal Mode; 1 = Night Mode](#) / [0 = Night Mode; 1 = Normal Mode](#)] will have to be selected.
 - **Control Object: Scene** [[disabled](#) / [enabled](#)]: it is also possible to modify the backlight mode using a scene value received by the “[**General**] **Scene: Receive**” object. When enabled, the following parameters are available:
 - **Normal Mode: Scene Number (0 = Disabled)** [0...1...64]. Defines the scene value that activates the normal mode.
 - **Night Mode: Scene Number (0 = Disabled)** [0...1...64]. Defines the scene value that activates the night mode.

- **Backlight Mode after ETS download** [*Normal Mode / Night Mode*]: sets which of the two modes will be active after an ETS download.

2.1.8 ADVANCED CONFIGURATION

Tab for the parameterisation of some advanced functions is shown in ETS if enabled from the “Configuration” tab. These functions are explained next.

ETS PARAMETERISATION

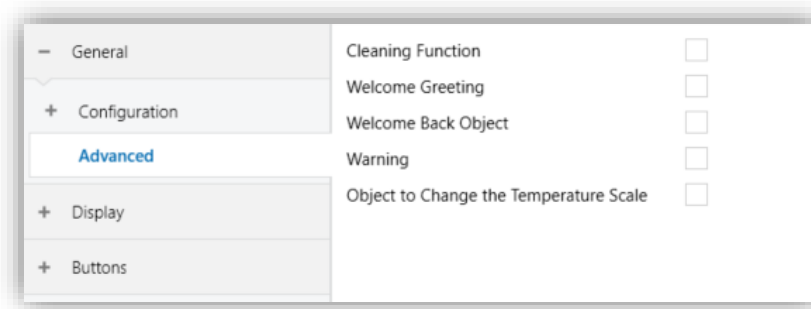


Figure 9. Advanced

- **Cleaning Function** [*disabled / enabled*]: enables or disables the “Cleaning Function” tab. See section 2.1.8.1 for details.
- **Welcome Greeting** [*disabled / enabled*]: enables or disables the “Welcome Greeting” tab. See section 2.1.8.2 for details.
- **Welcome Back Object** [*disabled / enabled*]: enables or disables the “Welcome Back Object” tab. See section 2.1.8.3 for details.
- **Warning** [*disabled / enabled*]: enables or disables the “Warning” tab. See section 2.1.8.4 for details.
- **Object to Change the Temperature Scale** [*disabled / enabled*]: enables the 1-bit object “[General] Temperature Scale”), which permits changing in runtime the scale of the temperatures that may show on the screen. By receiving one “0” through this object, the scale will switch to Celsius, while after receiving one “1” it will switch to Fahrenheit.

The selected scale applies to any temperatures shown on the screen, such as:

- The **screensaver** temperature.

- Indicators of **temperature controls** linked to a box in the display.
- **Temperature indicators.**

After enabling this functionality, the following parameter will also appear:

- **Scale After Programming** [*Celsius (°C)* / *Fahrenheit (°F)*]: sets the scale in use after download.

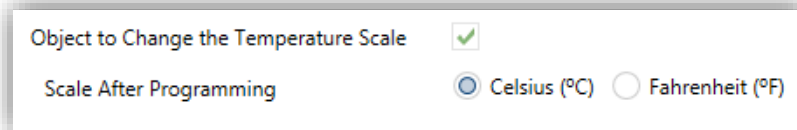


Figure 10. Temperature Scale After Programming

2.1.8.1 CLEANING FUNCTION

This feature is very similar to the touch locking, that is, it locks the touch area, thus discarding further button touches. The difference is that this function remains active only during a parameterizable time, and then stops.

This function is intended to let the user clean the touch area with the certainty of not triggering unwanted actions.

A cleaning icon can be shown during the cleaning state. When the timeout is about to end, it is also possible to make this cleaning icon blink or to make the device beep (or both).

ETS PARAMETERISATION

After enabling **Cleaning Function** from “Advanced” screen (see section 2.1.8), a new tab will be incorporated into the tree on the left.

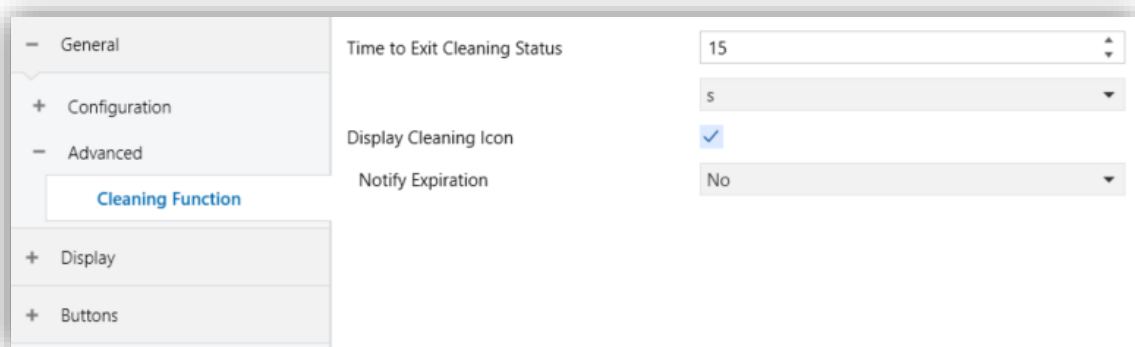


Figure 11. Advanced - Cleaning Function

- **Time to Exit Cleaning Status** [5...15...65535] [s] / [1...65535] [min / h]: timeout to deactivate the cleaning function once triggered.
- **Display Cleaning Icon** [disabled / enabled]: sets whether to show a cleaning icon during the cleaning state. When “Display Cleaning Icon” is selected, the following parameter appears:
 - **Notify Expiration** [No / Blink Message / Play Sound / Both]: sets whether to notify the timeout expiration or not. When any of the three later options is selected, a new parameter shows up:
 - **Length of the Warning** [1...5...65535] [s / min / h] : sets the ahead-time to start the notification prior to the end of the cleaning function.

The “[General] Cleaning Function” one-bit object triggers the cleaning function when it receives a “1” from the KNX bus.

2.1.8.2 WELCOME GREETING

This function permits showing the user a welcome message of up to four lines of text on the display, each of which can be object-dependant or set in parameters.

When a “1” is received through the welcome greeting one-bit object, the display will become blank and show the welcome text. The same will happen if any of the 14-byte objects that define the text lines receives a new value from the bus.

It is also possible to make the button LEDs flash during the welcome state.

The message disappears when touching the screen or ending the welcome greeting with the object.

Note: *welcome greeting takes precedence over screensaver. When the welcome greeting is displayed, the screensaver will be disabled until the first one disappears.*

ETS PARAMETERISATION

After enabling **Welcome greeting** (section 2.1.8), a new tab will be incorporated into the tab tree. A one-bit object named “[General] Welcome Greeting” will also be shown in the project topology, to trigger the welcome message by sending the value “1” or to end it by sending the value “0”.

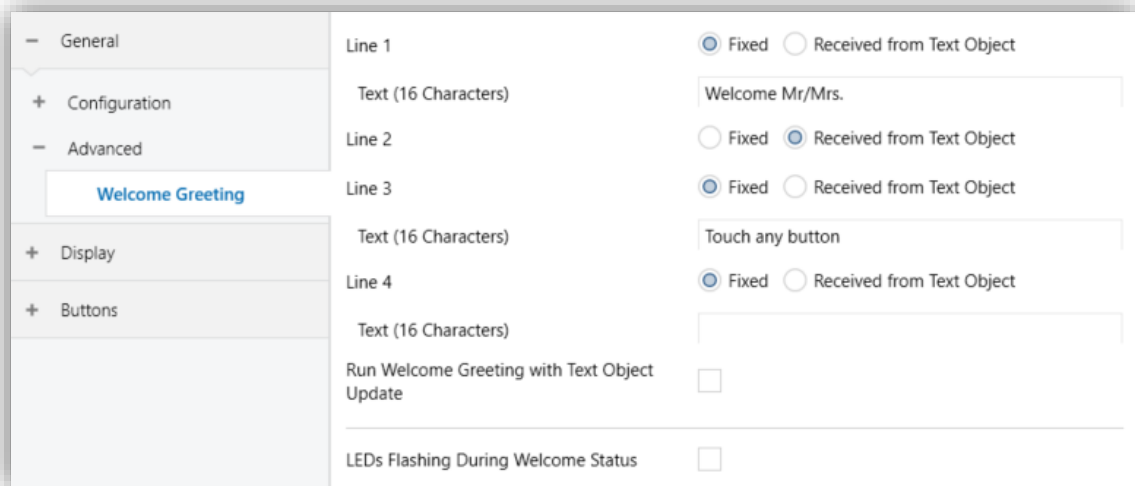


Figure 12. Advanced - Welcome Greeting

This screen contains the following parameters:

- **Line X** [*Fixed* / *Received from Text Object*]: sets whether the corresponding text line will be pre-defined or object-dependent.

If "*Fixed*" is selected, the following parameter will appear:

- **Text:** textbox to enter the desired text for the corresponding line.

If "*Received from text Object*" is selected, the following parameter will appear:

- **Run Welcome Greeting with Text Object Update** [*disabled* / *enabled*]: allows choosing whether run the welcome greeting when writing on the 14 bytes object "[General] Welcome Greeting - Line X". Up to four objects will appear, depending on how many lines have been assigned the "*Received from text Object*" option.

- **LEDs Flashing During Welcome Status** [*disabled* / *enabled*]: sets whether the LEDs of the buttons should blink or not during the welcome greeting.
- **Colour: Welcome Greeting** [*Colour selector* (*Base Colour*)]: determines the colour to be set on the LEDs of the enabled buttons when flashing is activated by the welcome greeting.

2.1.8.3 WELCOME BACK OBJECT

Flat RGB 55/70 Display can send a specific object (a one-bit value, a scene value or both, depending on the parameterisation) to the KNX bus when the user presses a

touch button or when the proximity sensor detects presence (if enabled) after a significant amount of time since the last touch or 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.

ETS PARAMETERISATION

After enabling **Welcome Back Object** from “Advanced” screen (see section 2.1.8), a new tab will be incorporated into the tree on the left.

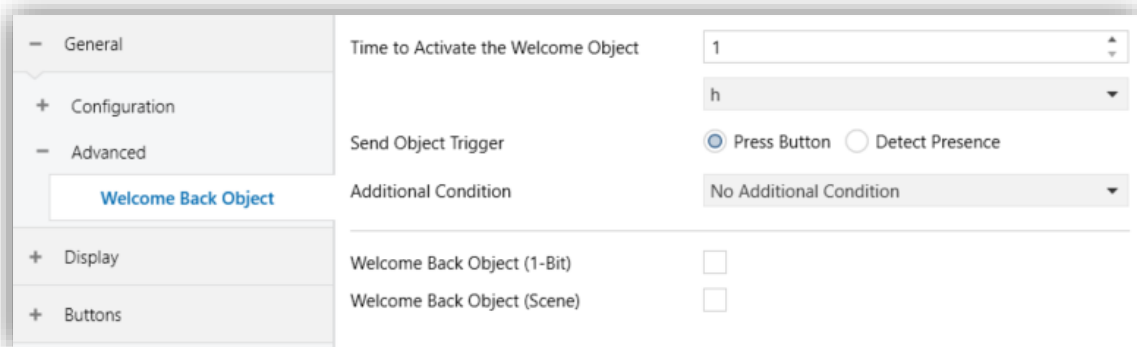


Figure 13. Advanced - Welcome Back Object

- **Time to Activate the Welcome Object** [[1...65535](#)] [[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.
- **Send Object Trigger** [[Press Button](#) / [Detect Presence](#)]: 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”.
- **Number of Condition Objects** [[1...5](#)]: up to 5 objects can be selected for the additional condition (“**[General] Welcome Back Object – Additional Condition**”).
- **Welcome Back Object (1-Bit)** [[disabled](#) / [enabled](#)]: checkbox to enable the sending of a 1-bit value (through “**[General] Welcome Back Object**”) when the welcome back function is triggered and the condition (if any) evaluates to true. The desired value should to be 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 to be set in **Scene Number** [[1...64](#)].

2.1.8.4 WARNING

This function is intended for visual and/or audible notification of an important event.

The warning is activated when the configured value is received through a 1-bit object. The display will show a flashing icon, which may be accompanied by flashing LEDs and/or a sound, if configured. In addition, do not disturb mode can be set while the device is in night mode so that, the LEDs and icon flashing, as well as the sound, will cease.

The warning can be stopped (muted) by pressing a button. However, as long as the warning remains active, when the device goes into inactivity, the icon is displayed again.

The warning is deactivated when the determined value is received through the 1-bit object, and any notification is no longer displayed.

Additionally, a 1-bit object will be available to enable or disable the warning. Therefore, the described functionality will only be executed if the warning is enabled.

Note: *Warning sound takes precedence over all other sounds.*

ETS PARAMETERISATION

After enabling **Warning** from the “Advanced” (section 2.1.8), a new tab will be incorporated into the tab tree. Two 1-bit objects named “[General] Warning” and “[General] Enable Warning Function” will also be shown in the project topology, to start or stop the warning message and enable or disable the functionality, respectively.

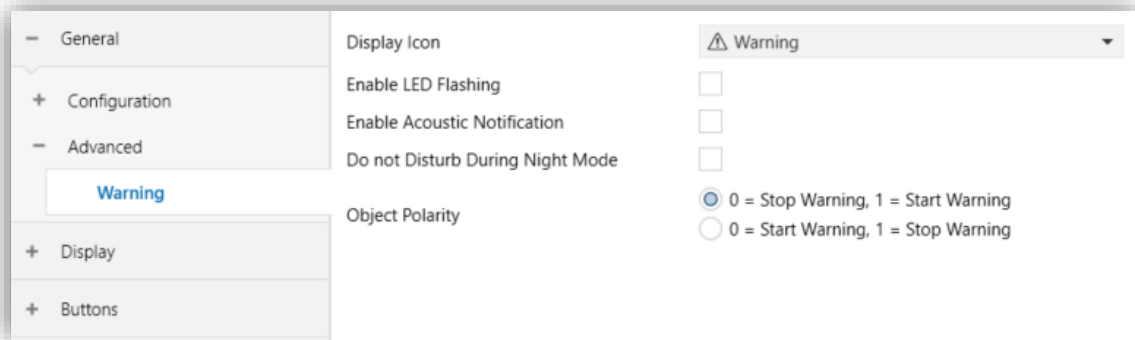


Figure 14. Advanced - Warning

This screen contains the following parameters:

- **Display Icon** [Drop-down with icons to be selected ([Warning](#))]: sets the icon that will be shown on the display once the warning is activated.
- **Enable LED Flashing** [[disabled](#) / [enabled](#)]: sets whether the LEDs of the buttons should blink or not during the warning.
- **Colour: Warning** [Colour selector ([Base Colour](#))]: determines the colour that the LEDs will display when flashing.
- **Enable Acoustic Notification** [[disabled](#) / [enabled](#)]: sets whether there will be an intermittent sound or not during the warning.

- **Do not Disturb During Night Mode** [[disabled](#) / [enabled](#)]: once enabled, while the night mode is active, there will be no flashing and no sound will be emitted during the warning.
- **Object Polarity** [[0 = Stop Warning, 1 = Start Warning](#) / [0 = Start Warning, 1 = Stop Warning](#)]: parameter to select which value should trigger which action when received through the indicated object.

2.2 DISPLAY

2.2.1 CONFIGURATION

Flat RGB 55/70 Display features a **1.18” 128 pixels diameter back-lit monochrome screen** with black background and white icons and fonts.

This screen can show useful information to the user, related to the current state of other devices or of its own controls.

The information provided by the display can consist in icons (with a resolution up to 28 pixels diameter) or alphanumeric characters (texts). Please refer to the specific document “**Icons list**” on the page for the corresponding device (available at the Zennio homepage, www.zennio.com) to see the list of available icons.

Two **different font sizes** for the alphanumeric characters are available: **Small** and **Big** (only available for the numeric characters in the horizontal double boxes and screensaver). On the other hand, the built-in character set is:

- **Basic Latin**².
- **Extended Latin**.
- **Cyrillic**.
- **Greek**.
- **Symbols**: € £ Ω

Note: See [ANNEX II. Character Selection](#) for details.

² According to the Unicode classification.

As Flat RGB 55/70 Display offers the user a sole control page (instead of alternating, browsable pages), all the content of the display is shown permanently. It only gets hidden when the screensaver or some other special messages (welcome, locking or cleaning) are superimposed.

The display is divided into different zones according to the chosen page style:

- **Normal page:** two, three or four zones, depending on whether the boxes are set as individual or double (left-right or up-down).
- **Thermostat:** the display is divided into three zones, each one with an explicit functionality.
 - **Zone 1:** occupies the upper part and it is designed to contain a fan indicator, although it can be also configured as an individual box.
 - **Zone 2:** setpoint box displayed centered on the display.
 - **Zone 3:** equivalent to **Zone 1**.

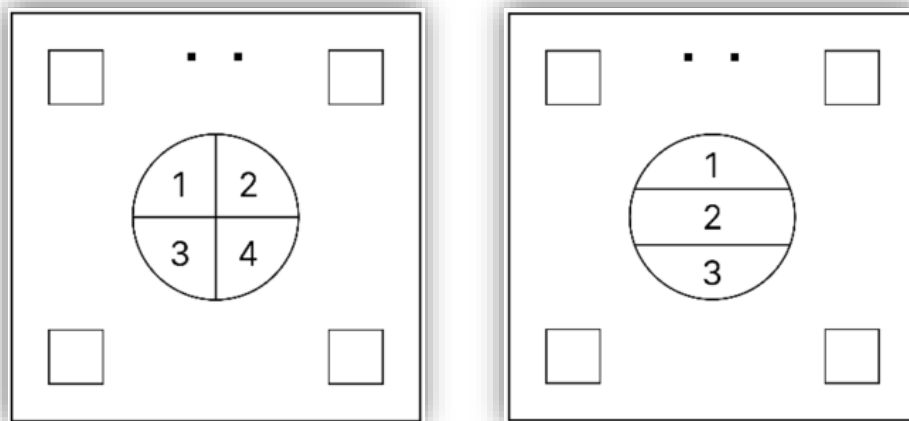


Figure 15. Display - Normal Page / Thermostat

There are up to four representation modes, configurable in parameters for each indicator: “Permanent” (always shown), “Temporary” (shown for a moment when the value changes or after a bus recovery), “Intermittent” (intermittent indicator), and “Progressive” (the icon is progressively drawn from top to bottom). The latter representation is only available for icon type indicators.

The boxes in the screen can be assigned different functions, as described next.

ETS PARAMETERISATION

An independent tab for the parameterisation of the Display is shown in ETS by default. While all the zones remain disabled, it will only contain a sub-tab named Configuration.

This display contains the following parameters:

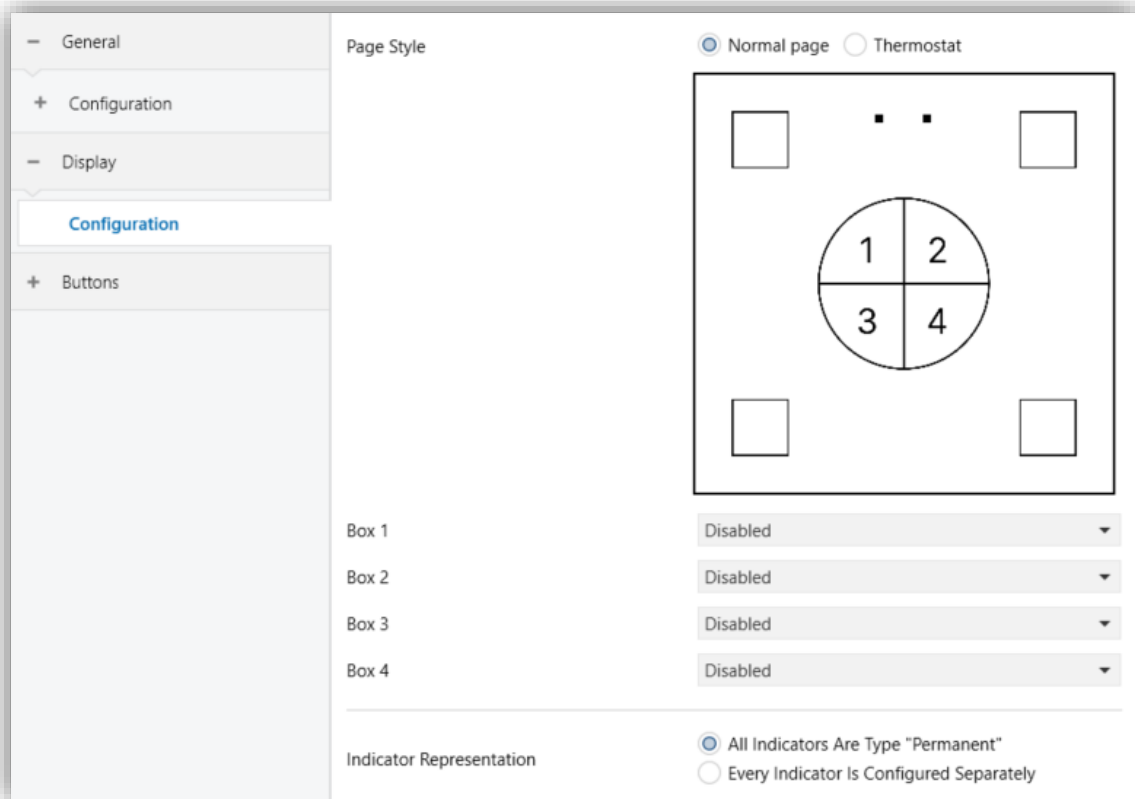


Figure 16. Display - Configuration

- **Page Style** [[Normal Page](#) / [Thermostat](#)]: sets the layout and functionality of the display.

One drop-down list is shown per **Box**. The options under it are:

- [“Disabled”](#). The area in question will be disabled and will not display anything on the screen.
- [“Individual”](#). Selecting this option brings a new tab to the tree on the left (named “y Box”, where y depends on the display zone). See section 2.2.2.

Note: this option will be available in all boxes except box 2 in [“Thermostat”](#) Page.

- **“Pair”**. Selecting this option brings a new tab to the tree on the left named “Pair Y”. See section 2.2.3.
 - **“Pair Left”**. Only available for box 1 and 3.
 - **“Pair Right”**. Only available for box 2 and 4.
 - **“Pair Up”**. Only available for box 1 and 2.
 - **“Pair Down”**. Only available for box 3 and 4.

Note: *this option is only available in “Normal” Page boxes.*

- **“Setpoint”**: Selecting **“Thermostat”** Page, this option will always be activated in **Box 2**. See section 2.2.4.
- **“Fan”**. Selecting this option brings a new tab to the tree on the left named “Box C”. See section 2.2.5.

Note: *this option will be available in boxes 1 and 3 in “Thermostat” Page.*

- **Indicator representation** [[All Indicators Are Type “Permanent”](#) / [Every Indicator Is Configured Separately](#)]: defines the representation of the indicators on the display.

In case of selecting **“Every Indicator Is Configured Separately”**, there will be a specific parameter for every box to select the desired indicator representation.

2.2.2 INDIVIDUAL

The display can be divided into up to four single boxes. Individual boxes can be assigned the following types of indicators:

- **Icon:** the indicator will represent an icon according to the value of an object. Depending on the type of object there are two types of icons:
 - **“1-Bit”**: an icon represents the On state and another one represents the Off state.
 - **“Enumeration”**: up to six different states can be represented through one icon each.

- **Number:** the indicator will represent a number (received through the associated object) and a three-character text representing the units. Different number types are available for the different object types: Scaling, Counter (1-Byte Unsigned), Counter (1-Byte Signed), Counter (2-Byte Unsigned), Counter (2-Byte Signed), Counter (4-Byte Unsigned), Float (2 Bytes).
- **Text:** the indicator will represent a text according to the value of an object. This indicator is totally analogous to the Icon indicator, but each value is associated to a text instead of an icon. The types are the same:
 - “1-Bit”: a text represents the On state and another one represents the Off state.
 - “Enumeration”: up to six different states can be represented through one text each.
- **Text from object:** Represents a string (up to 14 characters) received through the corresponding communication object.
- **[Climate] Temperature:** represents temperature values as received through the related communication object. Values in the range [-99, 199] °C and in the range [-142, 390] °F are available (depending on the selected temperature scale; see section 2.1.7). Values out of range will be replaced by the corresponding limit.

When the value contains decimals, only the first one will be shown, and it will be represented in a smaller size. Also, if the decimal part does not fit, the number will be rounded to the nearest integer.
- **[Climate] Mode:** represents climate modes as received through the associated communication object. There are two mode types:
 - “Heat/Cool”: only the Heat and Cool modes will be represented, according to the value of a one-bit object.
 - “Extended”: up to five HVAC climate mode will be represented, according to the value received through a specific one-byte object. If the object value does not correspond to a valid mode, no icon will be displayed.

- **[Climate] Fan:** represents fan speeds, according to the value of the corresponding object. There are up to 4 fan speed levels: “Off/Auto”, “Minimum”, “Medium”, “Maximum”. The number of levels can be customized, as explained later.
- **[Climate] On/Off + Mode + Status:** Climate status indicator with three one-bit objects associated: “On/Off”, “Mode” and “Status”. The icon represented depends on the value of these three objects.
- **[Climate] Special Mode:** works in the same way as **[Climate] Mode** in its extended version with the values mentioned in section 2.2.4.

ETS PARAMETERISATION

When a display zone has been configured as “Individual”, a specific tab (“y Box”) becomes available under “Display” in the tree on the left.

Moreover, the textbox **INFO** allows the name of the tab shown by default in the menu on the left to be changed, together with its communication objects, which use the prefix “[Disp][By][INFO]”.

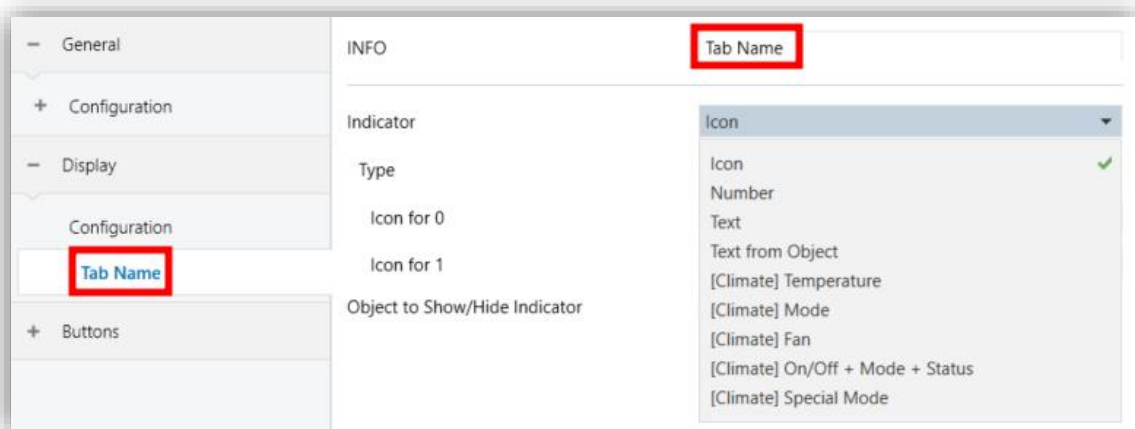


Figure 17. Display - y Box

The main parameters that need to be configured are:

- **Indicator** [Icon / Number / Text / Text from object / [Climate] Temperature / [Climate] Mode / [Climate] Fan / [Climate] On/Off + Mode + Status / [Climate] Mode Special]: sets the desired indicator to display in the box.
- **Representation** [Permanent / Temporary / Intermittent / Progressive]: sets the icon representation.

Notes:

- This parameter will remain hidden unless having selected “Every Indicator Is Configured Separately” in **Indicator Representation** (see section 2.2.1).
 - The “Progressive” option is only available for the following icon type indicators: “Icon”, “[Climate] Mode”, “[Climate] Fan”, “[Climate] Special Mode”.
- **Object to Show/Hide Indicator** [[disabled](#) / [enabled](#)]: enables or disables a one-bit object (“**[Disp][By][] Show/Hide Indicator**”) to show or hide the indicator in runtime.

Depending on the indicator, some more parameters are shown, as described next. Please note that in the next pages the general notation “**[Disp][By][]**” is used for the name of the communication objects, as “y” depends on the display zone (left, right...).

2.2.2.1 ICON

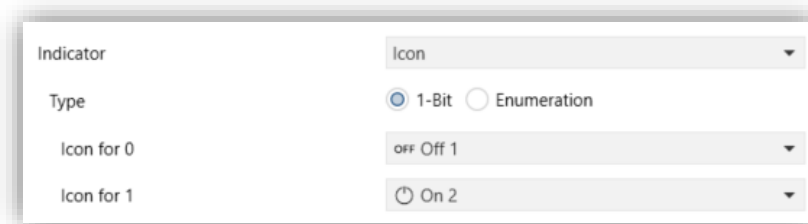


Figure 18. Indicator - Icon: 1 bit

- **Type** [[1-Bit](#) / [Enumeration](#)]: the symbol displayed will depend on the value of the 1-bit object “**[Disp][By][] Icon - 1-Bit**” or the 1-byte object “**[Disp][By][] Icon - Enumeration**”.

When “1-Bit” is selected, the following parameters must be configured:

- **Icon for 0** [[Icon selector \(Off 1\)](#)]: sets the symbol associated with the object value “0”.
- **Icon for 1** [[Icon selector \(On 2\)](#)]: sets the symbol associated with the object value “1”.

When “Enumeration” is selected, the following parameters must be configured:

Figure 19. Indicator: Icon - Enumeration

- **Number of Values** [1...6]: sets the number of states of the enumerated list.
 - **Value j** [0...255]: sets the numerical value assigned to the state.
 - **Icon** [*Icon selector* (*No Icon*)]: sets the symbol associated with value j .

2.2.2.2 NUMBER

Figure 20. Indicator: Number - Scaling

- **Type** [*Scaling* / *Counter (1-Byte Unsigned)* / *Counter (1-Byte Signed)* / *Counter (2-Byte Unsigned)* / *Counter (2-Byte Signed)* / *Counter (4-Byte Unsigned)* / *Counter (4-Byte Signed)* / *Float (2 Bytes)*]: sets the type of the number indicator.

The objects depending on configuration in this case are the following:

Function	Size	Sign	Related Object
Counter	<i>1-Byte</i>	<i>Signed</i>	"[Btn][By][] Number Counter (1-Byte Signed)"
		<i>Unsigned</i>	"[Btn][By][] Number Counter (1-Byte Unsigned)"
	<i>2-Byte</i>	<i>Signed</i>	"[Btn][By][] Number Counter (2-Byte Signed)"
		<i>Unsigned</i>	"[Btn][By][] Number Counter (2-Byte Unsigned)"
	<i>4-Byte</i>	<i>Signed</i>	"[Btn][By][] Number Counter (4-Byte Signed)"
		<i>Unsigned</i>	"[Btn][By][] Number Counter (4-Byte Unsigned)"
Scaling	<i>1-Byte</i>		"[Btn][By][] Number - Scaling"
Float	<i>2-Byte</i>		"[Btn][By][] Number - Float (2-Byte)"

Table 1. Number - Indicator. Communication objects.

2.2.2.3 TEXT

Figure 21. Indicator: Text - 1-Bit

Figure 22. Indicator: Text - Enumeration

This indicator is analogous to “*Icon*”, the only difference being that, instead of configuring an icon associated with the state, it allows a text string to be assigned for display on the screen (via the objects “[Disp][By][] Text - 1-Bit” and “[Disp][By][] Text - Enumeration”). See section 2.2.2.1 for further information.

2.2.2.4 TEXT FROM OBJECT

Figure 23. Indicator: Text from object

The text to be shown is to be received through the “[Disp][By][] Text from Object” 14-byte communication object.

2.2.2.5 [CLIMATE] TEMPERATURE

Figure 24 Indicator: [Climate] Temperature

- **Include Plus Sign before Positives Numbers** *[disabled / enabled]*: sets whether a plus sing is displayed before de positive numbers or not.

The temperature needs to be updated through the “[Disp][By][] (Climate) Temperature” two-byte communication object.

2.2.2.6 [CLIMATE] MODE

Figure 25. Indicator: [Climate] Mode - Heat/Cool

Figure 26. Indicator: [Climate] Mode - Extended

- **Mode Type** [[Heat/Cool](#) / [Extended](#)]: allows the climate mode to be selected according to the required object size: 1 bit (“[Disp][By][] (Climate) Mode”) or 1 byte (“[Disp][By][] (Climate) Mode - Extended”).
- **Representation** [[Text](#) / [Icon](#)]: allows the mode to be represented either as an icon or as text. The icons are predefined for each option. If “[Text](#)” is selected, the following parameter will be shown for each mode:
 - **Text for “Mode” (8 Characters)** [[Mode](#)]: sets the text to be displayed for each value.

2.2.2.7 [CLIMATE] FAN

Figure 27. Indicator: [Climate] Fan

The value should be updated through the “[Disp][By] (Climate) Fan” 1-byte communication object.

- **Automatic Mode** [*disabled* / *enabled*]: defines whether the “*Off/Auto*” level is required to be represented or not. If enabled, the following parameter shows up:
 - **How to Show Off/Auto Status?** [*Auto-Style (Fan Automatic Symbol)* / *Off-Style I (Fan Stop Symbol)* / *Off-Style II (Clear the Box)*]: sets how to represent the “*Auto/Off*” state.
- **Number of Levels**: sets the number of fan speed levels. The available options depend on whether the **Automatic Mode** level is enabled or not:

If it is **enabled**:

- “*2: Min. (1% - 50%); Max. (51% - 100%)*”.
- “*3: Min. (1% - 33%); Med. (34% - 66%); Max. (67% - 100%)*”.

The value “0%” does not correspond to any level, but to the “*Off/Auto*” state.

If it is **disabled**:

- “*2: Min. (0% - 50%); Max. (51% - 100%)*”.
- “*3: Min. (0% - 33%); Med. (34% - 67%); Max. (68% - 100%)*”.

2.2.2.8 [CLIMATE] ON/OFF + MODE + STATUS

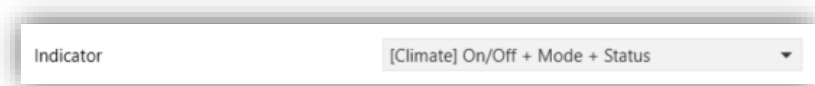


Figure 28. Indicator: [Climate] On/Off + Mode + Status

The icon to be represented depends on the value of three one-bit objects:

- If “[Disp][By] (Climate) On/Off” = 0: no icon is represented.
- If “[Disp][By] (Climate) On/Off” = 1 and “[Disp][By] (Climate) On/Off - Status” = 0: it means that the climate system is on but stopped. The icon represented will depend on the mode selected through “[Disp][By] (Climate) On/Off - Mode” (1 = “*Heat*” or 0 = “*Cool*”). The representation type will be “*Permanent*”.

- If “[Disp][By][] (Climate) On/Off” = 1 and “[Disp][By][] (Climate) On/Off - Status” = 1: it means that the climate is on and running. The icon represented will depend on the mode selected through “[Disp][By][] (Climate) On/Off - Mode” (1 = “Heat”, or 0 = “Cool”). The representation type is “Progressive”.

Note: for this indicator, the representation type cannot be configured. It is always “Permanent” or “Progressive”, depending on the value of the objects, as explained above.

2.2.2.9 [CLIMATE] SPECIAL MODE

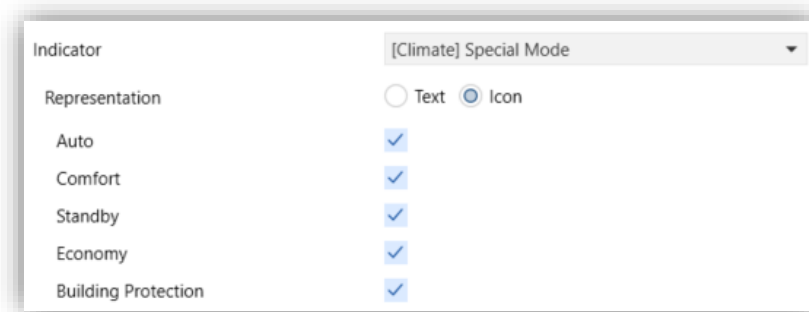


Figure 29. Indicator: [Climate] Mode Special

- **Representation** [Text / Icon]: sets whether the mode is displayed on screen by means of text or a preset icon. This representation depends on the value of the object in one byte “[Disp][By][] (Climate) Special Mode”. If “Text” is selected, the following parameters will appear:
 - **Text for “Mode” (8 Characters)** [Mode]: sets the text to be displayed for each value.

2.2.3 DOUBLE

The display can be divided into up to 2 double boxes. Double boxes can be assigned exactly the same types of indicators as Individual boxes (see section 2.2.2 for details).

The only differences between the two types of boxes are:

- The **maximum number of characters** allowed (up to 6 characters for double boxes; for single boxes the limit is 12 characters).
- The **font size** can be configured with 2 different sizes for number type indicators in horizontal type pairs.

ETS PARAMETERISATION

When two display areas are configured as members of the same pair, a specific tab (“**Box Y**”) becomes available under “Display” in the tree on the left.

Moreover, the textbox **INFO** allows the name of the tab shown by default in the menu on the left to be changed, together with its communication objects, which use the prefix “[Disp][PY][INFO]”.

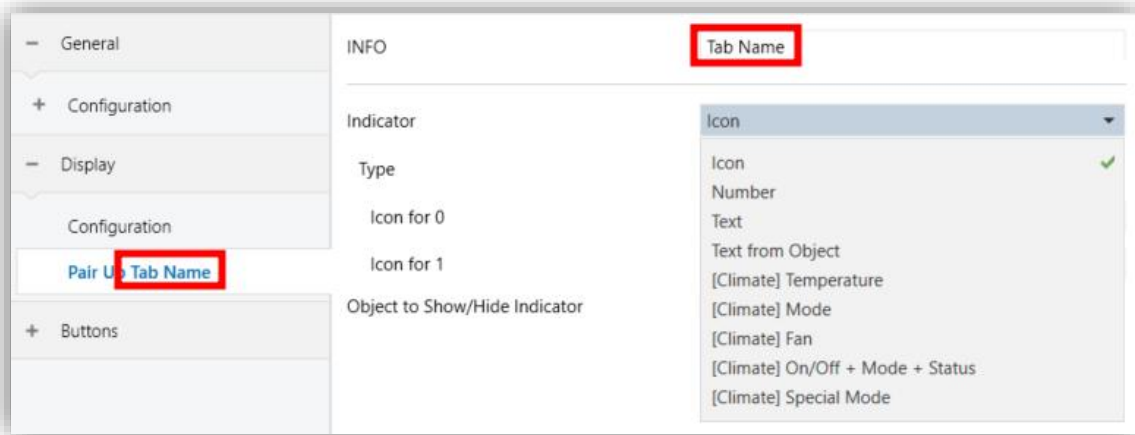


Figure 30. Display - Pair Y

The ETS parameterisation of each indicator is exactly the same as for Individual boxes. See section 2.2.2 for details.

2.2.4 SETPOINT

Thermostat type display will have central box (always enabled) for showing the setpoint temperature of an external thermostat.

ETS PARAMETERISATION

When the display is configured as thermostat, a specific tab (“Box 2”) becomes available under “Display” in the tree on the left.

The parameterisation of this box is the same as for **[Climate] Temperature** box of “Normal” page. For more information, see section 2.2.2.5.

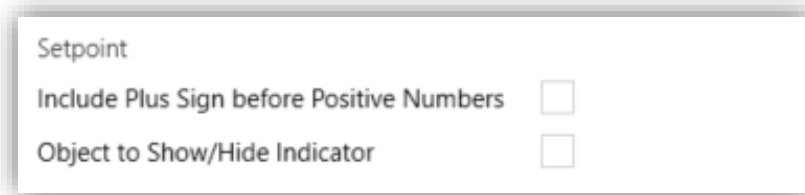


Figure 31. Display - Thermostat Page: Setpoint (Box 2)

2.2.5 FAN

Fan boxes displays **ventilation speed indicators and mode indicators**.

On the left side there is fan icon with an animation that will be activated whenever the fan speed is higher than “0%” or the automatic mode is active.

On the right side, the fan speed is represented by a wave icon depending on the value of the 1-byte object “[Disp][By]] (Climate) Fan”. The icons differ from each other in the number of waves, to reflect the current speed level: minimum, average or maximum. In addition, it is possible to enable a binary object to indicate whether auto mode is active or not. When active, this is indicated by an “A” next to the waves, as shown in the following table:

	Speed = 0%	Minimum Speed	Medium Speed	Maximum Speed
	(Fan stopped in normal mode)	(Fan with animation)		
Auto Mode				
Normal Mode				

Table 2. Display - Thermostat Page - Fan Indicator according to mode and speed level

PARAMETRIZACIÓN ETS

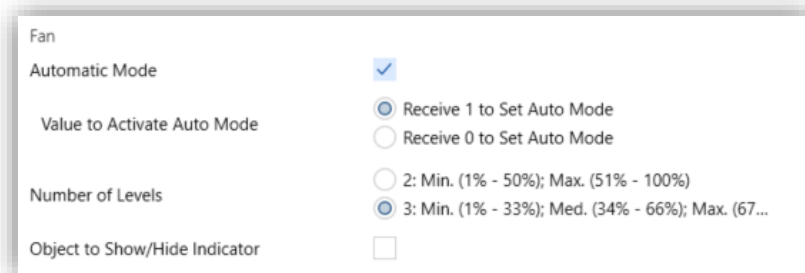


Figure 32. Display - Thermostat Page - Fan (Box By)

This tab contains the following parameters:

- **Automatic Mode** [*disabled* / *enabled*]: sets whether the fan auto mode will be available. If this option is enabled, the object “[Disp][By][] (Climate) Fan - Auto On/Off”, which will trigger the auto mode when it receives the corresponding value set in:
 - **Value to Activate Auto Mode** [*Receive 1 to Set Auto Mode* / *Receive 0 to Set Auto Mode*].
- **Number of levels** [*2: Min. (1% - 50%); Max. (51% - 100%)* / *3: Min. (1% - 33%); Med. (34% - 66%); Max. (67% - 100%)*]: sets how many speed levels will be available in the indicator.

2.3 BUTTONS

2.3.1 CONFIGURATION

Flat RGB 55/70 Display features **four or seven capacitive buttons** at the user's disposal for the execution of actions. Each will perform a specific function any time, as their functions do not depend on alternating menus, pages, etc.

The buttons can be configured either as single-button controls or in pairs, in which case **any two of them can be combined as one pair**.

All the buttons are identical; this brings a high level of versatility for a wide variety of applications. The following is a list of the functions that can be assigned to each button.

- **Disabled.** The button will not react to user presses.
- **Pair A, B or C,** being the function of such pair one of the following:
 - Switch.
 - Two objects (short press / long press).
 - Dimmer.
 - Shutter.
 - Scaling.
 - Counter.
 - Enumeration.
 - Float.
 - [Climate] Temperature Setpoint
 - [Climate] Mode.
 - [Climate] Fan.
 - [Climate] Special Mode.
- **Individual:**
 - LED Indicator.
 - Switch.
 - Hold & release.
 - Two objects (short press / long press).
 - Scene.
 - Scaling constant.
 - Counter constant.
 - Float constant.
 - Dimmer.
 - Shutter.
 - Enumeration.
 - [Climate] Fan.
 - [Climate] Mode.
 - [Climate] Special Mode.
 - Room State (Indoor).

Apart from the button function itself, the integrator can select the desired behaviour of the button LEDs. 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

By default, ETS provides a separate tab for push-button configuration. This tab displays an illustrative image showing the control layout according to the value of the **Device** parameter (see section 2.1.1).

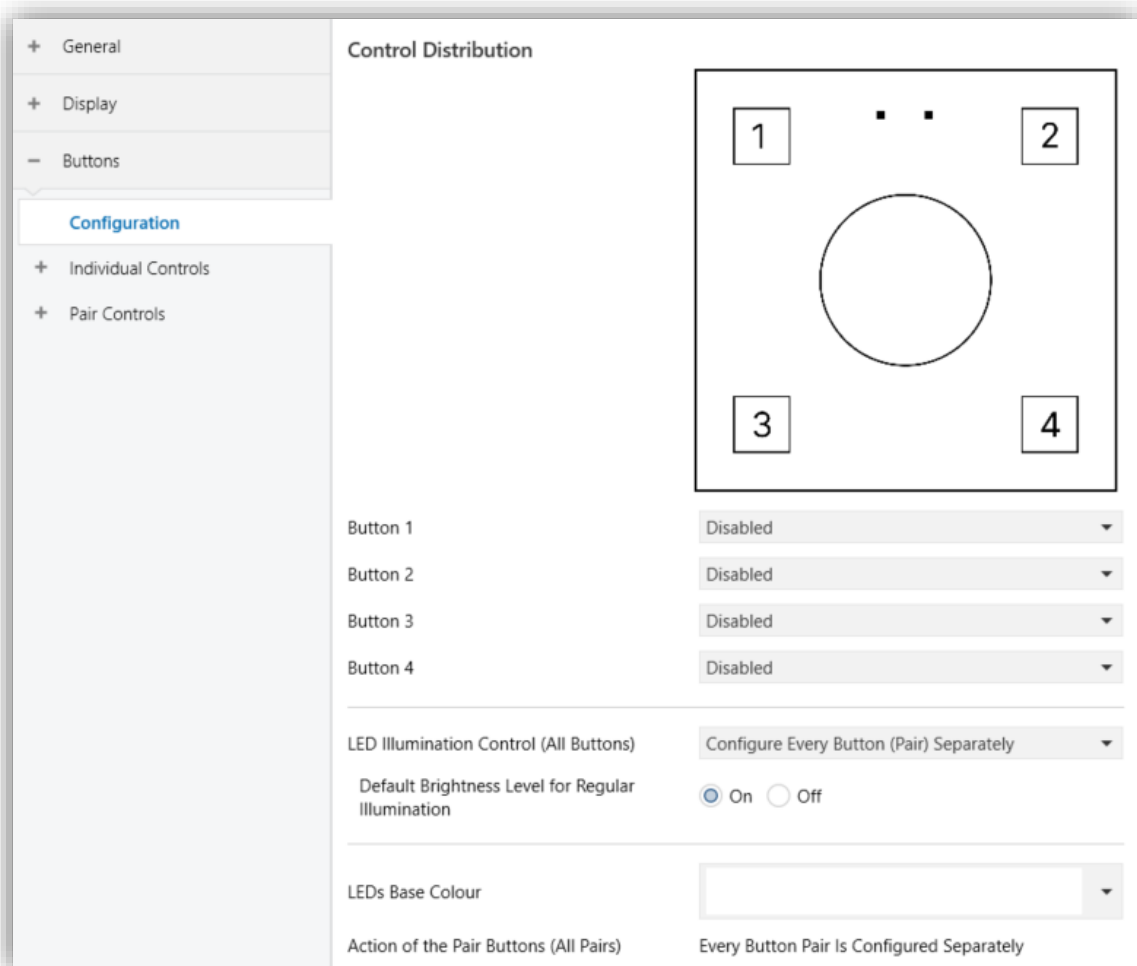


Figure 33. Buttons - Configuration

- **Control Distribution:** one drop-down list with the following options is shown per **Button**.

➤ [“Disabled”](#).

- **“Control X”**. Allows a control to be assigned to the relevant button. The same control may also be assigned to several different buttons. See section 2.3.2 for details.
- **“Pair X”**. The button will form part of a two-button control (where X may be A, B or C, depending on the model). See section 2.3.3.1 for details.

Note: *if a pair is not configured correctly, an error message will appear in ETS.*

- **LED Illumination Control (All Buttons)** [Disabled / Regular / State-Dependent (Where Available) / State-Dependent (Both LEDs) (Where Available) / Dedicated Object / Configure Every Button (Pair) Separately]: jointly sets the LEDs illumination behaviour. The options are (please refer to ANNEX I. LED Illumination Modes for further information.

If the default value is selected, a specific parameter will be shown on each button's tab to select the desired behaviour of that LED.

- **Default Brightness Level for Regular Illumination** [On / Off]: sets the brightness level that the LED(s) will use while the device is not idle and no presses are being made on the button.

Note: *this parameter will be shown only if “Regular” or “Configure Every Button (Pair) Separately” was selected in the previous parameter.*

If the option **“State-Dependent (Where Available)”** or **“State-Dependent (Both LEDs) (Where Available)”** is selected, the colour parameters will be configured in the corresponding individual control or pair control tab.

If the **“Dedicated Object”** option is selected, the following parameters can be configured:

- **Value** [0 = Off; 1 = On / 0 = On; 1 = Off]: sets the polarity of the individual communication objects dedicated to LED illumination for each enabled button.
- **Colour: On** [Colour Selector (Base Colour)]: defines the hue used to illumination the LED when its corresponding dedicated object sets the **“On”** state.

- **Colour: Off** [*Colour Selector* ([Base Colour](#))]: defines the hue used to illumination the LED when its corresponding dedicated object sets the “Off” state.
- **LEDs Base Colour** [*Colour Selector* ([Neutral white](#))]: allows a base colour to be configured for all LEDs. This colour can also be modified at runtime via the “[General] LEDs Base Colour” object.

Note: *via the communication object it is not possible to select the “No Colour” option. The colour order corresponds to the descending order shown in Figure 70.*

Finally, a common parameter is provided for all pairs present in the device. If no pair has been configured, this parameter will be set to “Every Button Pair Is Configured Separately”.

- **Action of the Pair Buttons (All Pairs)**: to determine an operation criterion:
 - “[Left = Off / Down / Decrement / Cool; Right = On / Up / Increment / Heat](#)”.
 - “[Left = On / Up / Increment / Heat; Right = Off / Down / Decrement / Cool](#)”.
 - “Every Button Pair Is Configured Separately”: there will be a specific parameter in every two-button control for specifically selecting the desired behaviour.

2.3.2 INDIVIDUAL CONTROLS

The application program provides 4 or 7 different individual controls. Each control is configured independently and assigned to the desired button (see section 2.3.1), and the same control may be assigned to several buttons.

ETS PARAMETERISATION

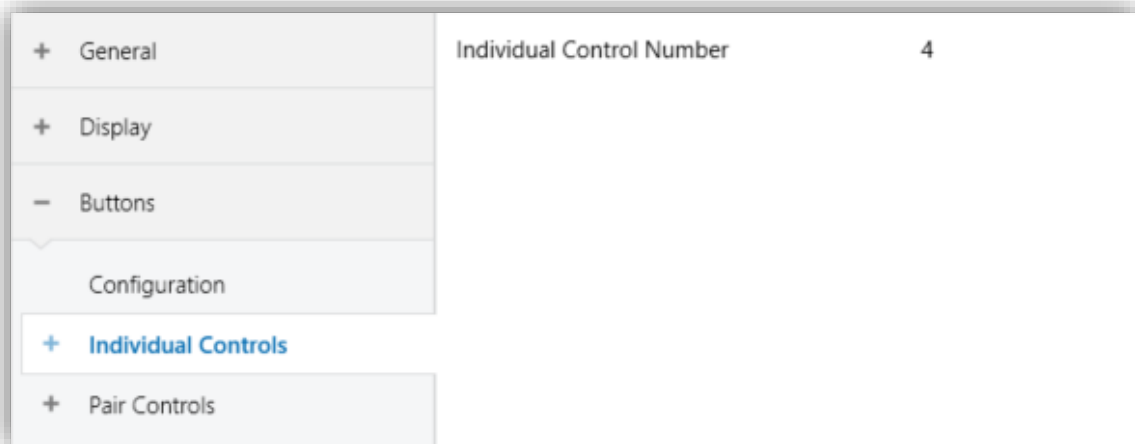


Figure 34. Buttons - Individual Control Number

- **Individual Control Number** [4 / 7]: sets the number of individual controls available according to the device selected on the “Configuration” tab (see section 2.1.1).

2.3.2.1 X CONTROL

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 set the brightness level and the colour (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 or 1, or alternate with every touch according to the sequence 1 → 0 → 1 → ...

Under a “State-Dependent” LED illumination, the LED will remain at the ON/OFF brightness level (with the corresponding colour for each state) 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 sets the LED brightness and colour On when the communication object has the same result.

- **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 at the brightness level and colour of 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 3 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.

- **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.

- **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 lit and coloured according to the current state (On/Off) of either one object or the other, which can be configured in parameters.

- **Enumeration:** sends one-byte (unsigned) numeric value to the KNX bus from a list of up to 6 different values. Each press advances the list to the next item.

This control provides a parameter to link the control to a box on the screen so that the current numeric value is displayed at all times on the screen.

The “State-Dependent” LED mode is not available for this function.

- **Dimmer: 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 set either the On brightness level and colour, or the Off level and colour, according to the value of the aforementioned status object (i.e., Off level/colour when the value is 0% and On level/colour 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).

- **“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. Therefore, 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.

Flat is 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.

Under a **“State-Dependent”** LED illumination, the LED will set either the On brightness level and colour, or the Off level and colour, according to the value of the aforementioned status object (i.e., Off level/colour when the value is 0% and On level/colour in any other case).

- **[Climate] Fan**: pressing one of the two buttons will make Flat 55 Display v2 send a binary value to the bus that allows changing the fan speed (up to **five levels** available). This value can be either **binary** (increase / decrease orders), **scaling** (0% - 100%) or **enumerated**.

Furthermore, it is possible to configure the speed 0 as an additional fan level, and/or another level to activate the Auto mode.

The order to activate the auto mode can be sent over a one-bit object independent from the fan control object, or alternatively consist in the speed level 0. In the latter case, one ‘0’ will trigger the Auto mode.

The table below shows the relation between the scaling values and the enumeration values, depending on the number of speed levels configured (note that if the Auto mode or the speed level 0 are allowed one more level is added, corresponding to value 0).

% Values based on fan levels						
Speed levels		1	2	3	4	5
Enumeration value	1	100	50,2	33,3	25,1	20
	2	-	100	66,7	50,2	40
	3	-	-	100	75,3	60
	4	-	-	-	100	80
	5	-	-	-	-	100

Table 4. Fan levels

For the scaling and enumeration controls, the object is sent to the bus slightly delayed once the desired value has been set by the user. For these two cases it is possible to **link the control with a box in the display** in order to show the current value on the display.

If the LED illumination is set to "State-Dependent", the LED will set the brightness level and colour for the ON state, or the brightness level and colour for the OFF state, according to the value of the fan status object (i.e. OFF-state level/colour when its value is 0%, and ON-state level/colour in any other case).

- **[Climate] Mode:** pressing the button will make the device send climate mode values to the bus. Two mode control types are possible: "Heat/Cool" and "Extended" (HVAC).

As above, linking the control to a box in the display in order to show the current mode on it is possible (only for "Extended" mode).

If the illumination mode is set to "State-Dependent" (available only in "Heat/Cool" mode), the LED shall permanently maintain the ON-state brightness level (provided that the device is not in idle state) and shall change its colour according to the value of the object.

- **[Climate] Special Mode:** lets the user sequentially commute between the different special climate mode: "Auto", "Comfort", "Standby", "Economy" and "Building Protection". This function is analogous to the modes control in its Extended version.

The “State-Dependent” LED mode is not available for this function.

- **Room State (Indoor):** allows controlling the room states (“Normal”, “Make Up Room”, “Do Not Disturb”). User can switch the state between “Normal” and “Do Not Disturb” or “Make Up Room”. Configuring by parameter if will activate “Do Not Disturb” or “Make Up Room” state will be necessary.

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

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

Table 5 Room States

If the LED illumination is “State-Dependent”, LED will light up when the current object value coincides with the parameterized value.

Example: State: “Make Up Room”

- If the room status control object has the value “Normal” and press is made → the LED illuminates at the brightness level and with the colour configured for “Make Up Room”.
- If the room status control object has the value “Make Up Room” and a press is made → the LED illuminates at the Off-brightness level and with the colour configured for “Normal”.
- If the opposite of the parameterised state (“Do Not Disturb”) is written to the room status control object → the LED illuminates at the Off-brightness level and with the colour configured for “Do Not Disturb”

ETS PARAMETERISATION

In the tree on the left, under “Buttons”, within “Individual Controls”, a specific tab, “x Control”, will be displayed for each control.

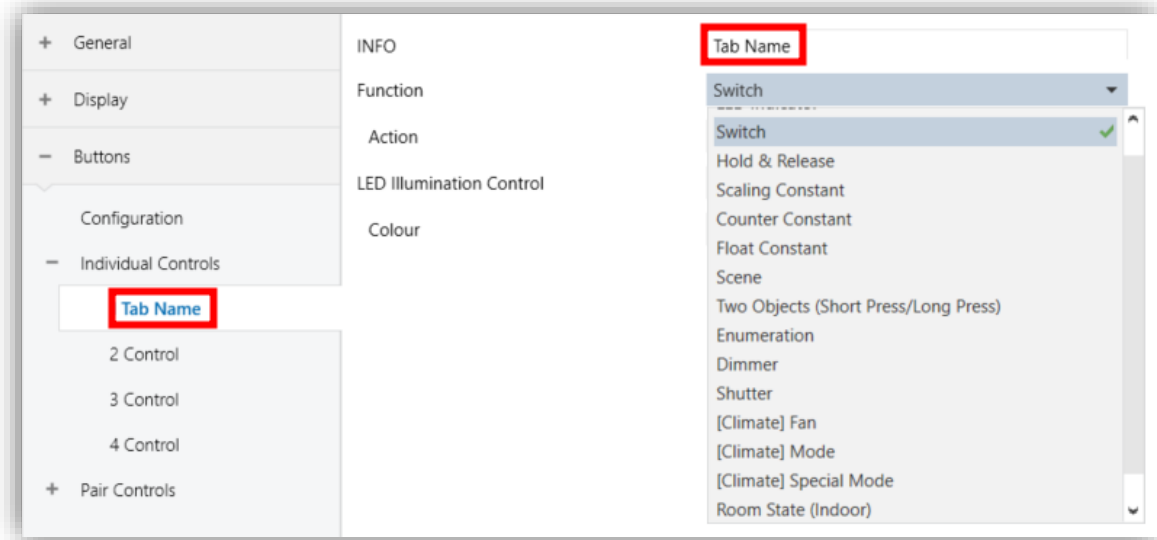


Figure 35. Buttons - x Control

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 “[Btn][Ix][INFO]”. The main parameter to be configured is:

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

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 “x” depends on the particular button.

If the option “Configure Every Button (Pair) Separately” is selected in the **LED Illumination Control (All Buttons)** parameter on the “Configuration” tab (see section 2.3.1), additional parameters will be shown:

- **LED Illumination Control** [Regular / State-Dependent / Dedicated Object]: sets the behaviour of the LEDs on the buttons. If the default value is retained, the following parameter will be displayed:
 - **Colour** [Colour Selector (Base Colour)]: sets the colour that the button LED will adopt.

If “State-Dependent” mode is configured, or if the **LED Illumination Control (All Buttons)** parameter is configured on the “Configuration” tab:



Figure 36. LED Illumination - State-Dependent

- **Colour: On** [Colour Selector ([Base Colour](#))]: the LED will light up with the configured colour depending on the control status. Depending on the configured control, the condition that determines when the LED colour is set may vary (object value equal to “1”, greater than “0%”, or a specific value).
- **Colour: Off** [Colour Selector ([Base Colour](#))]: defines the colour that will be set on the LED when the condition of the previous parameter is not met (object value equal to “0” or “0%”, or a value different from the configured one).

Note: *this condition also depends on the polarity of the object, meaning the behaviour may reversed in controls where the default option of the binary object is **not** configured.*

If “Dedicated Object” is selected, the “[Btn][x] LED - Switch Control” object will be added to the project topology and new parameters shall be displayed:

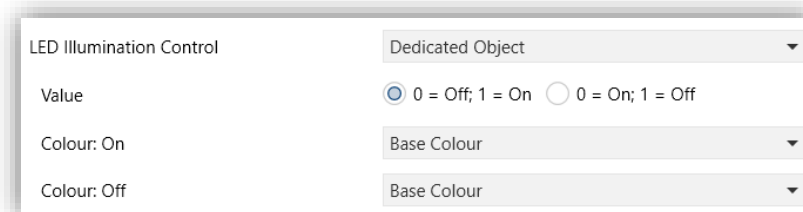


Figure 37. LED Illumination - Dedicated Object

- **Value** [[0 = Off; 1 = On](#) / [0 = On; 1 = Off](#)]: to select the value to switch off and on the LED shows up.
- **Colour: On** [Colour selector ([Base Colour](#))]: sets the colour with which the LED will illuminate when the dedicated object’s state is “On”.
- **Colour: Off** [Colour selector ([Base Colour](#))]: sets the colour with which the LED will illuminate when the dedicated object’s state is “Off”.

Note: *for further information, please refer to section 2.2.1 and **¡Error! No se encuentra el origen de la referencia.***

2.3.2.1.1 LED Indicator

Figure 38. Individual Control - LED Indicator

- **Value** [0 = Off; 1 = On / 0 = On; 1 = Off]: sets the behaviour of the LED of the button. The options are similar to those of the dedicated-object LED illumination available for other control types.
- **Colour: On** [*Colour selector* (Base Colour)]: sets the colour with which the LED will illuminate when the dedicated object's state is "On".
- **Colour: Off** [*Colour selector* (Base Colour)]: sets the colour with which the LED will illuminate when the dedicated object's state is "Off".

The options are like those of the dedicated-object LED illumination available for other control types. After assigning this function to the button, object "[Btn][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.

2.3.2.1.2 Switch

Figure 39. Individual Control - Switch

- **Action** [Send 0 / Send 1 / Toggle 0/1]: sets the value to be sent to the bus (through object "[Btn][Ix] Switch") when the user touches the button

2.3.2.1.3 Hold & Release

Figure 40. Individual Control - Hold & Release

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

2.3.2.1.4 Scaling Constant / Counter Constant / Float Constant

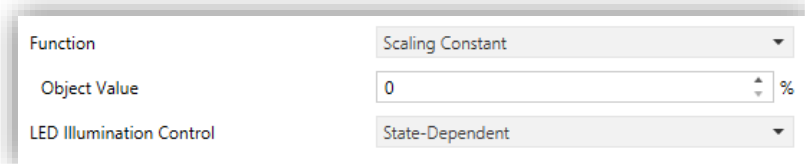


Figure 41. Individual Control - Scaling Constant

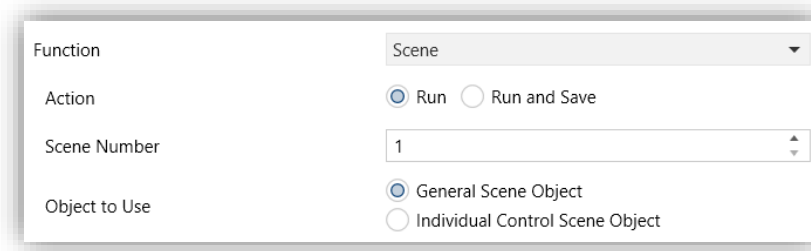
- **Object Value:** sets the value to be sent to the KNX bus when the user touches the button. The available range and the object through which the value is sent depend for each case, as the table below shows.

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

Function	Size	Sign	Object Value	Object Name
Scaling	1 byte		[0 ... 100]	“[Btn][Ix] Percentage - Control”
Counter	1-Byte	Signed	[-128... 0 ... 127]	“[Btn][Ix] Integer - 1-Byte Signed Control”
		Unsigned	[0 ... 255]	“[Btn][Ix] Integer - 1-Byte Unsigned Control”
	2-Byte	Signed	[-32768... 0 ... 32767]	“[Btn][Ix] Integer - 2-Byte Signed Control”
		Unsigned	[0 ... 65535]	“[Btn][Ix] Integer - 2-Byte Unsigned Control”
Float	2 bytes		[-671088.64... 0 ... 670433.28]	“[Btn][Ix] Float - 2-Byte Control”

Table 6. Constant type numerical control

2.3.2.1.5 Scene

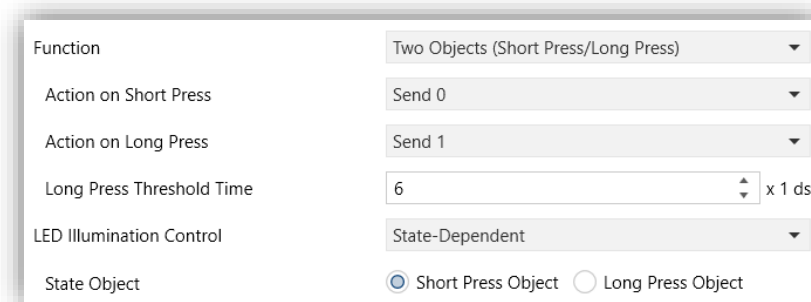


Function	Scene
Action	☒ Run ☐ Run and Save
Scene Number	1
Object to Use	☒ General Scene Object ☐ Individual Control Scene Object

Figure 42. Individual Control - Scene

- **Action** [[Run](#) / [Run and Save](#)]: sets whether the value to be sent to the KNX bus 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 (3s press).
- **Scene Number** [[1...64](#)]: number of the scene to be sent to the bus, both in the case of the run requests and the save requests.
- **Object to Use** [[General Scene Object](#) / [Individual Control Scene Object](#)]: commands are sent via the general scene object (“**[General] Scene: Send**”) or through a control object (“**[Btn][ix] Scene: Send**”).

2.3.2.1.6 Two Objects (Short Press/Long Press)



Function	Two Objects (Short Press/Long Press)
Action on Short Press	Send 0
Action on Long Press	Send 1
Long Press Threshold Time	6 x 1 ds
LED Illumination Control	State-Dependent
State Object	☒ Short Press Object ☐ Long Press Object

Figure 43. Individual Button - Two Objects (Short Press/Long Press)

- **Action on Short Press** [[Send 0](#) / [Send 1](#) / [Toggle 0/1](#) / [Send 1-byte Unsigned Int Value](#)]: sets the value to be sent to the bus (through “**[Btn][ix] Two Objects - Short Press**”) when the user short-presses the button.
- **Action on Long Press** [[Send 0](#) / [Send 1](#) / [Toggle 0/1](#) / [Send 1-byte Unsigned Int Value](#)]: sets the value to be sent to the bus (through

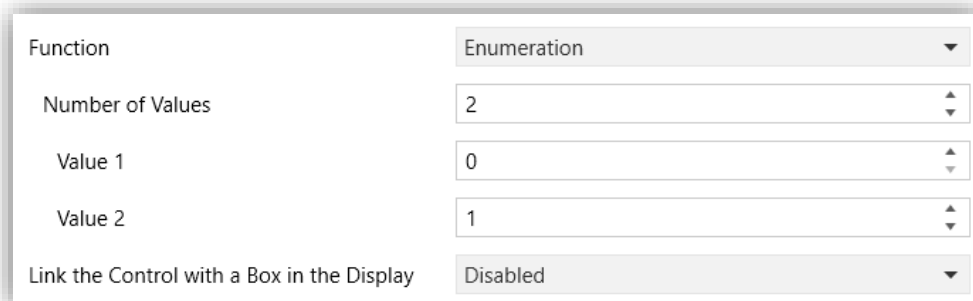
“**[Btn][Ix] Two Objects - Long Press**”) when the user long-presses the button.

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

- **Long Press Threshold Time** [\[4...6...50\]](#) *[ds]*: sets the minimum time the user should hold the button in order to consider it a long press.
- **LED Illumination Control** *[Regular / [State-Dependent](#) / Dedicated Object]*:
Selecting “[State dependent](#)” brings an additional parameter:
 - **State Object** [\[Short Press Object / Long Press Object\]](#) to make the state of the LED correspond either to object “**[Btn][Ix] Two Objects - Short Press**” or to object “**[Btn][Ix] Two Objects - Long Press**” respectively.

2.3.2.1.7 Enumeration

This control is analogous to the Switch control, with the particularity that the communication object will be one byte (“**[Btn][In] Enumeration**”) and that up to 6 states can be distinguished depending on the object value.



Function	Enumeration
Number of Values	2
Value 1	0
Value 2	1
Link the Control with a Box in the Display	Disabled

Figure 44. Individual Control - Enumeration

- **Numer of Values** [\[1...2...6\]](#): number of states that will be distinguished. For every distinguished state, the following parameter will become available:
 - **Value *j*** [\[0...255\]](#): numerical value that will be sent through the control object when the user, after pressing the buttons, sets the control to state *j*. The actual sending will not be performed until 1.5 seconds after the last press.

- **Link the Control with a Box in the Display** [[Disabled](#) / [Upper Left](#) / [Upper Right](#) / [Lower Left](#) / [Lower Right](#) / [Pair Up](#) / [Pair Down](#) / [Pair Left](#) / [Pair Right](#)]: sets the area of the display where to show the indicator of this control, i.e., the current numeric value. See section 2.2.1 for details.

2.3.2.1.8 Dimmer

Function	Dimmer
Action on Short Press	Switch Between On and Off
Action on Long Press	Switch Between Dimming Up and Down
Maximum Dimming Step With Long Press	100%

Figure 45. Individual Control - 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 "[Btn][Ix] Light - Switch Control". If the sending of an absolute dimming is chosen, it is used the object "[Btn][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 "[Btn][Ix] Light - Dimming Control".

On the other hand, the "[Btn][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 (brightness level and Off-state colour at 0%, and On in any other case).

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 "[Btn][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.

2.3.2.1.9 Shutter

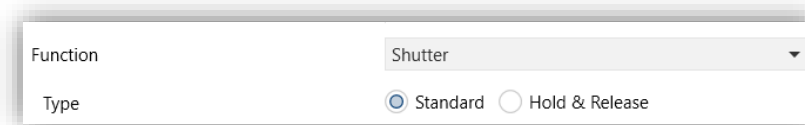


Figure 46. Individual Control - Shutter

The (alternating) move up/down orders for “Standard” type will be sent through the “[Btn][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 “[Btn][Ix] Shutter - Stop Control”.

Additionally, a one-byte object (“[Btn][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.

2.3.2.1.10 [Climate] Fan

When this function is assigned to the button, one object (“[Btn][In] Fan Control”) for each type of control and 1-byte status object (“[Btn][In] Fan Indicator”) are enabled. The status object (which must be linked to the status object of the fan actuator) will indicate, in percent, the value of the current speed level.

Function	[Climate] Fan
Speed Levels	1
Control Type	1-Bit (Decrease/Increase)
Cyclical	☐
Auto Mode	☐
Allow Speed 0	☐

Figure 47. Individual Control - [Climate] Fan

- **Speed Levels** [\[1...5\]](#): allows selecting the speed levels available for control.
- **Control Type**: sets the type of the communications objects to control the fan level.
 - “[1-Bit \(Decrease/Increase\)](#)”: orders of speed increase/decrease are sent through the one-bit object “[Btn][Ix] Fan - Binary Control”.
 - “[Scaling](#)”: scaling values are sent through the one-byte object “[Btn][Ix] Fan - Percentage Control”.
 - “[Enumeration](#)”: integer values are sent through the one-byte object “[Btn][Ix] Fan - Enumeration Control”.
- **Cyclical** [\[disabled / enabled\]](#): sets whether scrolling through the speed levels is circular or not. If checked, a press switches to the minimum level. On the other hand, if cyclical is disabled, the level increases to the last one and then decrease. At levels other than the first and last, the last action (increase or decrease) is maintained until reaching the first or last.
- **Auto Mode** [\[disabled / enabled\]](#): sets whether the fan Auto mode will be available or not. If checked, the following parameters are also shown.

- **Dedicated Object for Auto Mode** [\[disabled / enabled\]](#): sets how the Auto mode should be activated. In the absence of a dedicated object, the Auto fan mode will be activated by switching to fan level 0.

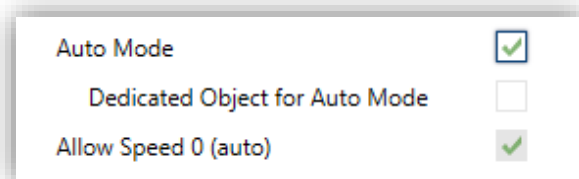


Figure 48. [Climate] Fan - Auto Mode

In this case (supposing that **Speed Levels** has been set, for instance, to “3”), the fan levels that can be navigated through short presses are:

Auto Mode (0)	Minimum	Medium	Maximum
---------------	---------	--------	---------

On the other hand, marking the checkbox enables the one-bit object “[Btn] [Ix] Fan - Auto Mode”, which will trigger the Auto mode when it receives the value “1” (or “0”, depending on the subsequent parameter, **Value to Set the Auto Mode** [\[Send 0 to Set Auto Mode / Send 1 to Set Auto Mode\]](#)).

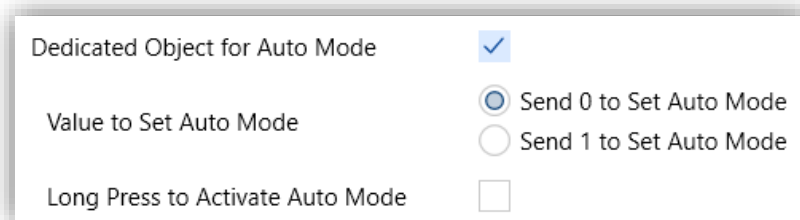


Figure 49. [Climate] Fan - Dedicated Object for Auto Mode

However, two alternative (and mutually exclusive) methods are possible to activate this mode:

- **By short press**: Auto mode can be reached as a further level above the maximum one. In this case the fan levels activated by short presses are (note that **speed 0 is optional**):

(0)	Minimum	Medium	Maximum	Auto Mode
-----	---------	--------	---------	-----------

- **By long press** on any of the buttons of the control (requires checking “**Long Press to Activate Auto Mode**” [\[disabled / enabled\]](#)).

A further long press deactivates back the Auto mode and resumes the previous fan level. Instead, a short press deactivates the Auto mode and switches to the next level. In this case the fan levels reachable through short presses are (**speed 0 is optional**):

(0)	Minimum	Medium	Maximum
-----	---------	--------	---------

- **Allow speed 0** [*disabled / enabled*]: sets whether the speed level 0 will be present or not. When the “**Dedicated Object for Auto Mode**” has been configured, this option will be necessarily activated.
- **Link the Control with a Box in the Display** [*Disabled / Upper Left / Upper Right / Lower Left / Lower Right / Pair Up / Pair Down / Pair Left / Pair Right*]: sets the area of the display where to show the indicator of this control, i.e., the current fan speed. The selected box must be configured with the same data type (see section 2.2.1 for details).

Note: this parameter is only available for “*Scaling*” or “*Enumeration*” control types.

2.3.2.1.11 [Climate] Mode

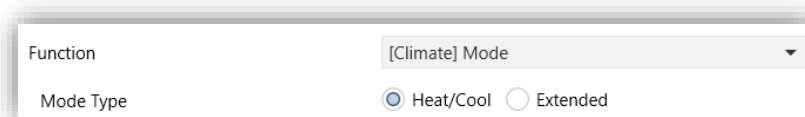


Figure 50. Individual Control - [Climate] Mode (Heat/Cool)

- **Mode Type:** sets mode control type:
 - “*Heat/Cool*”: Selecting this type of mode control turns the box into a control which will activate the Heat or Cool mode.

One communication object is also enabled: the “[Btn][In] (Climate) Mode” control and status object. Depending on the mode selected by the user, the control object will be sent to the bus a certain value.

Mode	Sent Value
Cool	0
Heat	1

Table 7. Heat/Cool Mode vs. Object Value

- “Extended”: pressing on the button will make Flat 55 Display v2 walk through the different HVAC modes and send a one-byte value to the bus according to the selected mode.

Up to five modes [[Heat](#) / [Cool](#) / [Auto](#) / [Fan](#) / [Dry](#)] are available, each of which can be in ETS by means of the proper checkbox, which permits setting which of all the five extended modes will be included into the sequential scrolling implemented by the buttons.

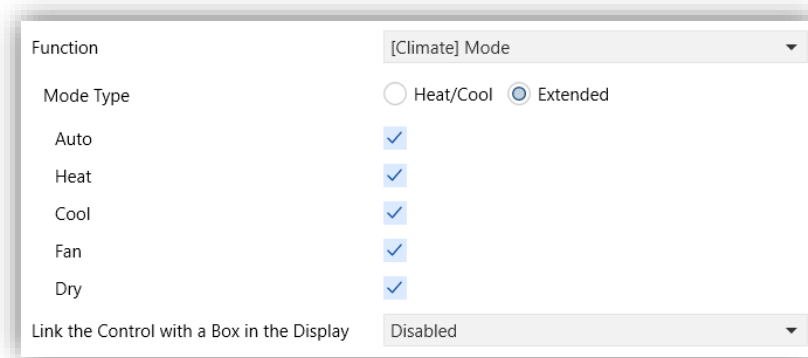


Figure 51. Individual Buttons – [Climate] Mode (Extended).

When this type of mode control is assigned to the box, one 1-byte communication object is enabled: the “[Btn][Ix] (Climate) Mode - **Extended**” control and status object. Depending on the mode selected by the user, the control object will be sent to the bus a certain value.

Mode	Sent Value
Auto	0 (0x00)
Heat	1 (0x01)
Cool	3 (0x03)
Fan	9 (0x09)
Dry	14 (0x0E)

Table 8. HVAC Mode vs. Object Value

- **Link the control with a box in the display** [[Disabled](#) / [Upper Left](#) / [Upper Right](#) / [Lower Left](#) / [Lower Right](#) / [Pair Up](#) / [Pair Down](#) / [Pair Left](#) / [Pair Right](#)]: sets the area of the display where to show the indicator of this control, i.e., the current numeric value or, in the case of “Extended” mode control, the corresponding icon or text. The selected box must be configured with the same data type (see section 2.2.1 for details).

Note: this option is only available for “Extended” mode type.

If the “State-Dependent” illumination mode is configured (when the mode is set to “Heat/Cool”), the following parameters will be displayed:

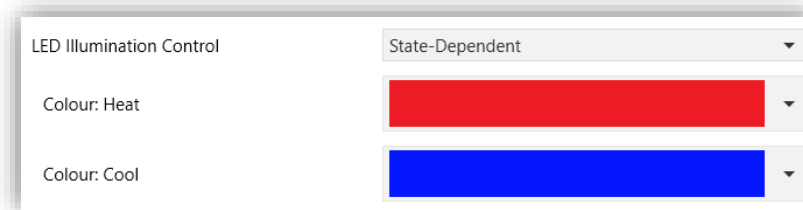


Figure 52. (Climate) Mode (Heat/Cool) – State-Dependent

- **Colour: Heat** [*Colour Selector (Red)*]: sets the colour with which the LED will illuminate when the object value is “Heat”.
- **Colour: Blue** [*Colour Selector (Blue)*]: sets the colour with which the LED will illuminate when the object value is “Cool”.

2.3.2.1.12 [Climate] Special Mode

This control is exactly the same as **[Climate] Mode** in its “Extended” version, but with the modes: “Auto”, “Comfort”, “Standby”, “Economy”, “Building Protection”.

The climate mode will be controlled through the object “**[Btn][Ix] (Climate) Special Mode Control**”.

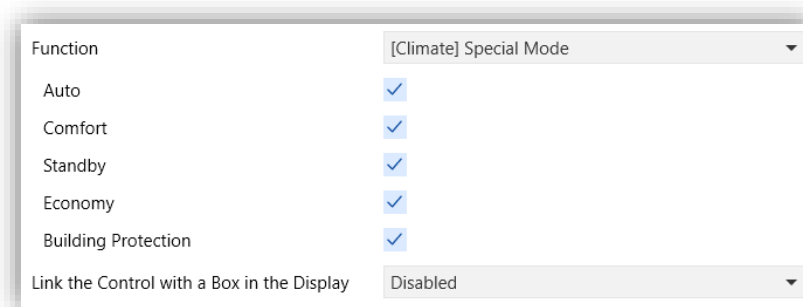


Figure 53. Individual Buttons - [Climate] Special Mode Control

2.3.2.1.13 Room State (Indoor)

When this function is assigned to the button, the object for the control “**[Btn][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 (“**[Btn][Ix] Room State - Make Up Room (Status)**” and “**[Btn][Ix] Room Status - Do Not Disturb (Status)**”).

Figure 54. Individual Control - Room State (Indoor)

- **State** [[Make-up Room](#) / [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”).

If the illumination mode is set to “State-Dependent”, the following parameters will appear:

- **Colour: Make Up Request** [[Colour Selector](#) ([Green](#) / [Red](#))]: the colour used to illuminate the LED when the control object’s value is “Make Up Room”.
- **Colour: Do Not Disturb** [[Colour Selector](#) ([Green](#) / [Red](#))]: the colour used to illuminate the LED when the control object’s value is “Do Not Disturb”.
- **Colour: Normal** [[Colour Selector](#) ([Green](#) / [Red](#))]: the colour used to illuminate the LED when the control object’s value is “Normal”.

Note: the default value of the colour parameters depends on the option configured in the **State** parameter.

2.3.3 PAIR CONTROLS

The application program allows the configuration of 2 or 3 pair controls, depending on the device used. Each pair control is configured independently and assigned to two different buttons, with any two of them being able to be combined (see section 2.3.1).

ETS PARAMETERISATION



Figure 55. Buttons - Number of Pair Controls

- **Pair Number** [2 / 3]: determines the number of pair controls available according to the device selected in the “Configuration” tab (see section 2.1.1).

2.3.3.1 X PAIR

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

- **Switch:** pressing one of the two buttons will make the device 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.

If the LED lighting is set to “State-Dependent” (see **¡Error! No se encuentra el origen de la referencia.**), the value of the communication object will determine the behaviour: the LED of the corresponding member of the pair will use the On-state brightness level and colour, while the other member’s LED will use the Off-state brightness level and colour. When the value is toggled, the LEDs swap their lighting states.

Conversely, if the lighting is set to “State-Dependent (both LEDs)”, both LEDs will use the On-state colour and brightness level while the switch is “On”, and the Off-state colour and brightness level while it is “Off”.

- **Scaling, Counter, Float:** the touches over the buttons will trigger the sending of a certain numerical value to the bus (this value will be progressively increased or decreased every time the user touches one button or the other) through the control object.

These controls provide a parameter to link them to a box in the display so the current numerical value is shown on the display. The screen will reflect the new values as the user touches the buttons, however values are actually sent to the bus 1.5 seconds after the last press.

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 **¡Error! No se encuentra el origen de la referencia.** for details.

- **Two Objects (Short Press/Long Press):** control for sending specific binary values both after a short or a long press on any of the two. 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 **¡Error! No se encuentra el origen de la referencia.**) depend on either one object or the other.

- **Enumeration:** pressing the buttons will make the device send a one-byte (unsigned) value to the bus. There were up to 6 different values. Successively pressing on the buttons will make the device walk through the different values.

As the above functions, this type of control provides parameter to link the control with a box in the display in order to show the current value on the display. Again, values are sent to the bus 1.5 seconds after the last press.

The “State-Dependent” and “State-Dependent (both LEDs)” LED illumination modes are not available for this function. See **¡Error! No se encuentra el origen de la referencia.** for details.

- **Dimmer:** sends 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). Setting which button does what is possible.

Under a “State-Dependent” LED illumination (see **¡Error! No se encuentra el origen de la referencia.**), the corresponding button’s LED will change its brightness level and colour depending on whether the current value of the

lighting 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 LEDs will change their colour and brightness level simultaneously based on that same 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 shutter.

The “State-Dependent” and “State-Dependent (both LEDs)” LED illumination modes are not available for this function. See **¡Error! No se encuentra el origen de la referencia.** for details.

- **[Climate] Fan:** implements a two-button fan control which sends the KNX bus values in order to change the fan speed level. This function is analogous to the ventilation control on individual button described in section 2.3.2.1.10.

Under a “State-Dependent” LED illumination (see **¡Error! No se encuentra el origen de la referencia.**), the corresponding button’s LED will change its brightness level and colour depending on whether the current value of the ventilation status object (which must be updated by the ventilation status object) is greater than 0% or not.

On the other hand, under a “State-Dependent (both LEDs)” LED illumination, both LEDs will change their colour and brightness level simultaneously based on that same value.

- **[Climate] Mode:** pressing one of the two buttons will make the device send climate mode values to the KNX bus. This function is analogous to the mode control on individual button described in section 2.3.2.1.11.

The “State-Dependent” and “State-dependent (both LEDs)” lighting modes are available only for the “Heat/Cool” type. In this case, if “State-Dependent” is configured, the colours assigned to the members of the pair will remain fixed and, depending on the value of the communication object, the LED of the corresponding button will illuminate at the On brightness level, while the other LED will remain at the Off brightness level.

- **[Climate] Special Mode:** lets the user sequentially commute between the different special climate mode: Auto, Comfort, Standby, Economy and Building Protection. This function is analogous to the special mode control on individual button described in section 2.3.2.1.12.

The “State-Dependent” and “State-Dependent (both LEDs)” LED illumination modes are not available for this function. See **¡Error! No se encuentra el origen de la referencia.** for details.

- **[Climate] Temperature Setpoint:** allows controlling the temperature setpoint of an external thermostat by means of a button pair and the display.

This function can also be linked to a box in the display in order to show the current setpoint value. The box will reflect the value (in °C or °F, depending on the selected scale; see section 2.1.7) of the status object, which gets automatically updated after sending control orders (that is, after pressing the buttons), being even possible to receive values from the bus, for example, from the corresponding setpoint status object from the external thermostat.

The “State-Dependent” and “State-Dependent (both LEDs)” LED illumination modes are not available for this function. See **¡Error! No se encuentra el origen de la referencia.** for details.

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In the tree on the left, under “Buttons”, in “Pair Controls”, a specific tab will be displayed for each pair, “X Pair”.

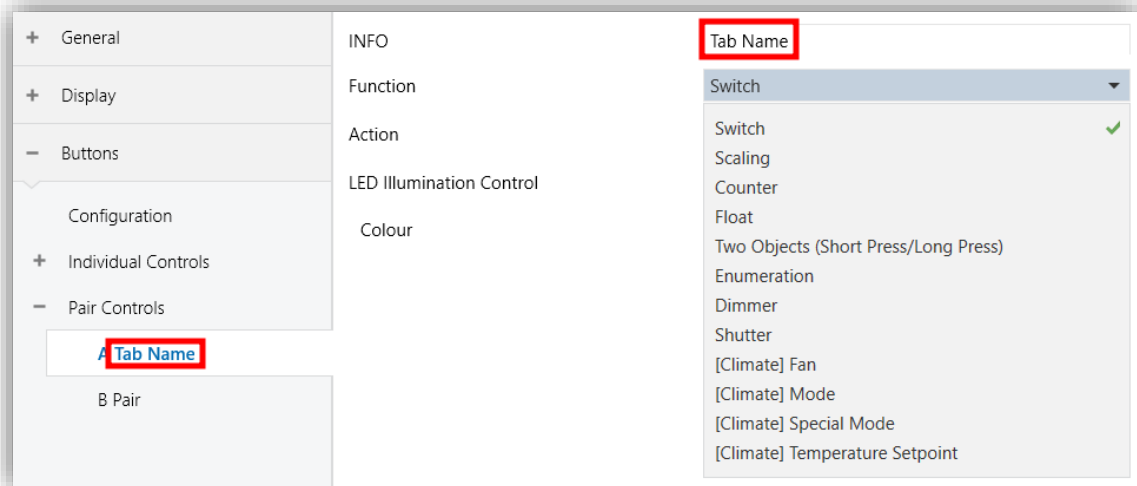


Figure 56. Buttons - X Pair

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 "[Btn][PX][INFO]". The main parameter that needs to be configured is:

- **Function** [Switch / Scaling / Counter / Float / Two Objects (Short Press/Long Press) / Enumeration / Dimmer / Shutter / [Climate] Fan / [Climate] Mode / [Climate] Special Mode / [Climate] Temperature Setpoint]: sets the desired function for the button.

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.

In case the option "Configure Every Button (Pair) Separately" has been selected in the **LED Illumination Control (All Buttons)** parameter in the "Configuration" tab (see section 2.3.1), the additional parameters will be displayed

- **LED Illumination Control** [Regular / State-Dependent / State-dependent (Both LEDs) / Dedicated object]: sets the behaviour of the LEDs on the buttons. Depending on the type of control selected for each buttons pair, the available options may be modified:. (See ANNEX I. LED Illumination Modes for details).

If the default value is retained, the following parameter will be displayed:

- **Colour** [Colour Selector (Base Colour)]: sets the colour that the LEDs of the pair will adopt.

If the “State-Dependent” or “State-dependent (both LEDs)” mode is configured, or if the **LED Illumination Control (All Buttons)** parameter is enabled in the ‘Configuration’ tab:



Figure 57. Pair Buttons - LED Illumination - State-Dependent

- **Colour: On** [Colour Selector (Base Colour)]: sets the colour with which the LED of the member whose action matches the current value of the (group) object will light up.
- **Colour: Off** [Colour Selector (Base Colour)]: defines the colour to be set on the LED of the member of the pair whose action does not match the current value of the (group) object.

Note: *illumination depends on the action configuration of each member of the pair, so the behaviour may be inverted in pairs where the default action option is not configured.*

In case of selecting the latter, the object “[Btn][PX][] LED - Switch Control” will be included in the project topology and several new parameters will appear for configuring the LEDs’ illumination.

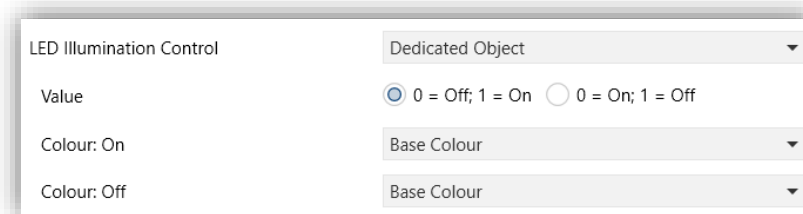


Figure 58. Pair Buttons - LED Illumination - Dedicated Object

- **Value** [0 = Off; 1 = On / 0 = On; 1 = Off]: determines the polarity of the communication object.

- **Colour: On** [*Colour selector (Base Colour)*]: sets the colour with which the LED of the member whose action matches the current value of the binary object will illuminate.
- **Colour: Off** [*Colour selector (Base Colour)*]: defines the colour to be set on the LED of the member of the pair whose action does not match the current value of the binary object.

Note: for further information, please refer to section 2.3.1 and **¡Error! No se encuentra el origen de la referencia.**

2.3.3.1.1 Switch

Figure 59. Pair Controls - Switch

- **Action** [*Left = 0; Right = 1 / Left = 1; Right = 0*]: assigns each of the two buttons the value to be sent through “[Btn][PX]] Switch”.

Note: this parameter will remain hidden unless having selected “Every Button Pair Is Configured Separately” in **Action of the Pair Buttons (All Pairs)** (see section 2.3.1).

2.3.3.1.2 Scaling / Counter / Float

Figure 60. Pair Controls - Counter

- **Action** [[Left = Decrease; Right = Increase](#) / [Left = Increase; Right = Decrease](#)]: sets which of the two buttons will increase the current numerical value and which will decrease it on user presses.

Note: *this parameter will remain hidden unless having selected “[Every Button Pair Is Configured Separately](#)” in Action of the Pair Buttons (All Pairs) (see section 2.3.1).*

- **Minimum Value:** sets which value from the available range will be the minimum value permitted by the control after a number of presses on the decrease button.
- **Maximum Value:** sets which value from the available range will be the maximum value permitted by the control after a number of presses on the increase button.
- **Increment on Short Press:** sets the increase or decrease to be applied to the current value on every short press over the increase or decrease buttons, respectively.
- **Increment on Long Press:** sets the increase or decrease to be applied to the current value on every long press over the increase or decrease buttons, respectively.

Link the Control with a Box in the Display [[Disabled](#) / [Upper Left](#) / [Upper Right](#) / [Lower Left](#) / [Lower Right](#) / [Pair Up](#) / [Pair Down](#) / [Pair Left](#) / [Pair Right](#)]: sets the area of the display where to show the indicator of this control, i.e., the current numeric value. See section 2.2.1 for details.

Whether the selected function is “[Counter](#)” type, two additional options will be enabled:

- **Size** [[1 Byte](#) / [2 Bytes](#)]: size of the indicator object.
- **Sign** [[Signed](#) / [Unsigned](#)]: sets whether the range includes negative values or only positive values

The different types of configurable 2-buttons controls are listed in the following table:

Function	Size	Sign	Minimum Value	Maximum Value	Increment short press	Increment long press	Related Object
Counter	1-Byte	Signed	[-128...127]	[-128...127]	[-128...1...127]	[-128...10...127]	“[Btn][PX][] Integer - 1-Byte Signed Control”
		Unsigned	[0...255]	[0...255]	[0...1...255]	[0...10...255]	“[Btn][PX][] Integer - 1-Byte Unsigned Control”

	2-Byte	Signed	[-32768...32767]	[-32768...32767]	[-32768...1...32767]	[-32768...10...32767]	"[Btn][PX][Integer - 2-Byte Signed Control]"
		Unsigned	[0...65535]	[0...65535]	[0...1...65535]	[0...10...65535]	"[Btn][PX][Integer - 2-Byte Unsigned Control]"
Scaling	1-Byte		[0...100]	[0...100]	[0...1...100]	[0...10...100]	"[Btn][PX][Percentage - Control]"
Float	2-Byte		[-671088.64...670433.28]	[-671088.64...670433.28]	[-671088.64...0.5...670433.28]	[-671088.64...1...670433.28]	"[Btn][PX][Float - 2-Byte Control]"

Table 9. 2-buttons Numeric Control

2.3.3.1.3 Two Objects (Short Press/Long Press)

The screenshot shows a configuration window for 'Two Objects (Short Press/Long Press)'. It includes the following settings:

- Function:** Two Objects (Short Press/Long Press)
- Action on Short Press:** Radio buttons for 'Left = 0; Right = 1' (selected) and 'Left = 1; Right = 0'.
- Action on Long Press:** Radio buttons for 'Left = 0; Right = 1' (selected) and 'Left = 1; Right = 0'.
- Long Press Threshold Time:** A numeric input field set to '6' with a unit of 'x 1 ds'.
- LED Illumination Control:** A dropdown menu set to 'State-Dependent'.
- State Object:** Radio buttons for 'Short Press Object' (selected) and 'Long Press Object'.

Figure 61 Pair Controls - Two Objects (Short Press/Long Press)

- **Action on Short Press** [\[Left = 0; Right = 1 / Left = 1; Right = 0\]](#): sets the value to be sent through the object "[Btn][PX] Two Objects – Short Press" when short pressing each of the two buttons.
- **Action on Long press** [\[Left = 0; Right = 1 / Left = 1; Right = 0\]](#): sets the value to be sent through the object "[Btn][PX] Two Objects – Long Press" when long pressing each of the two buttons.

Note: both parameters will remain hidden unless having selected "Every button pair is configured separately" in **Action of the Pair Buttons (All Pairs)**.

- **Long Press Threshold Time** [\[4...6...50\]](#) [\[ds\]](#): sets the minimum time the user should hold the button in order to consider it a long press.
- **LED Illumination Control** [\[Regular / State-Dependent / State-Dependent \(Both LEDs\) / Dedicated Object\]](#). Selecting "State-Dependent" or "State-Dependent (Both LEDs)" brings an additional parameter:
 - **State Object** [\[Short Press Object / Long Press Object\]](#), to make the state of the LEDs correspond either to object "[Btn] [PX] Two Objects: Short Press" or to object "[Btn] [PX] Two Objects: Long Press" respectively.

2.3.3.1.4 Dimmer

Function	Dimmer
Action	☒ Left = Off/Decrease; Right = On/Increase ☐ Left = On/Increase; Right = Off/Decrease
Dimming Step	100%

Figure 62. Pair Controls - Dimmer

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

On the other hand, the “[Btn][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.*

2.3.3.1.5 Shutter

Figure 63. Pair Controls - 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.

2.3.3.1.6 Enumeration

Figure 64. Pair Buttons - Enumeration

- **Number of Values** [1...2...6]: number of states that will be distinguished. For every distinguished state, the parameter **Value** will become available together with the corresponding indicator.
- **Value j** [0...255]: numerical value that will be sent through the control object “[Btn][PX] Enumeration” when the user, after pressing the buttons, sets the control to state j .
- **Link the Control with a Box in the Display** [Disabled / Upper Left / Upper Right / Lower Left / Lower Right / Pair Up / Pair Down / Pair Left / Pair Right]:

sets the area of the display where to show the indicator of this control, i.e., the current numeric value. See section 2.2.1 for details.

2.3.3.1.7 [Climate] Fan

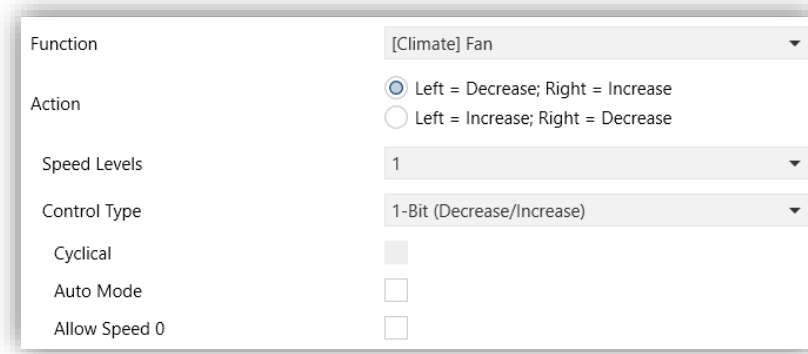


Figure 65. Pair Buttons - [Climate] Fan.

This control is analogous to the “Fan” control in individual buttons (see section 2.3.2.1.10). The objects that depending on the configuration will send the orders to the bus are in this case the following:

- “[Btn][PX][] (Climate) Fan - Binary Control”.
- “[Btn][PX][] (Climate) Fan - Percentage Control” .
- “[Bnt][PX][] (Climate) Fan - Enumeration Control”.
- “[Bnt][PX][] (Climate) Fan - Auto Mode”.

The status object (“[Bnt][PX][] Fan - Percentage (Status)” or “[Btn][PX][] Fan - Enumeration (Status)”) will be percentage-type.

When two buttons are available, the "direction" of increasing or decreasing the ventilation level or switch the automatic mode is determined by the current ventilation level reflected in the status object, by the “Cyclic” parameter, by whether or not there is a dedicated object and the action associated to each buttons of the pair:

- **Action** [Left = Decrease; Right = Increase / Left = Increase; Right = Decrease]: sets which of the buttons to use to send an order to decrease and which to increase.

Note: *this parameter will remain hidden unless having selected “Every Button Pair Is Configured Separately” in **Action of the Pair Buttons (All Buttons)** (see section 2.3.1).*

Note that depending on how many speed levels have been configured and on whether the Auto mode has been left disabled or has been enabled with a dedicated object or not, the minimum and maximum levels of the range may not always be the same.

- **Link the Control with a Box in the Display** [[Disabled](#) / [Upper Left](#) / [Upper Right](#) / [Lower Left](#) / [Lower Right](#) / [Pair Up](#) / [Pair Down](#) / [Pair Left](#) / [Pair Right](#)]: sets the area of the display where to show the indicator of this control, i.e., the current fan speed. The selected box must be configured with the same data type (see section 2.2.1 for details).

Note: this parameter is only available for “[Scaling](#)” or “[Enumeration](#)” control types.

2.3.3.1.8 [Climate] Mode

This control is analogous to the mode control in individual buttons (see section 2.3.2.1.11). When the “[Heat/Cool](#)” mode control is assigned to the box, one binary communication object is enabled: the control object “[Btn][PX][] (Climate) Mode”.

Figure 66. Pair Controls - [Climate] Mode (Heat/Cool)

- **Action** [[Left = Cool; Right = Heat](#) / [Left = Heat; Right = Cool](#)]: assigns to each of the two buttons the value to be sent via “[Btn][PX][] (Climate) Mode”.

Note: this parameter will remain hidden unless having selected “[Every Button Pair Is Configured Separately](#)” in **Action of the Pair Buttons (All Buttons)** (see section 2.3.1).

- **LED Illumination Control** [[Regular](#) / [State-Dependent](#) / [State-Dependent \(Both LEDs\)](#) / [Dedicated Object](#)]: sets the behaviour of the push-button LED. If ‘State-dependent’ is selected, the following parameters will be available:

- **Colour: Heat** [*Colour Selector (Red)*]: sets the colour for the pair member associated with 'Heating'.
- **Colour: Cool** [*Colour Selector (Blue)*]: sets the colour for the pair member associated with 'Cooling'.

If "Extended" mode is assigned, a 1-byte communication object is enabled: the control object "[**Button**][**PX**][] (**Climate**) **Mode - Extended**".

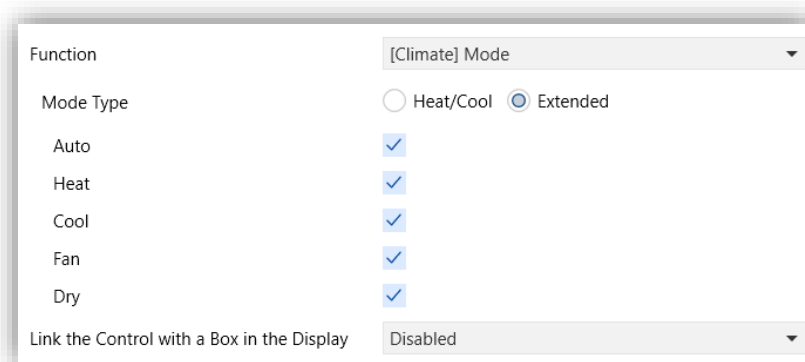


Figure 67. Pair Controls - [Climate] Mode (Extended)

- **Link the control with a box in the display** [*Disabled / Upper Left / Upper Right / Lower Left / Lower Right / Pair Up / Pair Down / Pair Left / Pair Right*]: sets the area of the display where to show the indicator of this control, i.e., the current numeric value or, in the case of "Extended" mode control, the corresponding icon or text. The selected box must be configured with the same data type (see section 2.2.1 for details).

Note: *this option is only available for "Extended" mode type.*

2.3.3.1.9 [Climate] Mode Special

This control is exactly the same as special mode control in individual buttons (see sections 2.3.2.1.12).

The climate mode will be controlled through the object "[**Btn**][**Px**][] (**Climate**) **Special Mode Control**".

Function	[Climate] Special Mode
Auto	☒
Comfort	☒
Standby	☒
Economy	☒
Building Protection	☒
Link the Control with a Box in the Display	Disabled

Figure 68. Pair Buttons - [Climate] Special Mode Control

2.3.3.1.10 [Climate] Temperature Setpoint

Function	[Climate] Temperature Setpoint
Action	☒ Left = Decrease; Right = Increase ☐ Left = Increase; Right = Decrease
Minimum Value	10 °C
Maximum Value	30 °C
Increment on Short Press	0,5 °C
Increment on Long Press	1 °C
Link the Control with a Box in the Display	Disabled

Figure 69. Pair Controls - [Climate] Temperature Setpoint

- **Action** [Left = Decrease; Right = Increase / Left = Increase; Right = Decrease]: sets which of the two buttons will permit increasing the setpoint value and which one will permit decreasing it. The values are sent to the bus through “[Btn][PX][(Climate) Temperature Setpoint”.
- **Note:** *this parameter will remain hidden unless having selected “Every Button Pair Is Configured Separately” in **Action of the Pair Buttons (All Buttons)** (see section 2.3.1).*
 - **Minimum Value** [-99...10...199]: minimum value than can be reached by the control after a number of presses on the decrease button
 - **Maximum Value** [-99...30...199]: maximum value than can be reached by the control after a number of presses on the increase button.
 - **Increment on Short Press** [0.1...0.5...10]: sets the increase or decrease step to be applied to the current value on every short press over the increase or decrease buttons, respectively.

- **Increment on Long Press** [0.1...1...10]: sets the increase or decrease step to be applied to the current value on every long press over the increase or decrease buttons, respectively.

Note: *long and short increments are applied in °C regardless of the scale used.*

- **Link the Control with a Box in the Display** [Disabled / Upper Left / Upper Right / Lower Left / Lower Right / Pair Up / Pair Down / Pair Left / Pair Right]: sets the area of the display where to show the indicator of this control, i.e., the current numeric value. See section 2.2.1 for details.

2.4 INPUTS

Flat 55 Display v2 incorporates **two analogue/digital inputs**, each configurable as a:

- **Binary Input**, for the connection of a pushbutton or a switch/sensor.
- **Temperature Probe**, for the connection of a temperature sensor from Zennio.

2.4.1 BINARY INPUT

Please refer to the specific user manual “**Binary Inputs**”, available in the Flat 55 Display v2 product section, at the Zennio website (www.zennio.com).

2.4.2 TEMPERATURE PROBE

Please refer to the specific user manual “**Temperature Probe**”, available in the Flat 55 Display v2 product section, at the Zennio website (www.zennio.com).

2.5 THERMOSTAT

Flat RGB 55/70 Display implements **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

Each button is equipped with RGBW LED backlighting which, by default (in most functions), momentarily changes its brightness level when the button is pressed. 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 sets a single, configurable colour with a default brightness state (“On” or “Off”), and briefly switches its brightness to the opposite state when the button is pressed.
- **State-Dependent Illumination:** the LED will remain either in the “On” brightness/colour state or the “Off” state, depending on the value of the object associated with the function assigned to the button. The exact mapping between object values and LED states may vary slightly from one control type to another (detailed per function). For paired controls, the object value sets the “On” brightness and colour on the LED of the pair member whose action corresponds to that value, while the other member’s LED is shown with the “Off” brightness and colour.
- **State-Dependent Illumination (both LEDs):** applicable only to buttons configured as a pair. Both LEDs in the pair will remain either in the “On” brightness/colour state or not, depending on the value of the object linked to that pair’s function and on the specific function type. 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 set the “On” brightness and colour, or not, depending on the value (“0” or “1”, configurable) of an independent binary object. For paired controls, value “0” will light one LED with the “On” brightness and colour while the other remains in the “Off” brightness and colour; value “1” will swap their states.

Table 10 illustrates which of the above are configurable for each function.

		Disabled	Regular	State-dep.	State-dep. (both LEDs)	Dedicated object
INDIVIDUAL	LED Indicator					✓
	Switch		✓	✓		✓
	Hold & Release		✓			✓
	Two Objects		✓	✓		✓
	Scene		✓			✓
	Constants		✓	✓		✓
	Dimmer		✓	✓		✓
	Shutter		✓	✓		✓
	Enumeration		✓			✓
	Fan		✓	✓		✓
	Mode		✓	✓		✓
	Special Mode		✓			✓
	Room State (Indoor)		✓	✓		✓
PAIR	Switch		✓	✓	✓	✓
	Two Objects		✓	✓	✓	✓
	Dimmer		✓	✓	✓	✓
	Shutter		✓			✓
	Scaling, Counter, Float		✓			✓
	Enumeration		✓			✓
	Temperature Setpoint		✓			✓
	Mode		✓	✓	✓	✓
	Mode Special		✓			✓
	Fan		✓	✓	✓	✓
DISABLED		✓				

Table 10. Functions vs. LED Illumination Options

Notes:

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 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 **¡Error! No se encuentra el origen de la referencia.**). 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.

For LED colour configuration, a palette is provided with **9 colours** plus **3 white tones** (warm, neutral and cool), and a “No colour” option that turns the LED off regardless of the brightness level.



Figure 70. Available Colour Palette

ANNEX II. CHARACTER SELECTION

All characters supported by the device according to the alphabet type are shown below:

Latin	!"#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMN OPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{ }~
Latin (extended)	iϕ£¥ §¨©ª«¬®¯°±²³´µ¶·¸¹º»¼½¾¿ÀÁÂÃÄÅÆÇÈÉÊË ÌÍÎÏÐÑÒÓÔÕÖ×ØÙÚÛÜÝÞßàáâãäåæçèéêëìíîïðñ òóôõö÷øùúûüýþÿ
Greek	΀΁΂΃΄΅Ά·ΈΉΊΌΥΩͲͳʹ͵Ͷͷ͸͹ͺͻͼͽͿΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡ ΣΤΥΦΧΨΩͰͱͲͳʹ͵Ͷͷ͸͹ͺͻͼͽͿαβγδεζηθικλμνξοπρςστυφχψω ϊϋόύώϑϣϥϦϧϨϩϪϫϬϭϮϯϰϱϲϳϴϵ϶ϷϸϹϺϻϼϽϾϿ
Cyrillic	АБВГДЕЖЗИЙКЛМНОПРСТУФХЦЧШЩЪЫЬЭЮЯабвгдежзийклмнопрстуфхцчшщъыьэюя
Extra	€£Ω

Table 11. Characters supported

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.

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		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 T U	DPT_Switch	0/1	[General] Temperature Scale	0 = °C; 1 = °F
7	1 Bit	I	C - W - - -	DPT_State	0/1	[General] Activity	0 = Inactivity; 1 = Activity
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
14	3 Bytes	I	C - W T U	DPT_TimeOfDay	00:00:00 - 23:59:59	[General] Time of Day	Time of Day External Reference
15	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00° - 670433.28°	[General] External Temperature	Temperature to Be Shown
16	1 Bit	I	C - W T -	DPT_Switch	0/1	[General] Welcome Greeting	0 = Finish Welcome; 1 = Run Welcome
17, 18, 19, 20	14 Bytes	I	C - W - - -	DPT_String_UTF-8		[General] Welcome Greeting - Line x	Text to Show on the Display at Line x
21	1 Bit		C - - - T -	DPT_Switch	0/1	[General] Welcome Back Object	Switch Object Sent on Wake Up
22, 23, 24, 25, 26	1 Bit	I	C - W - - -	DPT_Switch	0/1	[General] Welcome Back Object - Additional Condition	Additional Condition Object x
27	1 Bit	I	C - W T U	DPT_Enable	0/1	[General] Touch Locking	0 = Unlock; 1 = Lock
	1 Bit	I	C - W T U	DPT_Enable	0/1	[General] Touch Locking	0 = Lock; 1 = Unlock
28	1 Bit	I	C - W - - -	DPT_Ack	0/1	[General] Cleaning Function	0 = Nothing; 1 = Clean Now
29	1 Bit	I	C - W - - -	DPT_Enable	0/1	[General] Enable Warning Function	0 = Disable Warning; 1 = Enable Warning
30	1 Bit	I	C - W - - -	DPT_Alarm	0/1	[General] Warning	0 = Stop Warning; 1 = Start Warning

31, 38, 45, 52, 59, 66, 73	1 Bit	I	C - W - -	DPT_Alarm	0/1	[General] Warning	1 = Stop Warning, 0 = Start Warning
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Btn][Ix] LED - Switch Control	0 = Off; 1 = On
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Btn][Ix] LED - Switch Control	0 = On; 1 = Off
32, 39, 46, 53, 60, 67, 74	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Ix] Hold & Release	1-Bit Generic Control
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Btn][Ix] Two Objects - Short Press: "0/1"	1-Bit Generic Control
	1 Bit	I	C - W T -	DPT_Step	0/1	[Btn][Ix] (Climate) Fan - Binary Control	0 = Decrease; 1 = Increase
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Ix] Two Objects - Short Press: "0"	1-Bit Generic Control
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Ix] Two Objects - Short Press: "1"	1-Bit Generic Control
	1 Bit	I	C - W T -	DPT_Heat_Cool	0/1	[Btn][Ix] (Climate) Mode	0 = Cool; 1 = Heat
	1 Bit		C - - T -	DPT_Switch	0/1	[Btn][Ix] Light - Switch Control	(Short Press) Switch Between On and Off
	1 Bit		C - - T -	DPT_Trigger	0/1	[Btn][Ix] Shutter - Stop Control	(End Pressing) Stop Shutter
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Ix] Switch: "0"	1-Bit Generic Control
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Ix] Switch: "1"	1-Bit Generic Control
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Btn][Ix] Switch: "0/1"	1-Bit Generic Control
	1 Bit		C - - T -	DPT_Step	0/1	[Btn][Ix] Shutter - Stop/Step Control	(Short Press) 0 = Stop Shutter/Step Up; 1 = Stop Shutter/Step Down
	1 Bit		C - - T -	DPT_Switch	0/1	[Btn][Ix] Light - Off Control	(Short Press) Send Off
	1 Bit		C - - T -	DPT_Switch	0/1	[Btn][Ix] Light - On Control	(Short Press) Send On
	1 Bit	O	C R - T -	DPT_Bool	0/1	[Btn][Ix] Room State - Do Not Disturb (Status)	0 = No Active; 1 = Active
33, 40, 47, 54, 61, 68, 75	1 Bit	I	C - W T U	DPT_Switch	0/1	[Btn][Ix] (Climate) Fan - Auto Mode	Switch Auto Mode on Long Press
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Ix] Two Objects - Long Press: "1"	1-Bit Generic Control
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Ix] Two Objects - Long Press: "0"	1-Bit Generic Control
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Btn][Ix] Two Objects - Long Press: "0/1"	1-Bit Generic Control
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Btn][Ix] (Climate) Fan - Auto Mode	Switch Auto Mode on Short Press
	1 Bit		C - - T -	DPT_UpDown	0/1	[Btn][Ix] Shutter - Move Control	(Start Pressing) Switch Between Up and

							Down
	1 Bit		C - - T -	DPT_UpDown	0/1	[Btn][Ix] Shutter - Move Control	(Long Press) 0 = Up; 1 = Down
	1 Bit	O	C R - T -	DPT_Bool	0/1	[Btn][Ix] Room State - Make Up Room (Status)	0 = No Active; 1 = Active
34, 41, 48, 55, 62, 69, 76	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Btn][Ix] Light - Dimming Control	(Long Press) Switch Between Dimming Up and Down
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Btn][Ix] Light - Dimming Control	(Long Press) Dimming Down
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Btn][Ix] Light - Dimming Control	(Long Press) Dimming Up
35, 42, 49, 56, 63, 70, 77	1 Byte	I/O	C R W T U	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Btn][Ix] (Climate) Special Mode Control	Auto, Comfort, Standby, Economy, Building Protection
	1 Byte	I	C - W T -	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	0, 1, 2, 3
	1 Byte	I	C - W T -	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	0, 1, 2, 3, 4
	1 Byte	I	C - W T -	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	0, 1, 2, 3, 4, 5
	1 Byte	I	C - W T -	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	0, 1
	1 Byte	I	C - W T -	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	1, 2, 3, 4, 5
	1 Byte	I	C - W T -	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	1, 2, 3, 4
	1 Byte	I	C - W T -	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	1, 2, 3
	1 Byte	I	C - W T -	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	1, 2
	1 Byte	I	C - W T -	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	1
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	20%, 40%, 60%, 80%, 100%
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	25%, 50%, 75%, 100%
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	33%, 67%, 100%
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	50%, 100%

			-			Control	
1 Byte	I	C - W T	-	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	100%
1 Byte	I	C - W T	-	DPT_Scaling	0% - 100%	[Btn][Ix] Percentage - Control	0% ... 100%
1 Byte	I	C - W T	-	DPT_Value_1_Ucount	0 - 255	[Btn][Ix] Two Objects - Short Press: (1-Byte)	Send Selected 1-Byte Value on Short Press
1 Byte	I	C - W T	-	DPT_Value_1_Count	-128 - 127	[Btn][Ix] Integer - 1-Byte Signed Control	-128 ... 127
1 Byte	I	C - W T	-	DPT_Value_1_Ucount	0 - 255	[Btn][Ix] Integer - 1-Byte Unsigned Control	0 ... 255
1 Byte	I	C - W T	U	DPT_Scaling	0% - 100%	[Btn][Ix] Light - Percentage (Status)	0% - 100%
1 Byte	I	C - W T	U	DPT_Scaling	0% - 100%	[Btn][Ix] Shutter - Percentage (Status)	0% = Top; 100% = Bottom
1 Byte	I	C - W T	-	DPT_Value_1_Ucount	0 - 255	[Btn][Ix] Enumeration	Rotating Value Change
1 Byte	I	C - W T	-	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	0, 1, 2
1 Byte	I	C - W T	-	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	0%, 20%, 40%, 60%, 80%, 100%
1 Byte	I	C - W T	-	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	0%, 50%, 100%
1 Byte	I/O	C R W T	-	DPT_HVACContrMode	0=Auto 1=Heat 3=Cool 9=Fan 14=Dry	[Btn][Ix] (Climate) Mode - Extended	Rotating Change of Selected Modes on Short Press
1 Byte	I	C - W T	-	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	0%, 33%, 67%, 100%
1 Byte	I	C - W T	U	DPT_Room_State	0 - 2	[Btn][Ix] Room State	0 = Normal; 1 = Make Up Room; 2 = Do Not Disturb
1 Byte	I	C - W T	-	DPT_SceneControl	0-63; 128-191	[Btn][Ix] Scene: Send	0-63 (Run Scene 1-64)
1 Byte	I	C - W T	-	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	Auto, 1, 2, 3, 4, 5
1 Byte	I	C - W T	-	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	Auto, 1, 2, 3, 4
1 Byte	I	C - W T	-	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	Auto, 1, 2, 3
1 Byte	I	C - W T	-	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	Auto, 1, 2
1 Byte	I	C - W T	-	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration Control	Auto, 1

			-			Control	
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	Auto, 50%, 100%
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	Auto, 33%, 67%, 100%
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	Auto, 25%, 50%, 75%, 100%
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	Auto, 20%, 40%, 60%, 80%, 100%
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	Auto, 100%
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	0%, 25%, 50%, 75%, 100%
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage Control	0%, 100%
36, 43, 50, 57, 64, 71, 78	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Btn][Ix] (Climate) Fan - Percentage (Status)	0% - 100%
	1 Byte	I	C - W T U	DPT_Fan_Stage	0 - 255	[Btn][Ix] (Climate) Fan - Enumeration (Status)	Enumerated Value
	1 Byte	I	C - W T -	DPT_Value_1_Ucount	0 - 255	[Btn][Ix] Two Objects - Long Press: (1-Byte)	Send Selected 1-Byte Value on Long Press
	1 Byte	I	C - W T -	DPT_Scaling	0% - 100%	[Btn][Ix] Light - Absolute Dimming	(Short Press) Send Selected 1-Byte Value
37, 44, 51, 58, 65, 72, 79	2 Bytes	I	C - W T -	9.xxx	-671088.64 - 670433.28	[Btn][Ix] Float - 2-Byte Control	-671088.64 ... 670433.28
	2 Bytes	I	C - W T -	DPT_Value_2_Ucount	0 - 65535	[Btn][Ix] Integer - 2-Byte Unsigned Control	0 ... 65535
	2 Bytes	I	C - W T -	DPT_Value_2_Count	-32768 - 32767	[Btn][Ix] Integer - 2-Byte Signed Control	-32768 ... 32767
101	1 Bit	I	C - W - -	DPT_Ack	0/1	[General] Translations - Main Language	0 = Nothing; 1 = Choose this Language
102, 103, 104, 105	1 Bit	I	C - W - -	DPT_Ack	0/1	[General] Translations - Language x	0 = Nothing; 1 = Choose this Language
106	1 Byte	I	C - W - -	1.xxx	0/1	[General] Translations - Select Language	0 = Main; 1 = Lang. 2; ...; 4 = Lang. 5
107	2 Bytes	I	C - W - -	DPT_LanguageCodeAlpha2_ASCII		[General] Translations - Select Language	Language Selection Through ISO 639-1 Two Letters Code
108	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][ax][x] Show/Hide Fan	0 = Hide Fan; 1 = Show Fan
108, 116, 124, 132	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][ax][x] Show/Hide Indicator	0 = Hide Indicator; 1 = Show Indicator
108	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PUp][x] Show/Hide Indicator	0 = Hide Indicator; 1 = Show Indicator

	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PLeft][x] Show/Hide Indicator	0 = Hide Indicator; 1 = Show Indicator
109, 117, 125, 133	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][ax][x] (Climate) Mode	Mode Icon is Shown (0 = Cool; 1 = Heat)
	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][ax][x] (Climate) On/Off - Mode	0 = Cool; 1 = Heat (Mode Icon Is Shown When On/Off = 1, and Status = 0)
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][ax][x] Text - 1-Bit	Parameterized Text Shown on New Value Reception
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][ax][x] Icon - 1-Bit	Selected Icon Shown on New Value Reception
109	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PUp][x] Icon - 1-Bit	Selected Icon Shown on New Value Reception
	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][PUp][x] (Climate) Mode	Mode Icon is Shown (0 = Cool; 1 = Heat)
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PUp][x] Text - 1-Bit	Parameterized Text Shown on New Value Reception
	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][PUp][x] (Climate) On/Off - Mode	0 = Cool; 1 = Heat (Mode Icon Is Shown When On/Off = 1, and Status = 0)
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PLeft][x] Icon - 1-Bit	Selected Icon Shown on New Value Reception
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PLeft][x] Text - 1-Bit	Parameterized Text Shown on New Value Reception
	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][PLeft][x] (Climate) Mode	Mode Icon is Shown (0 = Cool; 1 = Heat)
	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][PLeft][x] (Climate) On/Off - Mode	0 = Cool; 1 = Heat (Mode Icon Is Shown When On/Off = 1, and Status = 0)
110, 118, 126, 134	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][ax][x] (Climate) On/Off	0 = Off (Hide Indicator); 1 = On (Show Mode or Status)
110	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PUp][x] (Climate) On/Off	0 = Off (Hide Indicator); 1 = On (Show Mode or Status)
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PLeft][x] (Climate) On/Off	0 = Off (Hide Indicator); 1 = On (Show Mode or Status)
111, 119, 127, 135	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][ax][x] (Climate) On/Off - Status	0 = Halted; 1 = Running (Status Icon Is Shown When On/Off = 1, and Status = 1)
111	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PUp][x] (Climate) On/Off - Status	0 = Halted; 1 = Running (Status Icon Is Shown When On/Off = 1, and Status = 1)
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PLeft][x] (Climate) On/Off - Status	0 = Halted; 1 = Running (Status Icon Is Shown When On/Off = 1, and Status = 1)
112, 120, 128, 136	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][ax][x] Number - Scaling	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][ax][x] Number - Counter (1-Byte Unsigned)	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Count	-128 - 127	[Disp][ax][x] Number - Counter (1-Byte)	Object Numeric Value is Shown

			U			Signed)	
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][ax][x] Text - Enumeration	Parameterized Text Shown on New Value Reception
	1 Byte	I	C - W T U	DPT_HVACContrMode	0=Auto 1=Heat 3=Cool 9=Fan 14=Dry	[Disp][ax][x] (Climate) Mode - Extended	Mode Icon is Shown
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][ax][x] (Climate) Fan	2 Levels: Min. (0% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][ax][x] (Climate) Fan	3 Levels: Min. (0% - 33%); Med. (34% - 66%); Max. (67% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][ax][x] (Climate) Fan	Off/Auto + 2 Levels: Off/Auto = 0%; Min. (1% - 50%); Max. (51% - 100%)
112	1 Byte	I	C - W T U	DPT_HVACContrMode	0=Auto 1=Heat 3=Cool 9=Fan 14=Dry	[Disp][PUp][x] (Climate) Mode - Extended	Mode Icon is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][ax][x] Icon - Enumeration	Selected Icon Shown on New Value Reception
112	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PUp][x] (Climate) Fan	3 Levels: Min. (0% - 33%); Med. (34% - 66%); Max. (67% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PUp][x] (Climate) Fan	2 Levels: Min. (0% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Value_1_Count	-128 - 127	[Disp][PUp][x] Number - Counter (1-Byte Signed)	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PUp][x] Number - Counter (1-Byte Unsigned)	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PUp][x] Number - Scaling	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Disp][PUp][x] (Climate) Special Mode	Mode Icon is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PUp][x] Text - Enumeration	Parameterized Text Shown on New Value Reception
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PUp][x] (Climate) Fan	Off/Auto + 2 Levels: Off/Auto = 0%; Min. (1% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PUp][x] (Climate) Fan	Off/Auto + 3 Levels: Off/Auto = 0%; Min.

			U				(1% - 33%); Med. (34% - 66%); Max. (67% - 100%)
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PUp][x] Icon - Enumeration	Selected Icon Shown on New Value Reception
112, 120, 128, 136	1 Byte	I	C - W T U	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Disp][ax][x] (Climate) Special Mode	Mode Icon is Shown
112	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PLeft][x] Icon - Enumeration	Selected Icon Shown on New Value Reception
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PLeft][x] Number - Scaling	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PLeft][x] Number - Counter (1-Byte Unsigned)	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Count	-128 - 127	[Disp][PLeft][x] Number - Counter (1-Byte Signed)	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PLeft][x] Text - Enumeration	Parameterized Text Shown on New Value Reception
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PLeft][x] (Climate) Fan	2 Levels: Min. (0% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PLeft][x] (Climate) Fan	3 Levels: Min. (0% - 33%); Med. (34% - 66%); Max. (67% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PLeft][x] (Climate) Fan	Off/Auto + 2 Levels: Off/Auto = 0%; Min. (1% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PLeft][x] (Climate) Fan	Off/Auto + 3 Levels: Off/Auto = 0%; Min. (1% - 33%); Med. (34% - 66%); Max. (67% - 100%)
	1 Byte	I	C - W T U	DPT_HVACContrMode	0=Auto 1=Heat 3=Cool 9=Fan 14=Dry	[Disp][PLeft][x] (Climate) Mode - Extended	Mode Icon is Shown
	1 Byte	I	C - W T U	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Disp][PLeft][x] (Climate) Special Mode	Mode Icon is Shown
113, 121, 129, 137	2 Bytes	I	C - W T U	DPT_Value_2_Ucount	0 - 65535	[Disp][ax][x] Number - Counter (2-Byte Unsigned)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	DPT_Value_2_Count	-32768 - 32767	[Disp][ax][x] Number - Counter (2-Byte Signed)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	9.xxx	-671088.64 - 670433.28	[Disp][ax][x] Number - Float (2 Bytes)	Object Numeric Value is Shown

	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00° - 670433.28°	[Disp][ax][x] (Climate) Temperature	Object Value is Shown (-99°C to 199°C)
113	2 Bytes	I	C - W T U	DPT_Value_2_Ucount	0 - 65535	[Disp][PUp][x] Number - Counter (2-Byte Unsigned)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	DPT_Value_2_Count	-32768 - 32767	[Disp][PUp][x] Number - Counter (2-Byte Signed)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00° - 670433.28°	[Disp][PUp][x] (Climate) Temperature	Object Value is Shown (-99°C to 199°C)
	2 Bytes	I	C - W T U	9.xxx	-671088.64 - 670433.28	[Disp][PUp][x] Number - Float (2 Bytes)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	DPT_Value_2_Count	-32768 - 32767	[Disp][PLeft][x] Number - Counter (2-Byte Signed)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	DPT_Value_2_Ucount	0 - 65535	[Disp][PLeft][x] Number - Counter (2-Byte Unsigned)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	9.xxx	-671088.64 - 670433.28	[Disp][PLeft][x] Number - Float (2 Bytes)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00° - 670433.28°	[Disp][PLeft][x] (Climate) Temperature	Object Value is Shown (-99°C to 199°C)
114, 122, 130, 138	4 Bytes	I	C - W T U	DPT_Value_4_Ucount	0 - 4294967295	[Disp][ax][x] Number - Counter (4-Byte Unsigned)	Object Numeric Value is Shown
	4 Bytes	I	C - W T U	DPT_Value_4_Count	-2147483648 - 2147483647	[Disp][ax][x] Number - Counter (4-Byte Signed)	Object Numeric Value is Shown
114	4 Bytes	I	C - W T U	DPT_Value_4_Count	-2147483648 - 2147483647	[Disp][PUp][x] Number - Counter (4-Byte Signed)	Object Numeric Value is Shown
	4 Bytes	I	C - W T U	DPT_Value_4_Ucount	0 - 4294967295	[Disp][PUp][x] Number - Counter (4-Byte Unsigned)	Object Numeric Value is Shown
	4 Bytes	I	C - W T U	DPT_Value_4_Count	-2147483648 - 2147483647	[Disp][PLeft][x] Number - Counter (4-Byte Signed)	Object Numeric Value is Shown
	4 Bytes	I	C - W T U	DPT_Value_4_Ucount	0 - 4294967295	[Disp][PLeft][x] Number - Counter (4-Byte Unsigned)	Object Numeric Value is Shown
115, 123, 131, 139	14 Bytes	I	C - W T U	DPT_String_UTF-8		[Disp][ax][x] Text from Object	Received Text is Shown
115	14 Bytes	I	C - W T U	DPT_String_UTF-8		[Disp][PUp][x] Text from Object	Received Text is Shown
	14 Bytes	I	C - W T U	DPT_String_UTF-8		[Disp][PLeft][x] Text from Object	Received Text is Shown
116	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][ax][x] (Climate) Fan - Auto On/Off	Auto Mode With 0
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][ax][x] (Climate) Fan - Auto On/Off	Auto Mode With 1
120	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][ax][x] (Climate) Fan	2 Levels: Off = 0%; Min. (1% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][ax][x] (Climate) Fan	3 Levels: Off = 0%; Min. (1% - 33%);

			U				Med. (34% - 66%); Max. (67% - 100%)
132	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][Bx][x] Show/Hide Indicator	0 = Hide Indicator; 1 = Show Indicator
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PDown][x] Show/Hide Indicator	0 = Hide Indicator; 1 = Show Indicator
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PRight][x] Show/Hide Indicator	0 = Hide Indicator; 1 = Show Indicator
133	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][Bx][x] Icon - 1-Bit	Selected Icon Shown on New Value Reception
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][Bx][x] Text - 1-Bit	Parameterized Text Shown on New Value Reception
	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][Bx][x] (Climate) Mode	Mode Icon is Shown (0 = Cool; 1 = Heat)
	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][Bx][x] (Climate) On/Off - Mode	0 = Cool; 1 = Heat (Mode Icon Is Shown When On/Off = 1, and Status = 0)
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PDown][x] Icon - 1-Bit	Selected Icon Shown on New Value Reception
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PDown][x] Text - 1-Bit	Parameterized Text Shown on New Value Reception
	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][PDown][x] (Climate) Mode	Mode Icon is Shown (0 = Cool; 1 = Heat)
	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][PDown][x] (Climate) On/Off - Mode	0 = Cool; 1 = Heat (Mode Icon Is Shown When On/Off = 1, and Status = 0)
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PRight][x] Icon - 1-Bit	Selected Icon Shown on New Value Reception
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PRight][x] Text - 1-Bit	Parameterized Text Shown on New Value Reception
	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][PRight][x] (Climate) Mode	Mode Icon is Shown (0 = Cool; 1 = Heat)
	1 Bit	I	C - W T U	DPT_Heat_Cool	0/1	[Disp][PRight][x] (Climate) On/Off - Mode	0 = Cool; 1 = Heat (Mode Icon Is Shown When On/Off = 1, and Status = 0)
134	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][Bx][x] (Climate) On/Off	0 = Off (Hide Indicator); 1 = On (Show Mode or Status)
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PDown][x] (Climate) On/Off	0 = Off (Hide Indicator); 1 = On (Show Mode or Status)
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PRight][x] (Climate) On/Off	0 = Off (Hide Indicator); 1 = On (Show Mode or Status)
135	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][Bx][x] (Climate) On/Off - Status	0 = Halted; 1 = Running (Status Icon Is Shown When On/Off = 1, and Status = 1)
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PDown][x] (Climate) On/Off - Status	0 = Halted; 1 = Running (Status Icon Is Shown When On/Off = 1, and Status = 1)
	1 Bit	I	C - W T U	DPT_Switch	0/1	[Disp][PRight][x] (Climate) On/Off - Status	0 = Halted; 1 = Running (Status Icon Is Shown When On/Off = 1, and Status = 1)

136	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][Bx][x] Icon - Enumeration	Selected Icon Shown on New Value Reception
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][Bx][x] Number - Scaling	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][Bx][x] Number - Counter (1-Byte Unsigned)	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Count	-128 - 127	[Disp][Bx][x] Number - Counter (1-Byte Signed)	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][Bx][x] Text - Enumeration	Parameterized Text Shown on New Value Reception
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][Bx][x] (Climate) Fan	2 Levels: Min. (0% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][Bx][x] (Climate) Fan	3 Levels: Min. (0% - 33%); Med. (34% - 66%); Max. (67% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][Bx][x] (Climate) Fan	Off/Auto + 2 Levels: Off/Auto = 0%; Min. (1% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][Bx][x] (Climate) Fan	Off/Auto + 3 Levels: Off/Auto = 0%; Min. (1% - 33%); Med. (34% - 66%); Max. (67% - 100%)
	1 Byte	I	C - W T U	DPT_HVACContrMode	0=Auto 1=Heat 3=Cool 9=Fan 14=Dry	[Disp][Bx][x] (Climate) Mode - Extended	Mode Icon is Shown
	1 Byte	I	C - W T U	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Disp][Bx][x] (Climate) Special Mode	Mode Icon is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PDown][x] Icon - Enumeration	Selected Icon Shown on New Value Reception
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PDown][x] Number - Scaling	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PDown][x] Number - Counter (1-Byte Unsigned)	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Count	-128 - 127	[Disp][PDown][x] Number - Counter (1-Byte Signed)	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PDown][x] Text - Enumeration	Parameterized Text Shown on New Value Reception
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PDown][x] (Climate) Fan	2 Levels: Min. (0% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PDown][x] (Climate) Fan	3 Levels: Min. (0% - 33%); Med. (34% - 66%); Max. (67% - 100%)
	1 Byte	I	C - W T	DPT_Scaling	0% - 100%	[Disp][PDown][x] (Climate) Fan	Off/Auto + 2 Levels: Off/Auto = 0%; Min.

			U				(1% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PDown][x] (Climate) Fan	Off/Auto + 3 Levels: Off/Auto = 0%; Min. (1% - 33%); Med. (34% - 66%); Max. (67% - 100%)
	1 Byte	I	C - W T U	DPT_HVACContrMode	0=Auto 1=Heat 3=Cool 9=Fan 14=Dry	[Disp][PDown][x] (Climate) Mode - Extended	Mode Icon is Shown
	1 Byte	I	C - W T U	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Disp][PDown][x] (Climate) Special Mode	Mode Icon is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PRight][x] Icon - Enumeration	Selected Icon Shown on New Value Reception
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PRight][x] Number - Scaling	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PRight][x] Number - Counter (1-Byte Unsigned)	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Count	-128 - 127	[Disp][PRight][x] Number - Counter (1-Byte Signed)	Object Numeric Value is Shown
	1 Byte	I	C - W T U	DPT_Value_1_Ucount	0 - 255	[Disp][PRight][x] Text - Enumeration	Parameterized Text Shown on New Value Reception
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PRight][x] (Climate) Fan	2 Levels: Min. (0% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PRight][x] (Climate) Fan	3 Levels: Min. (0% - 33%); Med. (34% - 66%); Max. (67% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PRight][x] (Climate) Fan	Off/Auto + 2 Levels: Off/Auto = 0%; Min. (1% - 50%); Max. (51% - 100%)
	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[Disp][PRight][x] (Climate) Fan	Off/Auto + 3 Levels: Off/Auto = 0%; Min. (1% - 33%); Med. (34% - 66%); Max. (67% - 100%)
	1 Byte	I	C - W T U	DPT_HVACContrMode	0=Auto 1=Heat 3=Cool 9=Fan 14=Dry	[Disp][PRight][x] (Climate) Mode - Extended	Mode Icon is Shown
	1 Byte	I	C - W T U	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Disp][PRight][x] (Climate) Special Mode	Mode Icon is Shown
137	2 Bytes	I	C - W T	DPT_Value_2_Count	-32768 - 32767	[Disp][Bx][x] Number - Counter (2-Byte)	Object Numeric Value is Shown

			U			Signed)	
	2 Bytes	I	C - W T U	DPT_Value_2_Ucount	0 - 65535	[Disp][Bx][x] Number - Counter (2-Byte Unsigned)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	9.xxx	-671088.64 - 670433.28	[Disp][Bx][x] Number - Float (2 Bytes)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00° - 670433.28°	[Disp][Bx][x] (Climate) Temperature	Object Value is Shown (-99°C to 199°C)
	2 Bytes	I	C - W T U	DPT_Value_2_Count	-32768 - 32767	[Disp][PDown][x] Number - Counter (2-Byte Signed)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	DPT_Value_2_Ucount	0 - 65535	[Disp][PDown][x] Number - Counter (2-Byte Unsigned)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	9.xxx	-671088.64 - 670433.28	[Disp][PDown][x] Number - Float (2 Bytes)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00° - 670433.28°	[Disp][PDown][x] (Climate) Temperature	Object Value is Shown (-99°C to 199°C)
	2 Bytes	I	C - W T U	DPT_Value_2_Count	-32768 - 32767	[Disp][PRight][x] Number - Counter (2-Byte Signed)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	DPT_Value_2_Ucount	0 - 65535	[Disp][PRight][x] Number - Counter (2-Byte Unsigned)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	9.xxx	-671088.64 - 670433.28	[Disp][PRight][x] Number - Float (2 Bytes)	Object Numeric Value is Shown
	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00° - 670433.28°	[Disp][PRight][x] (Climate) Temperature	Object Value is Shown (-99°C to 199°C)
138	4 Bytes	I	C - W T U	DPT_Value_4_Count	-2147483648 - 2147483647	[Disp][Bx][x] Number - Counter (4-Byte Signed)	Object Numeric Value is Shown
	4 Bytes	I	C - W T U	DPT_Value_4_Ucount	0 - 4294967295	[Disp][Bx][x] Number - Counter (4-Byte Unsigned)	Object Numeric Value is Shown
	4 Bytes	I	C - W T U	DPT_Value_4_Count	-2147483648 - 2147483647	[Disp][PDown][x] Number - Counter (4-Byte Signed)	Object Numeric Value is Shown
	4 Bytes	I	C - W T U	DPT_Value_4_Ucount	0 - 4294967295	[Disp][PDown][x] Number - Counter (4-Byte Unsigned)	Object Numeric Value is Shown
	4 Bytes	I	C - W T U	DPT_Value_4_Count	-2147483648 - 2147483647	[Disp][PRight][x] Number - Counter (4-Byte Signed)	Object Numeric Value is Shown
	4 Bytes	I	C - W T U	DPT_Value_4_Ucount	0 - 4294967295	[Disp][PRight][x] Number - Counter (4-Byte Unsigned)	Object Numeric Value is Shown
139	14 Bytes	I	C - W T U	DPT_String_UTF-8		[Disp][Bx][x] Text from Object	Received Text is Shown
	14 Bytes	I	C - W T U	DPT_String_UTF-8		[Disp][PDown][x] Text from Object	Received Text is Shown
	14 Bytes	I	C - W T U	DPT_String_UTF-8		[Disp][PRight][x] Text from Object	Received Text is Shown
140	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
141	1 Bit	I	C - W - -	DPT_Ack	0/1	[General] Sounds - Doorbell	0 = Play Doorbell Sound; 1 = Nothing
	1 Bit	I	C - W - -	DPT_Ack	0/1	[General] Sounds - Doorbell	0 = Nothing; 1 = Play Doorbell Sound
142	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
143	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[General] Display - Brightness	0% ... 100%
144	1 Byte	I	C - W T U	DPT_Scaling	0% - 100%	[General] Display - Contrast	0% ... 100%
145	1 Byte	I	C - W - -	DPT_SceneControl	0-63; 128-191	[General] LEDs Base Colour	1-12
146	1 Byte	I	C - W - -	DPT_SceneControl	0-63; 128-191	[Thermostat] Scenes	0 - 63 (Execute 1 - 64); 128 - 191 (Save 1 - 64)
147	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Temperature Source 1	External Sensor Temperature
148	2 Bytes	I	C - W T U	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Temperature Source 2	External Sensor Temperature
149	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Effective Temperature	Effective Control Temperature
150	1 Byte	I	C - W - -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Tx] Special Mode	1-Byte HVAC Mode
151	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
152	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
153	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
154	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
155	1 Bit	I	C - W - -	DPT_Trigger	0/1	[Tx] Comfort Prolongation	0 = Nothing; 1 = Timed Comfort
156	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
157	1 Bit	I	C - W - -	DPT_Window_Door	0/1	[Tx] Window Status 1 (Input)	0 = Closed; 1 = Open
158	1 Bit	I	C - W - -	DPT_Window_Door	0/1	[Tx] Window Status 2 (Input)	0 = Closed; 1 = Open
159	1 Bit	I	C - W - -	DPT_Window_Door	0/1	[Tx] Window Status 3 (Input)	0 = Closed; 1 = Open
160	1 Bit	I	C - W - -	DPT_Window_Door	0/1	[Tx] Window Status 4 (Input)	0 = Closed; 1 = Open
161	2 Bytes	I	C - W - -	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Setpoint	Thermostat Setpoint Input

	2 Bytes	I	C - W - -	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Basic Setpoint	Reference Setpoint
162	1 Bit	I	C - W - -	DPT_Step	0/1	[Tx] Setpoint Step	0 = Decrease Setpoint; 1 = Increase Setpoint
163	2 Bytes	I	C - W - -	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Setpoint Shift Offset	Float Shift Offset Value
164	2 Bytes	O	CR - T -	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Setpoint Status	Current Setpoint
165	2 Bytes	O	CR - T -	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Basic Setpoint Status	Current Basic Setpoint
166	2 Bytes	O	CR - T -	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Setpoint Shift Offset Status	Current Setpoint Shift Offset
167	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] Shift Offset Reset	Reset Shift Offset
168	2 Bytes	I/O	CRWT U	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Comfort Setpoint (Cooling)	[-20°C, 100°C]
	2 Bytes	I/O	CRWT U	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Comfort Shift Offset (Cooling)	[-10°C, 10°C]
169	2 Bytes	I/O	CRWT U	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Standby Setpoint (Cooling)	[-20°C, 100°C]
	2 Bytes	I/O	CRWT U	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Standby Shift Offset (Cooling)	[-10°C, 10°C]
170	2 Bytes	I/O	CRWT U	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Economy Setpoint (Cooling)	[-20°C, 100°C]
	2 Bytes	I/O	CRWT U	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Economy Shift Offset (Cooling)	[-10°C, 10°C]
171	2 Bytes	I/O	CRWT U	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Comfort Setpoint (Heating)	[-20°C, 100°C]
	2 Bytes	I/O	CRWT U	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Comfort Shift Offset (Heating)	[-10°C, 10°C]
172	2 Bytes	I/O	CRWT U	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Standby Setpoint (Heating)	[-20°C, 100°C]
	2 Bytes	I/O	CRWT U	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Standby Shift Offset (Heating)	[-10°C, 10°C]
173	2 Bytes	I/O	CRWT U	DPT_Value_Temp	-273.00° - 670433.28°	[Tx] Economy Setpoint (Heating)	[-20°C, 100°C]
	2 Bytes	I/O	CRWT U	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Economy Shift Offset (Heating)	[-10°C, 10°C]
174	2 Bytes	I/O	CRWT U	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Lower Dead Band (Only for Comfort Mode)	Automatic H/C Mode Changeover Band [0°C, 10°C]
	2 Bytes	I/O	CRWT U	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Lower Dead Band	Automatic H/C Mode Changeover Band [0°C, 10°C]
175	2 Bytes	I/O	CRWT U	DPT_Value_Tempd	-671088.64° - 670433.28°	[Tx] Upper Dead Band (Only for Comfort Mode)	Automatic H/C Mode Changeover Band [0°C, 10°C]
	2 Bytes	I/O	CRWT	DPT_Value_Tempd	-671088.64° -	[Tx] Upper Dead Band	Automatic H/C Mode Changeover Band

			U		670433.28°		[0°C, 10°C]
176	1 Bit	I	C - W - -	DPT_Heat_Cool	0/1	[Tx] Simplified Mode	0 = Cool; 1 = Heat
177	1 Bit	O	CR - T -	DPT_Heat_Cool	0/1	[Tx] Simplified Mode Status	0 = Cool; 1 = Heat
178	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] On/Off	0 = Off; 1 = On
179	1 Bit	O	CR - T -	DPT_Switch	0/1	[Tx] On/Off Status	0 = Off; 1 = On
180	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] Force Secondary System (Cool)	0 = Off; 1 = On
181	1 Bit	I	C - W - -	DPT_Switch	0/1	[Tx] Force Secondary System (Heat)	0 = Off; 1 = On
182	1 Byte	I	C - W - -	DPT_ChangeoverMode		[Tx] Mode	0 = Auto; 1 = Cool; 2 = Heat
183	1 Byte	O	CR - T -	DPT_ChangeoverMode		[Tx] Mode Status	0 = Auto; 1 = Cool; 2 = Heat
184	1 Byte	I/O	CRWT U	1.xxx	0/1	[Tx] System Selector (Cool)	0 = S1 (Main) / S2 (Additional); 1 = Only S1; 2 = Only S2; 3 = S2 (Main) / S1 (Additional)
	1 Byte	I/O	CRWT U	1.xxx	0/1	[Tx] System Selector (Cool)	0 = S2 (Main) / S1 (Additional); 1 = Only S1; 2 = Only S2; 3 = S1 (Main) / S2 (Additional)
185	1 Byte	I/O	CRWT U	1.xxx	0/1	[Tx] System Selector (Heat)	0 = S1 (Main) / S2 (Additional); 1 = Only S1; 2 = Only S2; 3 = S2 (Main) / S1 (Additional)
	1 Byte	I/O	CRWT U	1.xxx	0/1	[Tx] System Selector (Heat)	0 = S2 (Main) / S1 (Additional); 1 = Only S1; 2 = Only S2; 3 = S1 (Main) / S2 (Additional)
186, 192	1 Byte	O	CR - T -	DPT_Scaling	0% - 100%	[Tx] [Sx] Control Variable (Cool)	PI Control (Continuous)
187, 193	1 Byte	O	CR - T -	DPT_Scaling	0% - 100%	[Tx] [Sx] Control Variable (Heat)	PI Control (Continuous)
	1 Byte	O	CR - T -	DPT_Scaling	0% - 100%	[Tx] [Sx] Control Variable	PI Control (Continuous)
188, 194	1 Bit	O	CR - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Cool)	2-Point Control
	1 Bit	O	CR - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Cool)	PI Control (PWM)
189, 195	1 Bit	O	CR - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Heat)	2-Point Control
	1 Bit	O	CR - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable (Heat)	PI Control (PWM)
	1 Bit	O	CR - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable	2-Point Control
	1 Bit	O	CR - T -	DPT_Switch	0/1	[Tx] [Sx] Control Variable	PI Control (PWM)
190, 196	1 Bit	O	CR - T -	DPT_Switch	0/1	[Tx] [Sx] PI State (Cool)	0 = PI Signal 0%; 1 = PI Signal Greater than 0%
191, 197	1 Bit	O	CR - T -	DPT_Switch	0/1	[Tx] [Sx] PI State (Heat)	0 = PI Signal 0%; 1 = PI Signal Greater than 0%
	1 Bit	O	CR - T -	DPT_Switch	0/1	[Tx] [Sx] PI State	0 = PI Signal 0%; 1 = PI Signal Greater than 0%
198, 207	1 Bit	I	C - W - -	DPT_Enable	0/1	[Ix] Input Lock	0 = Unlock; 1 = Lock
199, 208	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Short Press] 0	Sending of 0
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Short Press] 1	Sending of 1
	1 Bit	I	C - WT -	DPT_Switch	0/1	[Ix] [Short Press] 0/1 Switching	Switching 0/1

1 Bit		C - - T -	DPT_UpDown	0/1	[Ix] [Short Press] Move Up Shutter	Sending of 0 (Up)
1 Bit		C - - T -	DPT_UpDown	0/1	[Ix] [Short Press] Move Down Shutter	Sending of 1 (Down)
1 Bit	I	C - W T -	DPT_UpDown	0/1	[Ix] [Short Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
1 Bit		C - - T -	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
1 Bit		C - - T -	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
1 Bit	I	C - W T -	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
4 Bit		C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Short Press] Brighter	Increase Brightness
4 Bit		C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Short Press] Darker	Decrease Brightness
4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Short Press] Brighter/Darker	Switch Bright/Dark
1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Short Press] Light On	Sending of 1 (On)
1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Short Press] Light On/Off	0/1
1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Short Press] Light Off	Sending of 0 (Off)
1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Short Press] Run Scene	Sending of 0 - 63
1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Short Press] Save Scene	Sending of 128 - 191
1 Byte		C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Short Press] Constant Value (Integer)	0 - 255
1 Byte		C - - T -	DPT_Scaling	0% - 100%	[Ix] [Short Press] Constant Value (Percentage)	0% - 100%
2 Bytes		C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Short Press] Constant Value (Integer)	0 - 65535
2 Bytes		C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Short Press] Constant Value (Float)	Float Value
1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 0	Sending of 0
1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 1	Sending of 1
1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 0/1 Switching	Switching 0/1
1 Bit		C - - T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Rising Edge] Move Up Shutter	Sending of 0 (Up)
1 Bit		C - - T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Rising Edge] Move Down Shutter	Sending of 1 (Down)
1 Bit	I	C - W T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Rising Edge] Move Up/Down Shutter	Switching 0/1 (Up/Down)
1 Bit		C - - T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Rising Edge]	Sending of 0 (Stop/Step Up)

						Stop/Step Up Shutter	
	1 Bit		C - - T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Rising Edge] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit	I	C - W T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Rising Edge] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] Light On	Sending of 1 (On)
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] Light Off	Sending of 0 (Off)
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] Light On/Off	0/1
	4 Bit		C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Rising Edge] Brighter	Increase Brightness
	4 Bit		C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Rising Edge] Darker	Decrease Brightness
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Rising Edge] Brighter/Darker	Switch Bright/Dark
	1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Switch/Sensor] [Rising Edge] Run Scene	Sending of 0 - 63
	1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Switch/Sensor] [Rising Edge] Save Scene	Sending of 128 - 191
	1 Byte		C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Switch/Sensor] [Rising Edge] Constant Value (Integer)	0 - 255
	1 Byte		C - - T -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Rising Edge] Constant Value (Percentage)	0% - 100%
	2 Bytes		C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Switch/Sensor] [Rising Edge] Constant Value (Integer)	0 - 65535
	2 Bytes		C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Switch/Sensor] [Rising Edge] Constant Value (Float)	Float Value
200, 209	1 Bit	I/O	C R W T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] Edge	0/1
	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%
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Rising Edge] Dimming Status (Input)	0% - 100%
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Rising Edge] Shutter Status (Input)	0% = Top; 100% = Bottom
	1 Bit	I	C - W T	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 0/1	Switching 0/1

			-			Switching (Immediate Object)	
	1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 0 (Immediate Object)	Sending of 0
	1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 1 (Immediate Object)	Sending of 1
	1 Bit	I/O	CRWT-	DPT_Switch	0/1	[Ix] [Switch/Sensor] Edge (Immediate Object)	0/1
201, 210	1 Bit	O	CR-T-	DPT_Alarm	0/1	[Ix] [Switch/Sensor] Alarm: Breakdown or Sabotage	1 = Alarm; 0 = No Alarm
202, 211	1 Bit		C--T-	DPT_UpDown	0/1	[Ix] [Double Press] Move Up Shutter	Sending of 0 (Up)
	1 Bit		C--T-	DPT_UpDown	0/1	[Ix] [Double Press] Move Down Shutter	Sending of 1 (Down)
	1 Bit	I	C-WT-	DPT_UpDown	0/1	[Ix] [Double Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Bit		C--T-	DPT_Step	0/1	[Ix] [Double Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
	1 Bit		C--T-	DPT_Step	0/1	[Ix] [Double Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit	I	C-WT-	DPT_Step	0/1	[Ix] [Double Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	4 Bit		C--T-	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Double Press] Brighter	Increase Brightness
	4 Bit		C--T-	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Double Press] Darker	Decrease Brightness
	4 Bit	I	C-WT-	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Double Press] Brighter/Darker	Switch Bright/Dark
	1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Double Press] Light On	Sending of 1 (On)
	1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Double Press] Light Off	Sending of 0 (Off)
	1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Double Press] Light On/Off	0/1
	1 Byte		C--T-	DPT_Value_1_Ucount	0 - 255	[Ix] [Double Press] Constant Value (Integer)	0 - 255
	1 Byte		C--T-	DPT_Scaling	0% - 100%	[Ix] [Double Press] Constant Value (Percentage)	0% - 100%
	2 Bytes		C--T-	DPT_Value_2_Ucount	0 - 65535	[Ix] [Double Press] Constant Value (Integer)	0 - 65535
	2 Bytes		C--T-	9.xxx	-671088.64 - 670433.28	[Ix] [Double Press] Constant Value (Float)	Float Value
	1 Bit		C--T-	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 0	Sending of 0
	1 Bit	I	C-WT-	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 0/1 Switching	Switching 0/1

	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 1	Sending of 1
	4 Bit		C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Falling Edge] Brighter	Increase Brightness
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Falling Edge] Brighter/Darker	Switch Bright/Dark
	2 Bytes		C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Switch/Sensor] [Falling Edge] Constant Value (Float)	Float Value
	2 Bytes		C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Switch/Sensor] [Falling Edge] Constant Value (Integer)	0 - 65535
	1 Byte		C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Switch/Sensor] [Falling Edge] Constant Value (Integer)	0 - 255
	1 Byte		C - - T -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Falling Edge] Constant Value (Percentage)	0% - 100%
	4 Bit		C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Falling Edge] Darker	Decrease Brightness
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] Light Off	Sending of 0 (Off)
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] Light On	Sending of 1 (On)
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] Light On/Off	0/1
	1 Bit		C - - T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Falling Edge] Move Down Shutter	Sending of 1 (Down)
	1 Bit		C - - T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Falling Edge] Move Up Shutter	Sending of 0 (Up)
	1 Bit	I	C - W T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Falling Edge] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Switch/Sensor] [Falling Edge] Run Scene	Sending of 0 - 63
	1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Switch/Sensor] [Falling Edge] Save Scene	Sending of 128 - 191
	1 Bit		C - - T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Falling Edge] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit	I	C - W T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Falling Edge] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	1 Bit		C - - T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Falling Edge] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
203, 212	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Double Press] Shutter Status (Input)	0% = Top; 100% = Bottom
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Double Press] Dimming Status	0% - 100%

						(Input)	
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Falling Edge] Dimming Status (Input)	0% - 100%
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Falling Edge] Shutter Status (Input)	0% = Top; 100% = Bottom
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 0 (Immediate Object)	Sending of 0
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 1 (Immediate Object)	Sending of 1
204, 213	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 0/1 Switching (Immediate Object)	Switching 0/1
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Long Press] 0	Sending of 0
	1 Bit		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		C - - T -	DPT_UpDown	0/1	[Ix] [Long Press] Move Up Shutter	Sending of 0 (Up)
	1 Bit		C - - T -	DPT_UpDown	0/1	[Ix] [Long Press] Move Down Shutter	Sending of 1 (Down)
	1 Bit	I	C - W T -	DPT_UpDown	0/1	[Ix] [Long Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Bit		C - - T -	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
	1 Bit		C - - T -	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit	I	C - W T -	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	4 Bit		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		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	I	C - W 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		C - - T -	DPT_Switch	0/1	[Ix] [Long Press] Light On	Sending of 1 (On)
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Long Press] Light Off	Sending of 0 (Off)
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Long Press] Light On/Off	0/1
	1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Long Press] Run Scene	Sending of 0 - 63
	1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Long Press] Save Scene	Sending of 128 - 191
	1 Byte		C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Long Press] Constant Value (Integer)	0 - 255
	1 Byte		C - - T -	DPT_Scaling	0% - 100%	[Ix] [Long Press] Constant Value (Percentage)	0% - 100%

	2 Bytes		C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Long Press] Constant Value (Integer)	0 - 65535
	2 Bytes		C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Long Press] Constant Value (Float)	Float Value
	1 Bit		C - - T -	DPT_Step	0/1	[Ix] [Triple Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
	1 Bit	I	C - W T -	DPT_Step	0/1	[Ix] [Triple Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	1 Bit		C - - T -	DPT_Step	0/1	[Ix] [Triple Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Triple Press] Save Scene	Sending of 128 - 191
	1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Triple Press] Run Scene	Sending of 0 - 63
	1 Bit	I	C - W T -	DPT_UpDown	0/1	[Ix] [Triple Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Bit		C - - T -	DPT_UpDown	0/1	[Ix] [Triple Press] Move Up Shutter	Sending of 0 (Up)
	1 Bit		C - - T -	DPT_UpDown	0/1	[Ix] [Triple Press] Move Down Shutter	Sending of 1 (Down)
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Triple Press] Light On/Off	0/1
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Triple Press] Light On	Sending of 1 (On)
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Triple Press] Light Off	Sending of 0 (Off)
	4 Bit		C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Triple Press] Darker	Decrease Brightness
	1 Byte		C - - T -	DPT_Scaling	0% - 100%	[Ix] [Triple Press] Constant Value (Percentage)	0% - 100%
	2 Bytes		C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Triple Press] Constant Value (Integer)	0 - 65535
	1 Byte		C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Triple Press] Constant Value (Integer)	0 - 255
	2 Bytes		C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Triple Press] Constant Value (Float)	Float Value
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Triple Press] Brighter/Darker	Switch Bright/Dark
	4 Bit		C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Triple Press] Brighter	Increase Brightness
205, 214	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Triple Press] 1	Sending of 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Triple Press] 0/1 Switching	Switching 0/1
	1 Bit		C - - T -	DPT_Switch	0/1	[Ix] [Triple Press] 0	Sending of 0
	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
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Triple Press] Shutter Status	0% = Top; 100% = Bottom

						(Input)	
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Triple Press] Dimming Status (Input)	0% - 100%
206, 215	1 Bit		C - - T -	DPT_Trigger	0/1	[Ix] [Long Press/Release] Stop Shutter	Release -> Stop Shutter
216	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00° - 670433.28°	[Internal Probe] Current Temperature	Temperature Sensor Value
217	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Internal Probe] Overcooling	0 = No Alarm; 1 = Alarm
218	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Internal Probe] Overheating	0 = No Alarm; 1 = Alarm
219, 223	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00° - 670433.28°	[Ix] Current Temperature	Temperature Sensor Value
220, 224	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Overcooling	0 = No Alarm; 1 = Alarm
221, 225	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Overheating	0 = No Alarm; 1 = Alarm
222, 226	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Probe Error	0 = No Alarm; 1 = Alarm

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