INZENNIO Z38

KNX Touch Panel

ZN1VI-TP38

INDEX

1. INTRODUCTION

1.1. PRODUCT

INZennio Z38 is an **LCD Touch Panel** with **Room Thermostat**, **Binary Inputs** and **IR Receiver built-in**. Some of its most important features are mentioned below:

➢ KNX 3.8" back-lighted monochrome Touch Panel
➢ Room Thermostat
➢ Presence Simulation
➢ Full Climate Management
➢ 12 Configurable Direct Control Functions
➢ 5 Additional Pages with up to 6 independent Functions

      ○ Scene Control [5 Functions]
      ○ Schedule Programming [4 Functions]
      ○ Climate Control [5 Functions]
      ○ Technical Alarms [6 Functions]
      ○ Display Parameters

➢ IR Receiver buit-in (Remote Control)
➢ 4 Binary Inputs for Voltage free push buttons.
➢ No external supply required.
➢ KNX BCU included.
➢ Total Data Saving when Power Failure occurs.

The Touch Panel **InZennio Z38** is organized into **"Pages"**; every page consists of several "**parametrizable boxes**" and a "**header**".
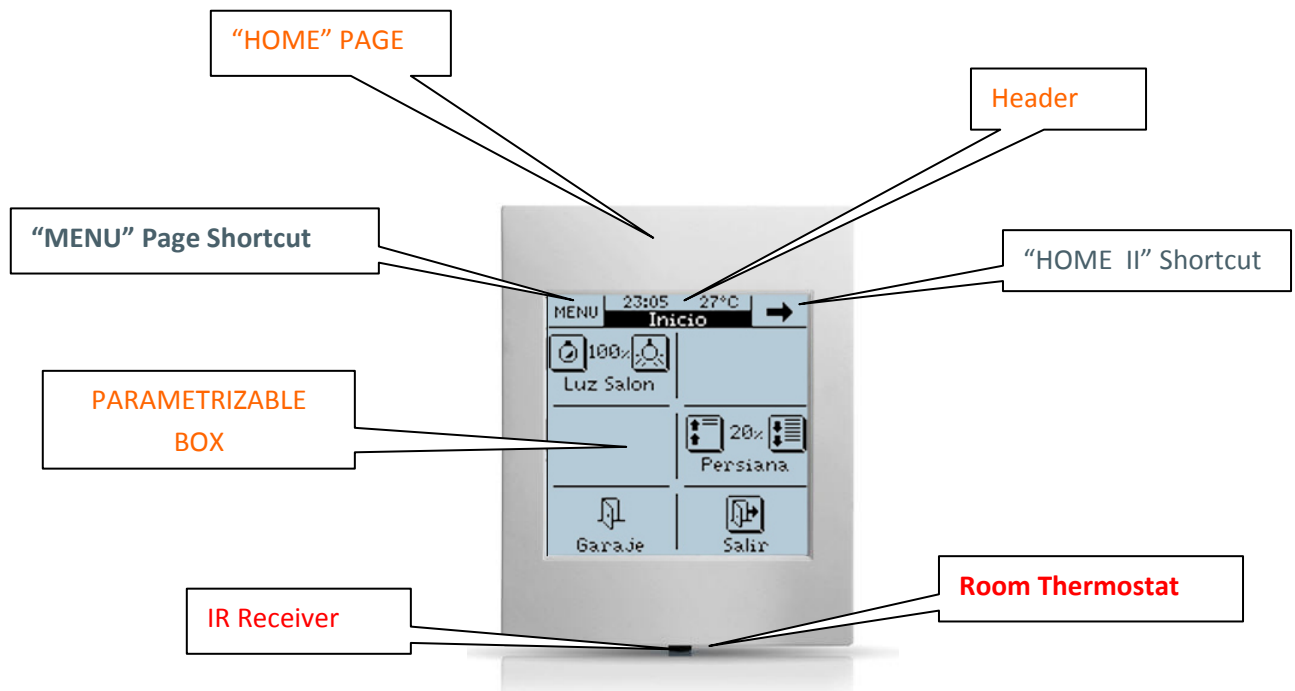
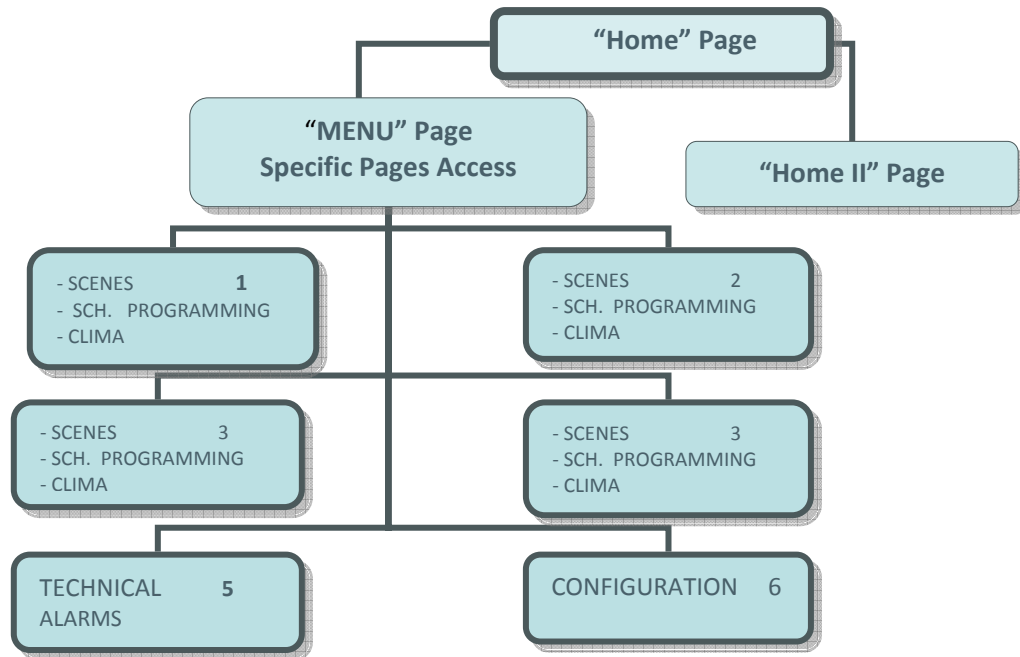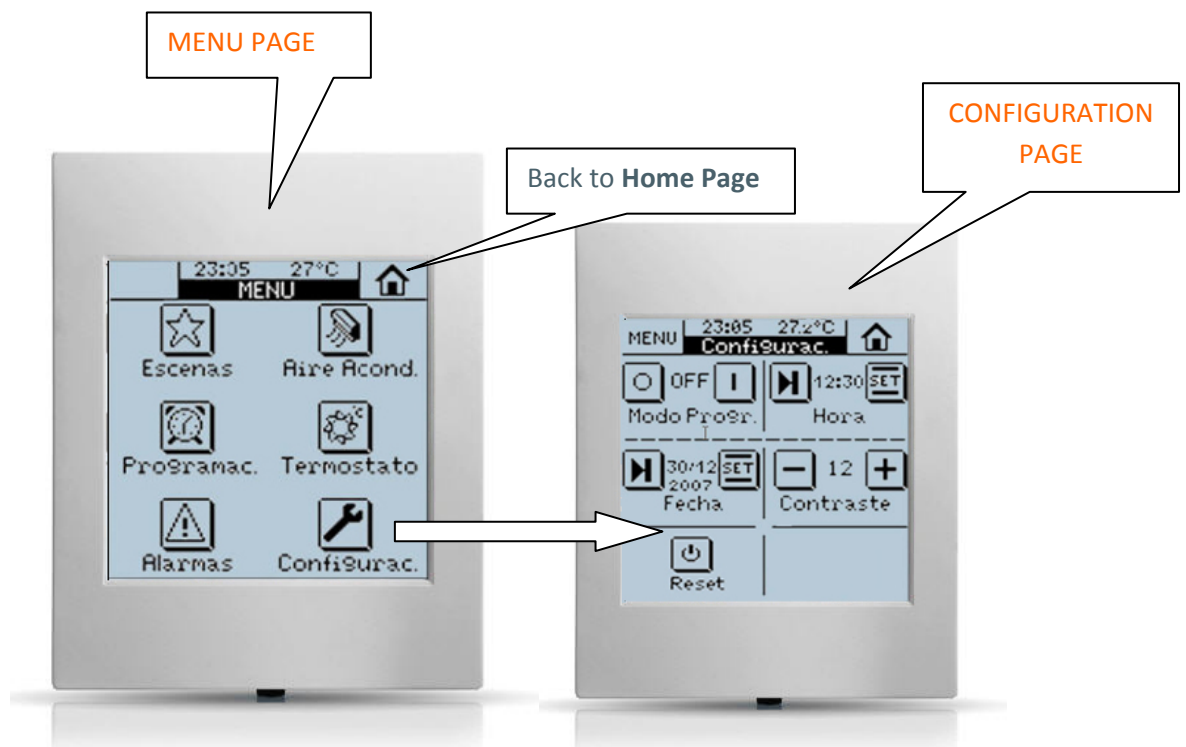The next schema represents available pages to be "enabled" and its hierarchy.

Figure 1.1

Next sections in this manual, will detail the correct way to configure and program the LCD Panel **InZennio Z38**, so that a user can control all (or part of) the KNX installation from a single device.

- o <u>**<<PAGES>>**</u>

  - ➢ <u>**Home & Home II**</u>

    The **"Home"** page is the InZennio Z38 "Welcome" page; this will be the starting point (once the necessary boxes have been enabled) to access, the most commonly required functions.

    The **"Home II"** page is just like the "Home" one, as far as functionality and potential programming terms is concerned.

    Consider the **"Home II"** page as an extension of the own "Home" page.

  - ➢ <u>**MENU Page:**</u> Access to Specific Pages

    Users in this case, have the option to "enable" up to six different pages, and even, when talking about the **"Specific 1, 2, 3 & 4"** ones, to associate them with a particular function:

    - o Scenes
    - o Schedule Programming
    - o Clima

  Figure 1.1 shows the schematic page organization in the **InZennio Z38 Panel.**

  <u>*Note*</u>: **"Home"**, **"Home II"** and the "**Technical Alarms" pages** *in the **InZennio Z38** Panel have <u>6 parametrizable boxes </u>each.*

  ***"Clima"**, "Scenes", and the "**Configuration"** pages have <u>5 parametrizable boxes</u> each, while the **"Schedule Programming**" one has only <u>4 parametrizable boxes</u>*

1.2.INSTALLATION

Please refer to the **Product Data Sheet**, for up to date information on the installation of the **InZennio Z38** Panel, as well as to gather detailed information on its technical characteristics.
The **Data Sheet** is included in the original packaging of the product, and is available to be downloaded from the website **www.zennio.com**

1.3. CONFIGURATION

The **INZennio Z38** includes 217 Communication Objects responsible to transmit and receive data through the BUS.

To begin with the InZennio Z38 module configuration, it will be necessary to import in ETS, a project that contains an InZennio Module of the device, or a database **.vd** file of the product (**See www. Zennio.com**)
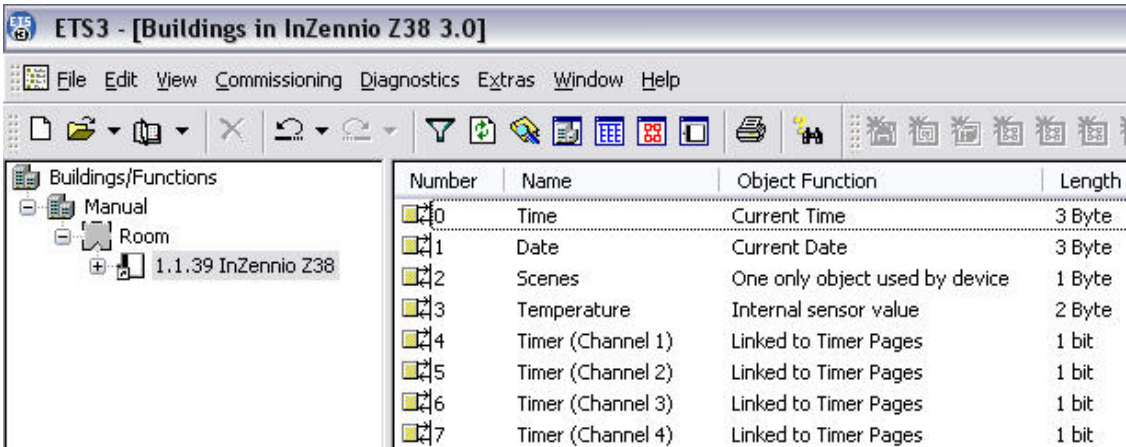This manual starts from the **"default"** product configuration, to gradually configure the device according to the user requirements.

     o   **Default Z38 Panel Configuration (Communication Objects)**

To make Communication Objects working easier, as well as to facilitate its understanding, these have been reorganized as selected by parameters.

The Communication Object arrangement has been also substantially improved by ordering them alphabetically by sections on the ETS.

Note: *For this arrangement to be effective, it is necessary to click on the "NAME" column, instead of the "NUMBER" one.*

     o   **Parameters will be shown as they appear initially**

In order to visualise and configure the parameters of an ETS device, click the right-mouse button on the BUS device you want to configure, then click left-mouse button on **"Edit Parameters"**.
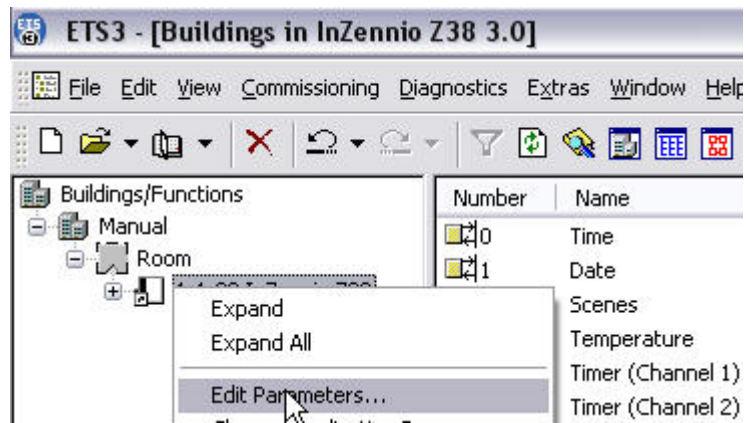
   o **Main Parameterization Window appears**
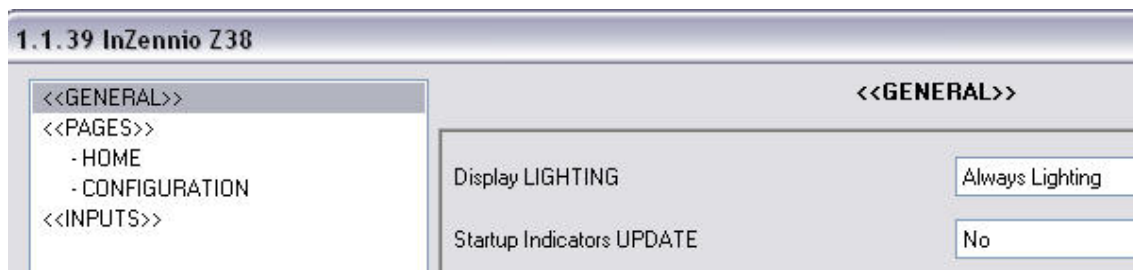
2. PARAMETERIZATION

Access via ETS to the Main Parameterization Page on the ETS, has three main sections:

- **<<GENERAL>>**
- **<<PAGES>>**
- **<<INPUTS>>**

Every section is detailed next:

2.1. GENERAL

This parameterization section, allow users to enable the remote control zones as well as to associate them with the **"Home"** or **"Home II"** pages for its control; this section also allows to configure various aspects of the display backlight and other general parameters.

Available configuration options involving the display backlight are represented in the next diagram.
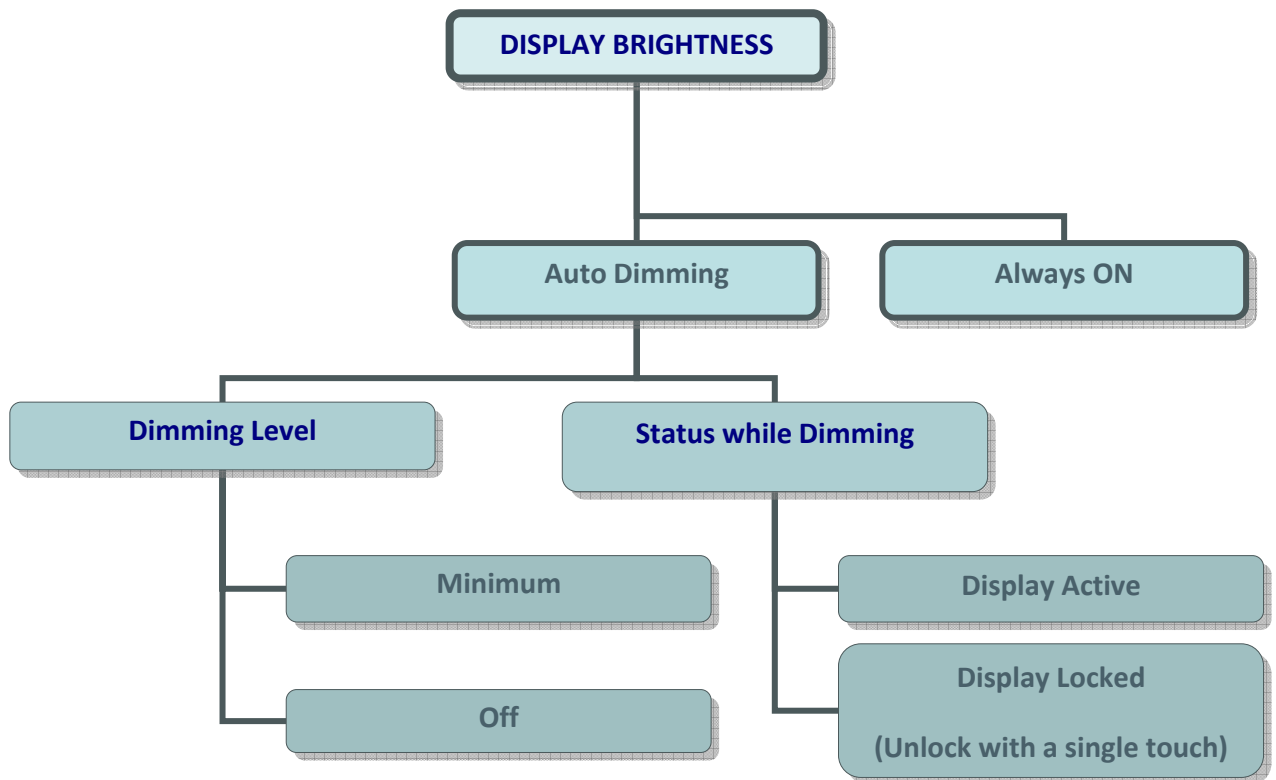

Figure 2.1

- **DISPLAY BRIGHTNESS** (Figure 2.1)

  - **Always ON**: Light on the display remains always ON, even when the page is not in use.

  - **Auto Dimming:** 45 seconds after the last interaction on the display, this will recover its stand-by mode.

    - **DIMMING LEVEL (Stand-by Mode)**

      - **Off**: After 45 seconds (Auto Dimming), the own auxiliary light on the display will remain OFF (until a new touch on it is made)

      - **Minimum**: After 45 seconds (Auto Dimming), the display will light slightly, (this is useful to identify it in dark places).

    - **DISPLAY STATUS WHILE DIMMING**

      - **Display Active:** Display remains always active; this means that any interaction with it will obtain an immediate response.

      - **Display Locked (unlock with a single touch):** The display needs a first touch onto it to be unlocked, after this, this can be normally operated.

- **INDICATORS UPDATE WHEN INITIATING**

  When recovering the BUS voltage (or after a program download), the **InZennio Z38** may ask the rest of devices in the installation for their corresponding values, in order to update the display indicators.

  - **Delay:** This field allows a user to set a delay (in seconds) to put off the indicators update, until the rest of devices on the installation are completely initiated.

- **WEEKDAY INITIALS**

  Seven free characters are available to enter the weekday initials.

  Both the date and the week-day will appear on any page header, when the "**Time Zone**" is pressed.
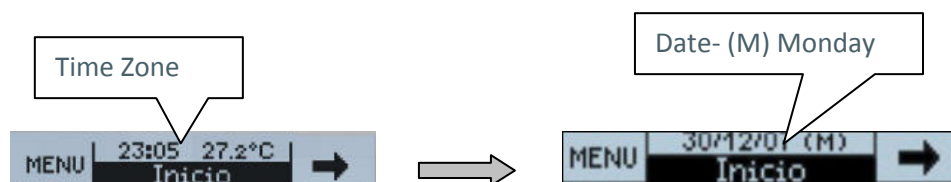
Note: Week days are automatically calculated by the own display when adjusting the date on it.

● **REMOTE CONTROLLER**

➢ **Zone 1**: This field will allow users to associate this zone of the control to either any of both **"Home"** or **"Home II"** pages.

➢ **Zone 2:** This field will allow users to associate this zone of the control to either any of both **"Home"** or **"Home II"** pages.

➢ *Note: Buttons arrangement on the remote controller is similar to the "Home & Home II" boxes structure to make its control easier.*

● **TEMPERATURE SENSOR CALIBRATION**

Allow users to recalibrate the Temperature Sensor referred to the own temperature measured by the sensor itself when the calibration parameter remains unchanged (value "0").

Example: If we have a really accurate thermometer at home, we can take its measure as a reference for the Z38.

Measurement shown by the Z38 internal sensor	x ⁰C
Measurement shown by the accurate thermometer	y ⁰C
Positive difference between measures	x – y = z ⁰C
Positive Calibration parameter	z ⁰C
Negative difference between measures	x – y = - z ⁰C
Negative calibration parameter	- z ⁰C

- **TEMPERATURE SENDING PERIOD**

    This field is meant to set a period of time for the Z38 to send the registered temperature to the BUS through the **"Temperature-Internal Sensor value"** Communication object.

2.1.1. « DISPLAY BRIGHTNESS » OBJECT

The Z38 Panel has a Communication Object "**Display Brightness"** which has the same effect than touching onto the display.

> ➢ When this object receives a "**1"** from the BUS, the display lights up and gets active.

> ➢ A Display active implies that any interaction with it by the user will always get an immediate response, regardless of the **"Status while Dimming"** parameterized before. (See page 10)

> *Note:* When receiving a *"0"* nothing happens

> *Example: This functionality allows a presence detector or a door contact to send a "1" to the BUS notifying the user that someone entered the room, or that someone got up during the night. When receiving a "1", the display lights up (either to welcome the user entering the room or to let him see the display in the dark).*

2.2. PAGES

This Manual section is intended to detail the different pages the **InZennio Z38** provides the user, including the submenus offered in each of these pages.

When a Panel page is enabled, two parameterization fields become available:

NAME ➔ This field allow users to associate a name to any of the InZennio Z38 pages; this name will appear on any of the page headers the user is moving through (12 free characters are available to set the name).

*Note: The only page which cannot be renamed is the **MENU** one (to access Specific Pages).*

SECURITY ➔ A restricted page prevents unauthorized access to it. A 4 digits password is required to enter a protected page.

The default password is **"1234"**

Note: The "**Home**" page is enabled by default. Access to the **"Home"** page cannot be restricted.
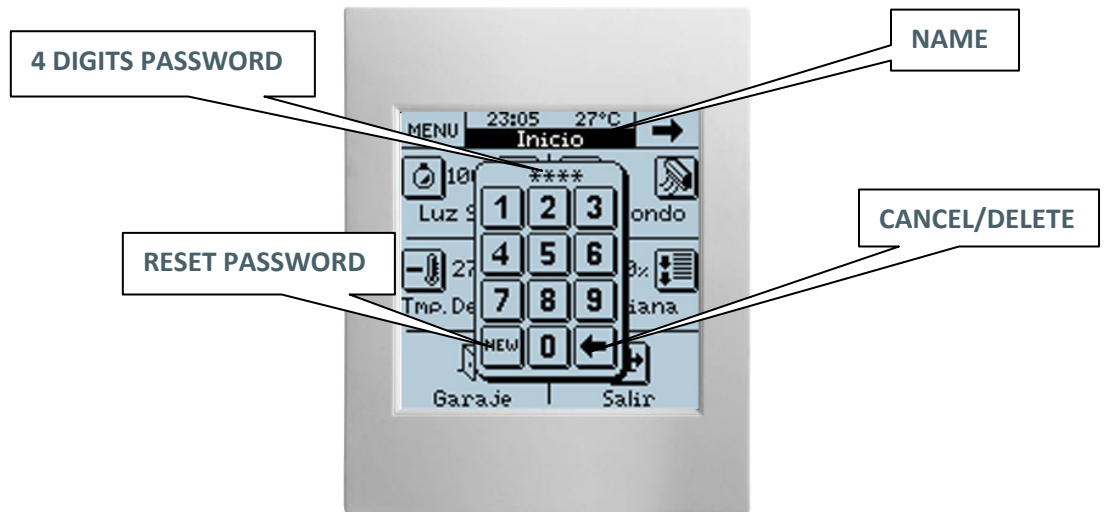
Resetting the paswword:

*1º Push **NEW*** ⟹ ***Old:*** *Enter old password*

2º ***New:*** *Enter new password*

3º ***Repeat:*** *Confirm new password*

2.2.1. « HOME » & « HOME II » PAGES

These two pages are intended to parameterize their boxes so that a user can easily access the most common used functions when controlling an installation.

As well as the pages, every box on **"Home"** and **"Home II"** pages has a parametrizable field:

NAME → This field allows a user to associate a name with the corresponding box in the page, (11 free characters are available to set the name).
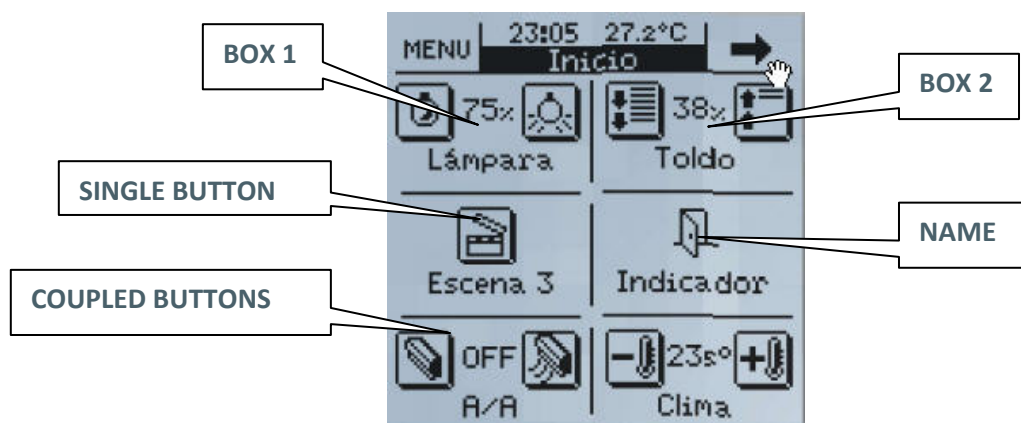
Note: "Home" Page will be shown again 90 seconds after last interaction on the display took place.

2.2.1.1.   BINARY CONTROL

This is a generic control to communicate all those devices susceptible to be, by sending a single bit (0 / 1).

BUTTON 1 → In **"Binary Control"**, this button will always appear as **"enabled"** by default.

> ➢ **Short Press:** Choose whether to send: **Nothing/0/1** or **Toggle** to the BUS through its Communication Object.

> ➢ **Long Press:** Same case than before, the only difference is that now users will need to keep the button on the display pressed during at least 0.5 seconds to send the corresponding data through its Communication Object.

> ➢ **ICON:** An icon can be associated to the page box. (See Annexe I).

BUTTON 2 → It might be possible to have two buttons on the same BOX, by simply activating this option in the corresponding field.

Although both buttons will transmit data independently; both of them also share the same Communication Object.

The way to parameterize this button is the same than the explained for **BUTTON 1**.

> ➢ **Indicator:** By activating this parameter, an status indicator will be inserted between both buttons:

> > o ON/OFF
> > o 0/1

2.2.1.2.   LIGHT CONTROL

This control is specifically designed for lighting control. Through its Communication Objects, users will be able to turn On/Off any kind of incandescent lamps, low voltage lamps, compact fluorescent lamps…, and even controlling their output intensity.

Note: When trying to control compact fluorescent lamps (CFL), an electronically reactance or a specific KNX actuator would be necessary to control their intensity.

TYPE → Select the control type to use:

➢ **On/Off:** This is the most basic control type; Turn On/Off; pretends to simulate a common switch action.

➢ **On/Off + Simple Regulation (4 bits):** Users can simulate a common switch action, **turn On/Off** (short press on the buttons), or a **discreet regulation** (long press on the buttons), where depending on the **"dimming step"** set, keeping the button pressed will reduce or increase the brightness on the controlled lamps.

- **Dimming Step:** Six different regulation levels are available for this duty. A long press on the display buttons will reduce or increase the brightness level step by step the percentage set in this parameter; once the desired level is reached, stop pressing the button on the display to keep the desired value.

Dimming Step	Necessary button presses for a complete regulation (0 – 100%)
6. 100%	1
5. 50%	2
4. 25%	4
3. 12.5%	8
2. 6.25%	16
1. 3.1%	32
0. 1.5%	64

- **Indicator:** This will inform users about the brightness percentage applied at any time.

   Note: In this case, for this indicator to be functional, it is necessary to use a KNX dimmer to give back the brightness applied to the load.

➢ **Precise Dimming (1 byte):** This is the most accurate control method, as any short press on the display buttons will increase or reduce (1%) the brightness level.

A long press on any of the two buttons will increase or reduce gradually 10 % the brightness level.

- **Indicator:** This will inform users about the brightness percentage applied at any time.

ICON ➔ An icon can be associated to the page box. (See Annexe II).

2.2.1.3. SHUTTER CONTROL

Specifically designed to control any type of shutters, blinds, sun blinds, or any other drive. Through its communication objects, users will be able to raise / lower shutters, and even knowing its exact position at any time.

The basic shutter control is made as follows:

➢ **Long Press:** Move the shutter

- **Raise Shutter:** "0" is sent trough the object "Move Shutter".
- **Lower Shutter:** "1" is sent trough the object "Move Shutter".

Note: When the object "Move Shutter" sends "0" or "1", the shutter will start moving, and won't stop unless the whole shutter length is covered or that any other order is received.

➢ **Short Press:** Stop the shutter

To stop a moving shutter, a **"0"** or a **"1"** must be sent through the object **"Stop Shutter"**.

ICON ➔ An icon can be associated to the page box. (See Annexe II).

INDICATOR ➔ By activating this parameter, users can insert an indicator between both buttons to get a percentual estimation of the shutter position.

2.2.1.4. CLIMA CONTROL

Configuring a box with the **"Climate Control"** function, a **SHORTCUT** is created to some of the four available **"Climate Specific Pages"**

TYPE OF CONTROL➔ Choose the specific climate function to control

- ON/OFF
- Set Temperature
- Mode (Heat/Cool)

- Fan
- Blinds
- Special Mode (Comfort)
- Special Mode (Night)
- Special Mode (Out)

Note I: Depending on the selected option, a communication object associated to the specific box will appear in the ETS environment; the same object type corresponding the selected option.

This characteristic allows users to control also external climate systems.

*Note II: The Special Modes control from the "**Home**" & "**Home II**" boxes is different from the control from the Clima "**Specific Pages**", as in this case, it will be necessary to use a different box (with a single button) per mode to control*

LINKED TO → Users can associate this box with any of the 4 **"Specific Pages"** enabled as **CLIMA**.
For this association to work properly, it is necessary that the mentioned Climate Specific Page is enabled.

ICON → A couple of icons can be associated to the page box (See Annexe II).

2.2.1.5.   1 BYTE CONTROL

This is a generic control to communicate all those devices susceptible to be, by sending a single byte (value in the range 0….255)

TIPO → : Three possible options available in this case:

➢ **Fixed Value (one button, no indicator)**

By pressing the button on the display, the same value will always be sent; the value selected in the field "**Value**".

➢ **Percentage (2 buttons + indicator)**

To send a percentage

Short Press: Rise or lower 1% with every short key press.

Long Press: Rise or lower 10% with every long key press

➢ **[0….255] value (2 buttons + indicator)**

To send values in the range [0...255].

Short Press: Rise or lower one single point in the range with every short key press.

Long Press: Rise or lower 10 points in the range with every long key press.

Note: Please notice that

Value 0 corresponds with 0%

………………………………

………………………………

Value 255 corresponds with 100%

**ICON** → A couple of icons can be associated to the corresponding display box. (See Annexe II).

2.2.1.6.   SCENE CONTROL

Scenes or "lifestyles" consist of a synchronized activation of some devices in the domotic installation, so that different predefined atmospheres are generated.

There is an only Communication Object associated with **"Scenes"**. All the scenes will be always sent through the object **"[GN] Scenes"**.

Before continuing with the parameterization of this type of control, a small introduction to the Communication Object **"[GN] Scenes"** is done next:

The DPT (Datapoint Type) Scene Control is a one byte Object with the following format.

C	R	N ≡ Número de Escena
1 bit	1 bit	6 bits
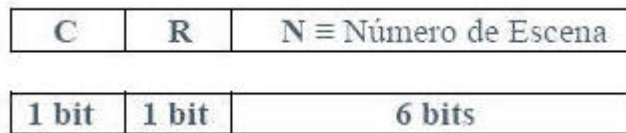
■ **C**   0 = Activate the scene corresponding the field Scene Number ≡N
       1 = Learn the scene corresponding the field Scene Number ≡N

■ **R**   Reserved field with value "0

■ **N**   Scene Number Range [0…..63]

Note I: *If C=0, the DPT valid range is [0....63], whereas if C=1, the DPT valid range is [128.....191]*

Note II: Activate Scene 1 → **DPT=0**

        Activate Scene 2 → **DPT=1**

        Activate Scene 64 → **DPT=63**

        Learn Scene 1 → **DPT=128**

        Learn Scene 2 → **DPT=129**

        ..

        Learn Scene 64 → **DPT=191**

Therefore, a single **Communication Object** will be valid to **Activate** Scenes and /or **learn** them (depending on the C value).

TYPE → Users can choose between (by using the same button on the display):

- **Run Scene:** A single press on the display button will generate the atmosphere predefined by the user for that scene.

- **Run + Learn Scene:** A short press on the button will generate the atmosphere predefined by the user for that scene (same than above).
  Additionally, a long press (3 seconds) on the display button gives users the possibility to Learn (Modify) new scenes:

> ➢ **Example: Guess a user defines the "Scene Night"**
> **(programming the Panel with parameters and group**
> **addresses via ETS):**

> ✓ Turn all the lights Off.
> ✓ Turn Off the Heating and the A/C Systems.
> ✓ Activate the Alarm System.

Once the scene is defined, every time we run it, a predefined atmosphere is generated…

How does a user **modify and learn** a scene, with the devices used in the scene described above?

For example if the user wants this instead:

> ✓ Turn all the lights Off **except one** (the one to remain ON, will be a guiding light)
> ✓ Turn Off the Heating and the A/C Systems.
> ✓ Activate the Alarm System.

The way to do this is:

1. Run the scene to be modified.
2. Turn the light we want it to be the guiding light On.
3. Just save the new scene into the Panel by keeping a long press (3 seconds) on the original scene "Run" button.

   THIS PROCESS REPLACES THE ORIGINAL SCENE BY THE MODIFIED ONE.

SCENE NUMBER → This is a number defined by the user to identify the scene or the "lifestyle" to be created.

ICON → An icon can be associated to the screen box. **(See Annexe I).**

2.2.1.7. TEMPERATURE CONTROL

This is an additional and generic temperature control. When enabled, this control uses a 2 byte Communication Object (with a measurable range selectable by parameter). This control is totally independent from the Climate Control.

CONTROL RANGE → Choose between 2 available options:

> ➢ **Normal** → [10ºC…..30ºC]

> ➢ **Extended** → [0ºC…..95ºC]

ICON → A couple of icons can be associated to the screen box. (See Annexe II).

*Note: Do not confuse the **generic temperature control** with the **Climate Control** associated to the set temperature (See Section 2.2.1.4). The generic Temperature Control can not be linked with any of the Climate Specific Pages.*

2.2.1.8. BINARY INDICATOR

This control enables a binary status indicator on the display box.

An icon specifically enabled for this function, may be associated to the page box when a **"0"** is received through the (1 bit) corresponding Communication Object.

Same case if data received is a **"1"**

ACTION WHEN VALUE "0" IS RECEIVED → This box should be enabled when a users need to know when a "0" has been received through the specific Communication Object.

ACTION WHEN VALUE "1" IS RECEIVED → This box should be enabled when a users need to know when a "1" has been received through the specific Communication Object.

ICON → Different icons can be associated to both of the (ACTION) cases, so that users can identify what is received through the specific Communication Object (a "0" or a "1") (See Annexe III).

2.2.1.9. ONE BYTE INDICATOR

One byte provides much more information relating to an event than one bit. This indicator is normally used with percentages (%) relating to particular events (shutter position, wind speed…), however another possible configuration option is a numerical range among 0….255.

2.2.1.10.   FLOATING POINT INDICATOR

Floating Point is a real number representation method that can be adapted to the order of magnitude of the value represented.

In this particular case, enabling a box as **"Floating Point indicator"**, integrators can select the type of data represented on the display, choosing among:

- **Temperature (ºC)** → Range [-273ºC….670,760ºC]

- **Wind Speed (m/s)** → Range [0m/s….670,760m/s]

- **Humidity (%)** → Range [0%….670,760%]

- **Luminosity (lux)** → Range [0lux…670,760lux]

- **Other (no simbol)** → Range [-670,760……670,760]

Note I: Depending on the data type selected a different unit symbol will be shown.

2.2.1.11.   SECURITY CONTROL

"Home" and **"Home II"** individual boxes may also be protected against unauthorised access.

In this case, the Panel will not send any binary data to the BUS unless the correct password is entered

ICON → An icon can be associated to the display box. (See Annexe II).

INDICATOR → By activating this parameter, an status indicator will be inserted between both buttons:

- ON/OFF
- 0/1

2.2.1.12.   PRESENCE SIMULATION

This function is designed to simulate presence in a house, once the devices on the KNX installation have been correctly parameterized, two new **Communication Objects** become active:

- **Presence Simulation (1 bit):** Enable/Disable the function
- **Simulation Channel (1 bit):** Generate the ON/OFF

This function consists on the cyclical sending of **"0"** & **"1"** while activated. A random semi-cycle duration is applied for the ON/OFF within the parameterized limits.

*Note: This simulation can be **enabled / disabled** through the display or through an object; and once activated; this will only be running during the parameterized time range.*

STARTING TIME / FINISH TIME→ This parameter adjusts the time for the daily simulation to start/stop running (once enabled the function).

➢ **Max/Min ON/OFF time**: Users can adjust by parameter the minimum and maximum ON/OFF time for the devices on the installation.

2.2.2. "SPECIFIC" PAGES

The InZennio Z38 has three specific pages to configure:

Available options are:

➢ **SCENES (5 boxes available)**
➢ **SCHEDULE PROGRAMMING (4 boxes available)**
➢ **CLIMATE (5 boxes available)**

To enable these pages, just go to the Main Menu **<<PAGES>>** when "Editing Parameters".

2.2.2.1.   SCENES

The way to parameterize a "Specific Page" to control scenes, is exactly the same as that described in section "**2.2.1.6 SCENE CONTRO**L"; please refer to this section to obtain detailed information on this topic.

2.2.2.2.   SCHEDULE PROGRAMMING

The daily/weekly programming of certain events the user wants them to happen on the KNX installation is much easier using this Page.

Button to:

- **To move to the next item to change**

Button to:

- **Increase time values**

- **Flag week days**

- **Change the type of response of the Channel: ON/OFF/BOTH**
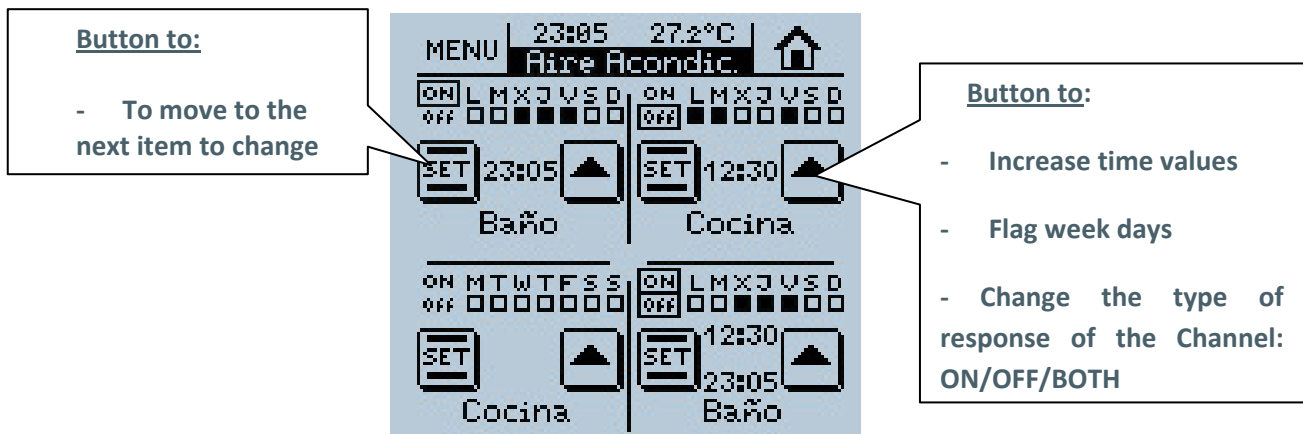
The Schedule programming is associated to the On/Off of the devices in the KNX installation.

Every time a user enables a specific "Schedule Programming" page; four free boxes with their respective Programming Channel Communication Objects will become available to be enabled if necessary.

NAME → This field allow users to associate a name with the corresponding box in the display, (11 free characters are available to set the name).

LINKED TO CLIMA→ Once the Specific Page to be associated with the Schedule Programming has been identified, the possible control associations will be the following:

- **On/Off**
- **Comfort** (Only ON)
- **Night** (only ON)
- **Stand-By** (only ON)

LINKED TO SCENES? → When this box is enabled, a user can control Scenes by mean of a programming; the possible control associations are:

- Only for ON
- Only for OFF
- For both ON & OFF

➢ **Scene Number OFF:** Scene number to execute when the OFF programming set by the user is fulfilled.

➢ **Scene Number ON:** Scene number to execute when the ON programming set by the user is fulfilled.

Note I: These associations are solved through internal links; this means it is not necessary any kind of addressing process to

carry out Schedule Programming associated to Clime and/or Scenes.

```
                          ┌─────────────────┐
                          │   PROG "ON"     │
                          └────────┬────────┘
            ┌──────────────────────┼──────────────────────┐
    ┌───────────────┐      ┌───────────────┐      ┌───────────────┐
    │  THERMOSTAT   │      │     A/C       │      │    Scenes     │
    └───────┬───────┘      └───────┬───────┘      └───────┬───────┘
    ┌───────────────┐      ┌───────────────┐      ┌───────────────┐
    │ On/Off→ "1"   │      │ On/Off→ "1"   │      │ ON→ "Scene Nº" │
    └───────┬───────┘      └───────────────┘      └───────┬───────┘
    ┌───────────────┐                             ┌───────────────┐
    │ Comfort→ "1"  │                             │ OFF→ "N/A"    │
    └───────┬───────┘                             └───────┬───────┘
    ┌───────────────┐                             ┌───────────────┐
    │  Out→ "1"     │                             │ Both → "Scene Nº" │
    └───────┬───────┘                             └───────────────┘
    ┌───────────────┐
    │  Night→ "1"   │
    └───────────────┘
```
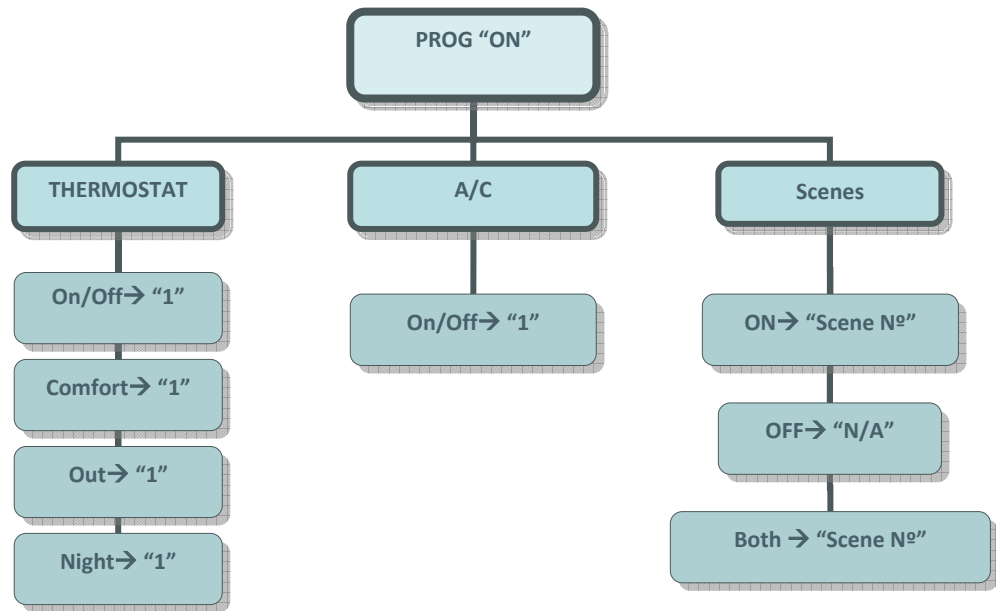
Figure 3.1

Note: *We just mentioned that the schedule programming is associated with the On/Off of the installed devices. **Figure 3.1** and **Figure 3.2** show how the THERMOSTAT and the A/C systems are affected when a "1" or a "0" is sent through the corresponding channel.*

**Sending a "0" through the Channel "X" does not affect the thermostat modes.**

```
                          ┌─────────────────┐
                          │   PROG "OFF"    │
                          └────────┬────────┘
            ┌──────────────────────┼──────────────────────┐
    ┌───────────────┐      ┌───────────────┐      ┌───────────────┐
    │  THERMOSTAT   │      │     A/C       │      │    Sceenes    │
    └───────┬───────┘      └───────┬───────┘      └───────┬───────┘
    ┌───────────────┐      ┌───────────────┐      ┌───────────────┐
    │ On/Off→ "0"   │      │ On/Off→ "0"   │      │ ON→ "N/A"     │
    └───────┬───────┘      └───────────────┘      └───────┬───────┘
    ┌───────────────┐                             ┌───────────────┐
    │ Comfort→ "N/A"│                             │ OFF→ "Scene Nº" │
    └───────┬───────┘                             └───────┬───────┘
    ┌───────────────┐                             ┌───────────────┐
    │ Out→ "N/A"    │                             │ Ambos→ "Scene Nº" │
    └───────┬───────┘                             └───────────────┘
    ┌───────────────┐
    │ Night→ "N/A"  │
    └───────────────┘
```
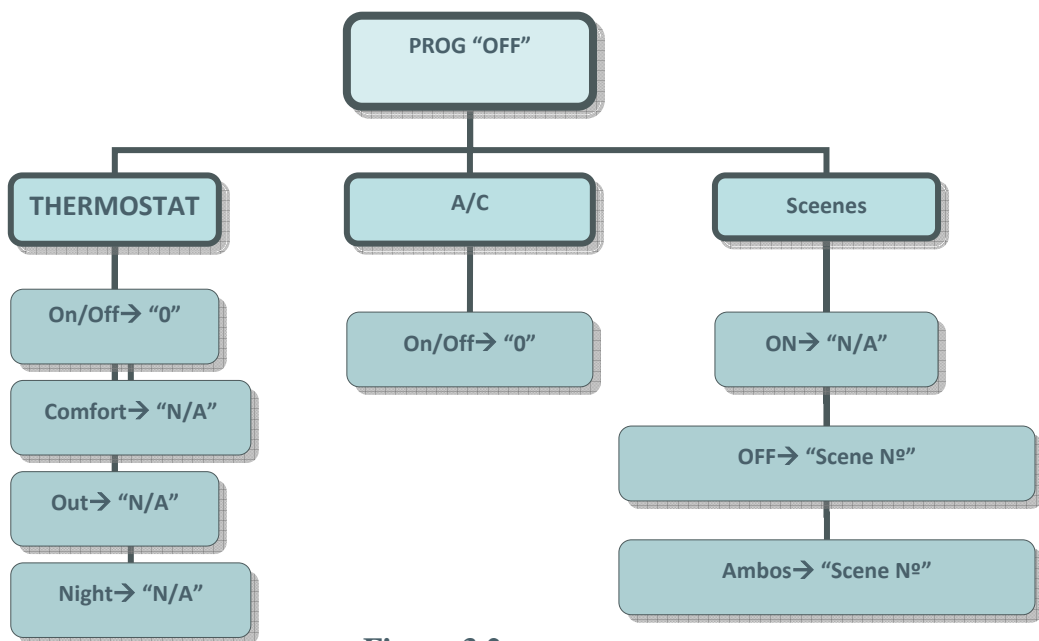
Figure 3.2

2.2.2.3.   CLIMA

Air Conditioning, Thermostat and Fan Coil Control have been unified in a unique Specific Page called **"Clima"**. Thus, due to the possibility of enabling up to **4 different Climate Specific Pages**, up to 4 different Climate Systems can be now controlled from the **Z38**.

The number of "**Specific Pages" to** control Climate Systems will mainly depend on the number of different Systems to control in the installation.

Every time a user enables a specific **"Climate"** page, two different configurable fields become available:

NAME ➔ This field allow users to associate a name with the corresponding box in the display, (11 free characters are available to set the name).

ICON ➔ A couple of icons can be associated to the page box. (See Annexe II).

The parameterization of the different boxes is detailed next:

BOX 1 (ON/OFF) ➔ Allow users to Turn On/Off the Climate System connected to the KNX BUS through the display.

BOX 2 (SET TEMPERATURE) ➔ To set users preferred temperatures.
Once this parameter is set and the System is ON, this value will be the system temperature reference to keep.

*Note: It is **REALLY IMPORTANT** to notice that, any of the "Home" or "Home II" boxes enabled as "Climate Control" with a specific "Temperature" control type associated to any of the Climate Specific Pages, will always update the Temperature box in the "Specific Page", while changes on the Temperature box in the "Specific Page" won't update specific boxes in the "Home" or "Home II" pages.*

BOX 3 (MODE) ➔ Two different configuration options available

- **Heat/Cool**

  - **1=Heat**
  - **0=Cool**

- **Auto/Heat/Dry/Fan/Cool**

  - **0=Auto**
  - **1=Winter**

- **2=Dry**
- **3=Fan**
- **4= Summer**

*Note I: This second option can only be selected to control **Air Conditioning Systems***

Note II: Enabling the Thermostat has no sense when this second Mode option has been selected, as the Thermostat can only control the Heat/Cool contribution.

BOX 4 (FAN SPEED) → This is an Up/Down (1 bit) control, but its indicator may be three different types:

- **No indicator**

- **Percentage indicator**

  - **0%= Auto**
  - **1-33%= Mín**
  - **34-66%= Med**
  - **67-100%= Max**

*Note: This option is only compatible with **IRSC-Plus version 4.0 and further.***

Nota II: The central indicator in the box varies its size depending on the value received.

- **Integer Indicator**

  - **0=Auto**
  - **1=Mín**
  - **2=Med**
  - **3=Max**

*Note I: This option is only compatible with **IRSC-Plus versions previous to V4.0.***

Note II: The central indicator in the box varies its size depending on the value received.

*Note III: The **"1 byte indicator"** option is the one to choose when controlling a **"Fan Coil system".***

BOX 5 (SPECIAL MODES) → This box is customizable as **"Blinds"** (for Air Conditioning control), or as **"Special Modes – Comfort, Night, Stand-By"** (for Thermostat). This last option is controlled as a rotary box (with two buttons, **"Left arrow"** and **"Right arrow"** to change modes, and a Mode indicator in the middle), but with the 3 typical "1 bit" objects together with their respective "1 bit" indicator objects

➢ **TYPE (Response to a Special Mode)**

This section allows integrators to select the response of the Thermostat when this is Off and a Special Mode (Night, Comfort, Stand-by) is selected.

- **Remains Off and nothing changes**
- **Remains Off but the Set Temperature is updated**
- **Set Temperature changes and Clima is turned On**

Two possible Climate (Specific Pages) configuration Options are shown in the Pictures below.

Climate Page set for Air Conditioning Control

Climate Page set for Air Conditioning control with Thermostat included

Any "Climate Specific Page" includes the THERMOSTAT funcionality to choose by parameter whether to include this feature or not.

THERMOSTAT → Select the type of control to carry out:

- **Only Heat**
- **Only Cool**
- **Heat & Cool**

REFERENCE TEMPERATURE → For every enabled thermostat in the Z38, users will be asked by parameter whether to use the internal sensor measure as a reference, or if on the other hand an external sensor will be used. The same parameterization field offers also the possibility to choose a proportion between both measures (Z38 internal sensor + external sensor).

Proportion	Z38 Internal Sensor	External Sensor
1	75%	25%
2	50%	50%
3	25%	75%

The resulting measure is exclusively used by the thermostat in the Z38, and cannot be shown through any available Communication object.

FREEZING PROTECTION → Regardless of the status the thermostat may be (On/Off), when "Freezing Protection" is activated, the system will be warned to automatically keep the temperature always above a value (Protection Temperature) selected by parameter.

➢ **Protection Temperature:** This parameter fixes the minimum temperature the user will accept.

  ✓ Protection Temperature is measured in ºCelsius.

  ✓ There is no connection between the "Set Temperature" and the "Protection Temperature".

  ✓ This is the real temperature to be applied as freezing protection.

  ✓ Thermostat will turn Off when temperature in the room reaches "Protection Temperature + 1ºC"

OVERHEATING PROTECTION → Regardless of the status the thermostat may be (On/Off), when "Overheating Protection" is activated, the system will be warned to automatically keep the temperature always below a value (Protection Temperature) selected by parameter.

> **Protection Temperature:** This parameter fixes the maximum temperature the user will accept.

✓ Protection Temperature is measured in ºCelsius.

✓ There is no connection between the "Set Temperature" and the "Protection Temperature".

✓ This is the real temperature to be applied as overheating protection.

✓ Thermostat will turn Off when temperature in the room reaches "Protection Temperature – 1ºC"

A small introduction to the Temperature Control methods used by the Z38 is detailed below.

HYSTERESIS → This is one of the control methods the thermostat may use to control a room temperature. Hysteresis can be used to filter signals so that the output reacts slowly by taking recent history into account. The only factor to consider when applying this method is the sensivity range; in this case, by setting this parameter we'll be setting both the upper and lower level of the sensivity range (hysteresis).

Next an example: a thermostat controlling a heater may turn the heater on when the temperature drops below A degrees, but not turn it off until the temperature rises above B degrees. Thus the On /Off output of the thermostat to the heater when the temperature is between A and B depends on the history of the temperature. This prevents rapid switching On and Off as the temperature drifts around a set point.

Consider that, if the GAP (interval between the upper and lower hysteresis points) is too narrow, devices in charge to transmit and receive the On/Off to the system might be damaged because of a rapid switching.

The default configuration sets a 2ºC GAP referred to the **"Set Temperature"**

Note: _The control method the Thermostat uses when this reacts autonomously to the "**Freezing or Overheating Protection**" is "2 Points with Hysteresis"._

In this case the lower hysteresis point is 0ºC (referred to the parameterized Temperature) while the upper point is 1ºC. This means that the system will start working exactly when the "Protection Temperature" is detected and won't stop until the room temperature raises one degree exactly.

Tª

UPPER HYSTERESIS

LOWER HYSTERESIS

Time
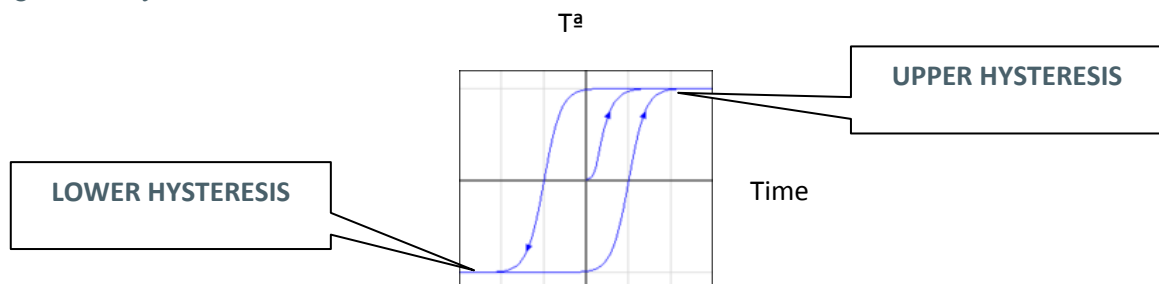
PI CONTROL (Proportional-Integral → This control follows the Standard KNX rules.

There are different systems to get a room conditioned:

            ●   *HEAT*   *COOL*

-Warm Water	*-Cooling Ceiling*
-Floor Heating	*-Blow Convector*
-Electric Heating	*-A/C Split*
-Blowi Convector	
- A/C Split	

Depending on the climate control system used on the installation, the user must choose the suitable option.
Any available option is internally parameterized for best performance in each case. The pre-Set options correspond to practical tests, ensuring a perfect performance control when controlling a room temperature.

Note: Advanced users may customize their own parameterizable constants: Proportional Band & Integral Time

The PI Control Method may be applied following two different Control Types:

> ➢ **PWM (1 bit):** *Acts over the ON/OFF. This type of control makes an internal estimation on the "Cycle Time" prefixed by parameter, for the climatization system to be ON, to comply with the user requirements.*

> ➢ **Continuous (1 byte)**: *Acts over the ON/OFF. This type of control makes an internal estimation on the "Cycle Time" prefixed by parameter, for the climatization system to be ON, to comply with the user requirements.*
> *The only difference with the PWM control consists on that in this case, the decision to turn the system ON/OFF is up to the corresponding actuator.*
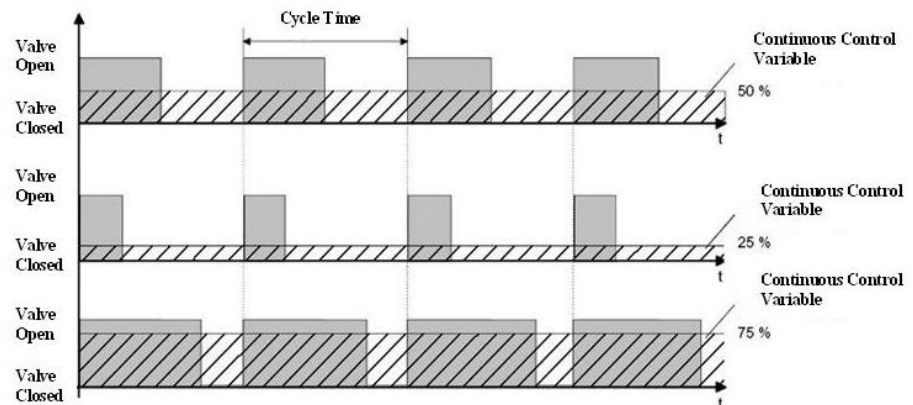
*<u>Note</u>: The **HEATING** section has been parameterized following the **"Hysteresis control method",** while the **COOLING** one has been parameterized following the **"PI Control method".***

However, both control methods can be used in either zone.

HEATING

<u>CONTROL METHOD</u> → To choose between **"Hysteresis"** or **"PI Control"** method

> **<u>Upper Hysteresis (tenths of a degree):</u>** This parameter sets the upper hysteresis point referred to the "Set Temperature"

> **<u>Lower Hysteresis(tenths of a degree):</u>** This parameter sets the lower hysteresis point referred to the "Set Temperature"

<u>ADDITIONAL HEATING</u> → Under normal conditions, Climatization Systems are responsible by themselves for the global regulation of the room temperature. However, "auxiliary systems" are more and more installed everyday, so these systems may be used to complement the heating system.
It is when a user relays on one of this auxiliary systems, (A/C split, Heat Pump…) when this parameter has a major importance.
Enabling this field, the auxiliary system is asked to contribute to reach the "Set temperature" as soon as possible.

> **<u>Additional Heating Band:</u>** As mentioned before, the extra heating contribution must be complementary to the Heating System, this implies, that it would be inconsistent that the "Auxiliary" system provides heat until the "Set temperature" is reached. It is because of this that this parameter sets the number of degrees below the "Set Temperature" we want our "auxiliary system" to be referred.
> The real operation will be as follows

Auxiliary System Reference (Tª) = "Set Temperature"- "Additional Band"

And the Auxiliary System in this case will be providing heat to the room until its Reference Temperature is reached, to leave the Main System acting alone from that moment.

COOL

CONTROL METHOD → To choose between **"Hysteresis"** or **"PI Control"** method

> **Control Type:** To choose between "PWM (1 bit)" and "Continuous (1 byte)" Control.

> **Cycle Time:**
> ✓ **PWM (1bit):** This parameter it used to set a cycle period during which it's calculating the pulse width modulation.
>
> ✓ **Continous (1 byte):** This parameter set the cycle transmission of "control variable" Object. In this case, this variable is send after a value changing or periodically (time defined in this area).

> **Control Parameters:** Depending on if the system is working with COOL or HEAT, this parameter sets the cooling or heating system type used in the installation.

ADDITIONAL COOLING → Under normal conditions, Climatization Systems are responsible by themselves for the global regulation of the room temperature. However, "auxiliary systems" are more and more installed everyday, so these systems may be used to complement the Main Cooling System.

It is when a user relays on one of these auxiliary systems, when this parameter has a major importance. Enabling this field, the auxiliary system is asked to contribute to reach the "Set Temperature" as soon as possible.

> **Additional Cooling Band:** As mentioned before, the extra cooling contribution must be complementary to the Main Cooling System, this implies, that it would be inconsistent that the "Auxiliary System" provides cool until the "Set temperature" is reached. It is because of this that this parameter sets the number of degrees over the "Set Temperature" we want our "auxiliary system" to be referred.

> **Auxiliary System Reference (Tª) = "Set Temperature"+ "Additional Band"**

And the Auxiliary System in this case will be providing cool to the room until its reference temperature is reached, to leave the Main System acting alone from that moment.

ESTADO INICIAL (al volver la tensión al BUS) → En el caso en el que se produzca una pérdida de tensión en el BUS, se puede fijar mediante este parámetro, el estado en el que el usuario quiere que comience a funcionar el TERMOSTATO cuando se recupere la tensión.

Until now, when PWM or HYSTERESIS (1 bit control methods) were selected, there was no possibility to know whether the thermostat was in the "0" or in the "1" status.

This makes users don't know when the system is heating up and when is stopped.
To display this status, a new LED (based on 4 pixels) has been added in the upper right side of the "ON" indicator in the first box of the Climate Page.
This new LED will blink every second when the control variable is sending a "1".

2.2.3. TECHNICAL ALARMS

This is a specific screen, with up to six independent boxes in charge to monitor the BUS looking for possible warning conditions in the KNX installation (gas, smoke...).

Every "Enabled" box on the screen has some parameterizable fields at the user's disposal:

NAME → This field allows a user to associate a name with the corresponding box in the screen, (11 free characters are available to set the name).

ALARM TRIGGER VALUE → Choose whether it will be a ("0" or "1"); this will mainly depend on the warning device installed.

CYCLICAL MONITORING → The state of the detection devices will be cyclically monitored by enabling this parameter.

CYCLE → Defines a particular interval of time to monitor the BUS looking for Technical Alarms or a detection device failure (in minutes).

Note: When an error or accident is detected on the KNX installation, InZennio Z38 will show the "Technical Alarms Screen", and a danger icon will appear in the box affected; at the same time, the Panel blinks and emits a "beep" to warn the user.

Once the warning reception is confirmed by the user (pressing the OK button), the screen will recover its normal state:

After 90 seconds, Inzennio Z38 display will again show the "Home" default screen.

It is **Really Importan**t to know that confirming a warning doesn't make the Danger icon disappear from the box affected; this icon will only disappear from the screen when the detector device sends again to the BUS its "normal status"; if cyclical monitoring is enabled, it will be the own device which sends this status when danger disappears.

2.2.4. CONFIGURATION

This is a specific page where to adjust some basic parameters.

Every "enabled" Box in the display has a field "Name":

NAME → This field allows a user to associate a name with the corresponding box in the display, (11 free characters are available to set the name).

BOX 1 (Programming Mode)

When programming a device physical address, users can set the **"Programming Mode"** directly from this box. This characteristic makes this process easier as the user won't need to access the rear side of the panel to push the "Programming Button" any more

BOX 2 (Time Setting)

To set the time on the display:

➢ Time (together with the room temperature) is always displayed in the middle upper section of the display.

➢ When setting the time, the display will send the new settings to the BUS through its own Communication Objects.

➢ The refresh rate is 1 minute.

➢ When the display recovers from a BUS Power failure, this will show the time it had just before the incident.

__Note I:__ When a Power BUS failure occurs, please have on mind the delay this implies to correct it.

__Note II__: There are different KNX devices on the market which can synchronize periodically the time and date of every single device in the installation. Such devices can be really useful when the installation is based on any kind of Schedule programming.
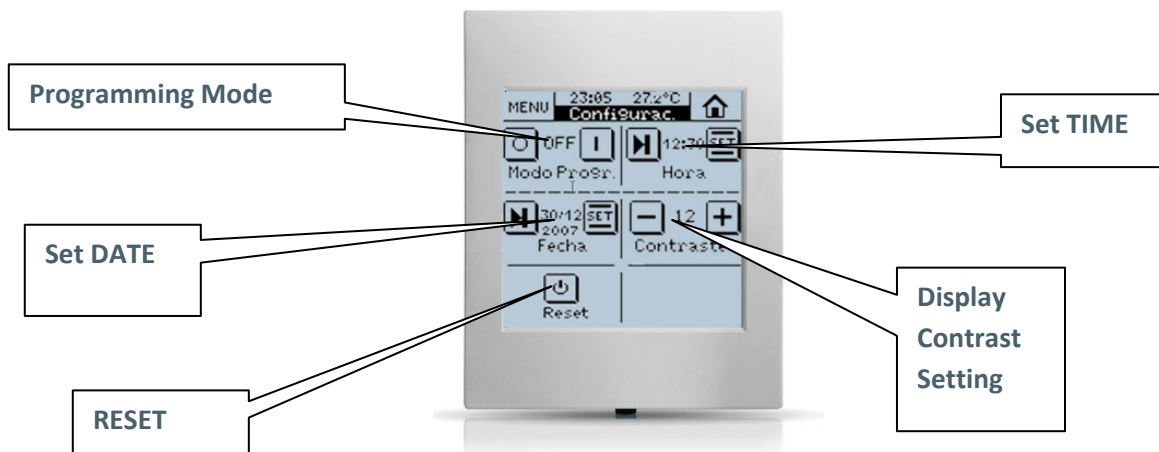
__Note I__: Disabled boxes appear "blank" in the display

BOX 3 (Date Setting)

To set the date in the display

To see the date in the display, users only have to press on any of the enabled pages **"header"**. The date will be shown during 3 seconds.

__Nota__: The day of the week does not appear on the display; however, when programming the display, this is automatically configured when setting the date

BOX 4 (Display Contrast Setting)

The adjustment range for this function lies between 0 and 20.

The default value is 12.

BOX 5 (Reset)

Reset button to reinitialize the device.

The **INZennio Z38** has 4 binary inputs for voltage-free contacts at the user's disposal; these inputs can be individually configured, and connected to a "push button" if necessary.
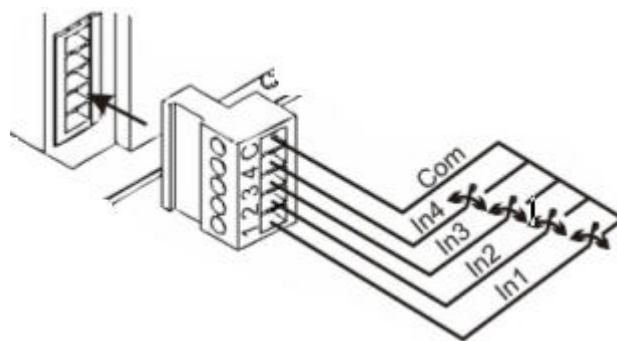
Joining an input with the global "common" of the inputs, results in a "**Closed Contact**"; the other option is an "**Open Contact**".

A push button connected to an input consists of a device, which allows, or not, the current flow while this is being pushed; in normal conditions, push buttons contacts are always "open".

Depending on the **"Threshold Time"**, we can distinguish two different actions:

  ➢ Short Press
  ➢ Long Press

Note: InZennio Z38 cannot be used neither with switches/sensors nor push buttons (with closed contacts in normal conditions).

Note I: Once the InZennio Z38 display is parameterized via ETS, a calibration screen will appear to delimit the Touch Zone on the display.
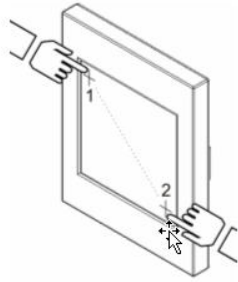
It is necessary to repeat this delimitation process of the touch zone every time a user makes a download to the screen via ETS.

Available configuration options for the enabled "**inputs**" are detailed next:

2.3.1. SHORT PRESS

Several configuration options are available for a "Short Press" on an Input:

2.3.1.1. ONE BIT SENDING "0/1"

This function results on sending 1 bit to the BUS.

RESPONSE → Depending on the function parameterization, the value sent to the BUS will be, "0", "1" or an alternative switching between "0 and 1"

CYCLICAL RESPONSE SENDING → This parameter allows a user to choose the cyclically data sent, "0", "1" or both (if the option "Always" is selected).

> **PERIOD:** Defines the elapsed time between two consecutive sendings in the "Cyclical Sending"

2.3.1.2. SHUTTER CONTROL

This function results on sending 1 bit to the BUS in order to control shutters.

RESPONSE → The corresponding Control Object may be used to:

> ➢ **Raise:** Raise the shutter. The BUS receives a "0".

> ➢ **Lower:** Lower the shutter. The BUS receives a "1".

➢ **Raise/Lower Switching:** Alternative switching between the Pull Up/Down orders (to manage the shutter with an only input).

➢ **Stop/Pull Up Step:** Stops the shutter. When talking about shutters with lamellas, this mode allows the user to control them; this parameter moves lamellas a pull up step. The BUS receives a "0".

➢ **Stop/Pull Down Step:** Stops the shutter; when talking about shutters with lamellas, this mode allows the user to control them; this parameter moves lamellas a pull down step. The BUS receives a "1".

➢ **Stop/Step Switching:** Stops the shutter; when talking about shutters with lamellas, this mode allows the user to control them; this parameter alternatively switches the lamellas pull up and down steps.

Note I: When no directional lamellas are present, any of the 3 last options will "stop" the shutter.

*Note II: Este último modo **"parar persiana"** incluye las 3 opciones de **paso arriba**, **paso abajo** y **paso conmutado** para el control de lamas; pero si la persiana no dispone de lamas orientables, cualquiera de las 3 opciones serviría para realizar la función parada de la persiana.*

*Note III: Si se elige la función **"subir/bajar"** para la pulsación corta, no se podrá realizar la función **"parar persiana"** en cualquier punto del recorrido con otra pulsación corta de la misma entrada.*

2.3.1.3. DIMMER CONTROL

This function results on sending a (4 bits) Dimming Control Object to the BUS.

Dimming is typically quantified using percentages, such as 10% dimming, and usually refers to the reduction in measured lumen output. Therefore, a 100-lumen light source in a 10% dimmed system would produce 10 lumens.

RESPONSE ➔ Depending on the chosen option, the Control Object may be:

➢ **Light ON:** Turn the light ON. "The BUS receives a "1".

➢ **Light OFF:** Turn the light OFF. "The BUS receives a "0".

➢ **Light ON/OFF (toggle):** Alternative switching between the ON/OFF orders (to manage the lighting level with an only input).

➢ **Increase Light:** Every press on the screen increases the lighting level, this parameter depends on the "Dimming Step" set, (See below).
A short press reduces the lighting level; a second press stops the "Increase".

➢ **Reduce Light:** Reduces the lighting level with every press on the screen, this parameter depends on the "Dimming Step" set, (See below).
A short press reduces the lighting level; a second press stops the "Reduction".

➢ **Increase/Reduce Light Switching:** Alternative Switching between the orders Increase and Reduce Light level.

DIMMING STEP ➔ Depending on the value selected, different lighting levels are offered. Once selected the "DIMMER CONTROL" option, it is necessary to set this parameter.

Dimming Step	Necessary pulsations for a complete regulation (0 – 100%)
6. 100%	1
5. 50%	2
4. 25%	4
3. 12.5%	8
2. 6.25%	16
1. 3.1%	32
0. 1.5%	64

2.3.1.4. SENDING A SCENE

This function results on sending a (1 byte) Scene Control Object to the BUS; a scene on the BUS may be managed with the input through this Object.

RESPONSE ➔ Choose whether the scene will be "Run" or "Saved".

SCENE ➔ This parameter identifies the scene to Run/Save with the corresponding Input.

2.3.2. LONG PRESS

Configuration options are exactly the same as in the previous case "Short Press".

2.3.3. THRESHOLD TIME

This parameter defines the time limit where a short press turns into a long press. If a press on the screen ends before the long press time, then it is a short press. This value must be set with precision to tenths of a second (e.g. to get "0.5" seconds, set "5")

2.3.4. RESPONSE DELAY

This parameter sets the time to wait for the object to be sent to the BUS since the action on the input took place. This value must be set with precision to tenths of a second (e.g. to get "1" second, set "10").

Note: To get an immediate sending (no delay), set the value "0" in this field.

2.3.5. INPUT LOCK

Selecting "Yes" on the pull down menu, the corresponding "Communication Object" will disable the input.

> ➤ When receiving a "1" through this object, the InZennio Z38 will ignore any pulsation on the input.

> ➤ When receiving a "0" through this object, the input turns into the "enabled" state again (without taking into consideration the actions carried out while being disabled)

ANNEX I. COMMUNICATION OBJETS

SECTION	NUMBER	SIZE	IN/OUT	FLAGS	VALUE			NAME	DESCRIPTION
					RANGE	1ª TIME	RESET		
GENERAL	0	3bytes	I/O	WT		0:00	Previous	Time	Current Time
	1	3bytes	I/O	WT		01/01/2000	Previous	Cate	Current Date
	2	1byte	O	T		Any	Any	Scenes	One only object used by device
	3	2bytes	O	RT	0ºC 60ºC	Any	Any	Real Temperature	Internal sensor value
	4	1bit	I	W				Display brightness	1=Light the Display;0=NoAction
	5	1bit	I	W		Any	Any	Touch Block	1=Touch Disabled; 0=Touch Free
HOME & HOME II	6 - 17	1bit	O	T		Any	Any	[Home X Box X] Binary Control	1 bit generic control
		1bit	O	T		Any	Any	[Home X Box X] Light On/Off	0=Off; 1=On
		1bit	O	T		Any	Any	[Home X Box X] Move Shutter	0=Up; 1=Down
		1bit	O	T		Any	Any	[Home X Box X] Security	0=Deactivate; 1=Activate
		1bit	O	T		Any	Any	[Home X Box X] Simulation Channel	0=Off; 1=On
		1bit	O	T		Any	Any	[Home X Box X] Clima Control On/OFF	0=Off; 1=On
		1bit	O	T		Any	Any	[Home X Box X] Mode Control	0 = Cool; 1 = Heat
		1bit	O	T		Any	Any	[Home X Box X] Blinds Control	1=Swing, 0=Stop/Step
		1bit	O	T		Any	Any	[Home X Box X] Comfort mode	1 = Set mode; 0 = Nothing
		1bit	O	T		Any	Any	[Home X Box X] Night Mode	1 = Set mode; 0 = Nothing
		1bit	O	T		Any	Any	[Home X Box X] Out Mode	1 = Set mode; 0 = Nothing
	18 – 29	1bit	I	WU		0	Previous	[Home X Box X] Binary Indicator	1 bit generic indicator
		1bit	I	WU		0	Previous	[Home X Box X] Light Indicator	0=Off; 1=On
		1bit	I	T		Any	Any	[Home X Box X] Stop Shutter	0 or 1 -> Stop
		1bit	I	WU		0	Previous	[Home X Box X] Security indicator	0=Deactivated; 1=Activated
		1bit	I			0	Previous	[Home X Box X] Presence Simulation	0=Disabled; 1=Enabled
		1bit	I					[Home X Box X] Clima Indicator On/Off	0=Off; 1=On
		1bit	I					[Home X Box X] Mode Indicator	0 = Cool; 1 = Heat
		1bit	I					[Home X Box X] Blind Indicator	1=Swing, 0=Stop/Step
	30 - 41	4bits	O	T		Any	Any	[Home X Box X] Light dimming	4 bits dimmer control
	42-53	1byte	O	T		Any	Any	[Home X Box X] Precise light dimming	1 byte precise dimmer control
			O	T		Any	Any	[Home X Box X] 1 byte control	1 byte generic control
			O	T		Any	Any	[Home X Box X] Mode Control	0=Auto,1=Ht,2=Dry,3=Fan,4=Cool
			O	T		Any	Any	[Home X Box X] Fan Control	0%Au;11-33%Mi;34-66%Mid;>67%Ma
			O	T		Any	Any	[Home X Box X] 1 byte control	Control de 1 byte genérico
	54 - 65	1byte	I	WU		0	Previous	[Home X Box X] light indicator	0%=Off; 100%=On
			I	WU		0	Previous	[Home X Box X] Shutter Position	0%=Top; 100%=Bottom
			I	WU		0	Previous	[Home X Box X] 1 byte indicator	1 byte generic indicator
			I	WU		0	Previous	[Home X Box X] Mode indicator	0=Auto,1=Ht,2=Dry,3=Fan,4=Cool
			I	WU		0	Previous	[Home X Box X] Fan indicator	0%Au;11-33%Mi;34-66%Mid;>67%Ma
	66 - 77	2bytes	O	T	10ºC-30ºC	Any	Any	[Home X Box X] Temperature control	from 10ºC to 30ºC

SECTION	NUMBER	SIZE	IN/OUT	FLAGS	RANGE	1ª TIME	RESET	NAME	DESCRIPTION
	78 - 89	2bytes	I	WU	-99.9ºC-99,9ºC	25ºC	Previous	[Home X Box X] Floating Point indicator	from -99.9 to 99.9
SPECIFIC X (CLIMA)	90 - 93	1bit	O	T				[Clima X] On/Off control	0=Off; 1=On
	94 - 97	1bit	O	T				[Clima X] Fan Control	0=Auto; 1=Min; 2=Med; 3=Max.
			O	T				[Clima X] Fan Control	0%Au;11-33%Mi;34-66%Mid;>67%Ma
	98 - 101	1bit	O	T				[Clima X] Blind control	1=Swing, 0=Stop/Step
	102 - 105	1bit	O	T				[Clima X] Moe control	0 = Cool; 1 = Heat
	106 – 109	1byte	O	T				[Clima X] Mode Control (1 byte)	0=Auto;1=Ht;2=Dry;3=Fan;4=Cool
	110 - 113	2byte	O	T				[Clima X] Temperature Control	Value sent to the machine
	114 - 117	1bit	I	WU				[Clima X] On/Off indicator	0=Off; 1=On

SECTION	NUMBER	SIZE	IN/OUT	FLAGS	RANGE	1ª TIME	RESET	NAME	DESCRIPTION
	118 - 121	1byte	I	WU				[Clima X] Fan indicator	0=Auto;1=Ht;2=Dry;3=Fan;4=Cool
	122 - 125	1byte	I	WU				[Clima X] blinds indicator	0=Stop; 1= Moving
	126 - 129	1bit	I	WU				[Clima X] Mode indicator	0=Cool; 1=Heat
	130 - 133	1byte	I	WU				[Clima X] Mode indicator (1 byte)	0=Auto;1=Ht;2=Dry;3=Fan;4=Cool
	134 - 137	2byte	I	WU				[Clima X] Temperature indicator	Value returned by the machine
	142 - 145	1bit	I	WT				[Clima X] Comfort	1 = Set mode; 0 = Nothing
	146 - 149	1bit	I	WT				[Clima X] Night	2 = Set mode; 0 = Nothing
	150 - 153	1bit	I	WT				[Clima X] Out	2 = Set mode; 0 = Nothing
THERMOSTAT	138 - 141	2bytes	I	WT				[Clima X] External temperature sensor	0=Auto; 1=Min; 2=Med; 3=Max.
	154 - 161	1bit	O	T				[Clima X] control variable (Heat // Cool Hysteresis)	2 Point Control
								[Clima X] control variable (Heat // Cool PWM)	Proportional Integral (PWM)
	162 - 169	1byte	O	T				[Clima X] control variable (Heat // Cool Continuous)	Proport. Integral (Continuous)
	170 - 177	1bit	O	T		Any	Any	[Clima X] control variable (Heat // Cool additional)	Proport. Integral (Continuous)
SPECIFIC 5 (TECHNICAL ALARMS)	178 - 183	1bit	I	WU		No alarm	Previous	[Tech Alarms, Box X] Alarm	Trigger value (0/1) -> Alarm
	184 - 189	1bit	I/O	WT		Any	Any	[Tech Alarms, Box X] Confirm	1=Alarm Confirmed; 0=No action
	190 - 193	1bit	I	W	0/1	0	Previous	[Ex] Block	1=Input Disabled; 0=Input Free
	194 - 201	1bit	O	WT	0/1	0	Previous	[Ex] [Short. Press] "0"	Short Pr. -> Sending of "0"
								[Ex] [Long Press] "0"	Short Pr. -> Sending of "0"
								[Ex] [Short Press] "1"	Short Pr. -> Sending of "1"
								[Ex] [Long Press] "1"	Short Pr. -> Sending of "1"
								[Ex] [Short Press] Switch	Short Pr. -> Switching "0/1"
								[Ex] [Long Press] Switch	Short Pr. -> Switching "0/1"
								[Ex] [Short Press] Raise Shutter	Short Pr. -> Sending of 0 (Up)
								[Ex] [Long Press] Raise Shutter	Short Pr. -> Sending of 0 (Up)
								[Ex] [Short Press] Lower Shutter	Short Pr. -> Send. of 1 (Down)

SECTION	NUMBER	SIZE	IN/OUT	FLAGS	RANGE	1ª TIME	RESET	NAME	DESCRIPTION
INPUTS								[Ex] [Long Press] Lower Shutter	Short Pr. -> Send. of 1 (Down)
								[Ex] [Short Press] Raise/Lower Shutter	Short Pr. -> Switching "0/1"
								[Ex] [Long Press] Raise/Lower Shutter	Long Pr. -> Switching "0/1"
								[Ex] [Short Press] Stop / Step up shutter	Short Pr. -> Sending of "0"
								[Ex] [Long Press] Stop / Step up shutter	Long Pr. -> Sending of "0"
								[Ex] [Short Press] Stop / Step down shutter	Short Pr. -> Sending of "1"
								[Ex] [Long Press] Stop / Step down shutter	Long Pr. -> Sending of "1"
								[Ex] [Short Press] Stop / Step switched shutter	Short Pr. -> Switching "0/1"
								[Ex] [Long Press] Stop / Step switched shutter	Long Pr. -> Switching "0/1"
								[Ex] [Short Press] Dimmer ON	Short Pr. -> Sending of 1 (ON)
								[Ex] [Long Press Dimmer ON	Long Pr. -> Sending of 1 (ON)
								[Ex] [Short Press] Dimmer OFF	Short Pr. -> Send. of 0 (OFF)
								[Ex] [Long Press] Dimmer OFF	Long Pr. -> Send. of 0 (OFF)
								[Ex] [Short Press] Dimmer ON/OFF	Short Pr. -> Switching "0/1"
								[Ex] [Long Press] Dimmer ON/OFF	Long Pr. -> Switching "0/1"
	202 - 209	4bits	O	T	0 -15	Any	Any	[Ex] [Short Press] Light up	Sh.Pr.->Bright; Sh.Pr.->Stop
								[Ex] [Long Press] Light up	Lg.Pr.->Bright; Lg.Pr.->Stop
								[Ex] [Short Press] Light down	Sh.Pr.->Dark; Sh.Pr.->Stop
								[Ex] [Long Press] Light down	Lg.Pr.->Dark; Lg.Pr.->Stop

SECTION	NUMBER	SIZE	IN/OUT	FLAGS	VALUE			NAME	DESCRIPTION
					RANGE	1ª TIME	RESET		
								[Ex] [Short Press] Light up / down	Sh.Pr->Bright/Dark;Sh.Pr->Stop
								[Ex] [Long Press] Light up / down	Lg.Pr->Bright/Dark;Lg.Pr->Stop
	210 - 217	1byte	O	T	0-63 128-192	Any	Any	[Ex] [Short Press] Run Scene	Short Pr. -> Sending of 0-63
								[Ex] [Long Press] Run Scene	Long Pr. -> Sending of 0-63
								[Ex] [Short Press] Learn Scene	Short Pr. -> Send. of 128-191
								[Ex] [Long Press] Learn Scene	Long Pr. -> Send. of 128-191
OTHER	174	1bit	I	W		0	Previous	Touch Block	1=Touch Bloqueado; 0=Libre

ANNEX II. INDIVIDUAL CONTROLS

BINARY

▣ (1) – Turn Off   ▣ (9) – Turn Off Light 2

▣ (2) – Turn On   ▣ (10) – Turn On Light 2

▣ (3) – Turn Off 2   ▣ (11) – Exit

▣ (4) – Turn On 2   ▣ (12) – In

▣ (5) – Turn Off 3   ▣ (13) – Cancel

▣ (6) – Turn On 3   ▣ (14) – Accept

▣ (7) – Turn Off Light   ▣ (19) – Off

▣ (8) – Turn On Light   ▣ (20) – On

▣ (21) – Disarmed   ▣ (22) - Armed

DIRECTIONAL & INCREMENTAL

▣ (30) – Down   ▣ (38) – Lower Shutter

▣ (31) – Up   ▣ (39) – Raise Shutter

▣ (32) – Left   ▣ (40) – Lower Shutter 2

▣ (33) – Right   ▣ (41) – Raise Shutter 2

▣ (34) – Down Arrow   ▣ (50) - Minus

(35) – Up Arrow

(51) – Plus

(36) – Left Arrow

(52) – Lower Temperature

(37) – Right Arrow

(53) – Raise Temperature

AIR CONDITIONING

(70) – Turn Off

(82) – Stop Blades

(71) – Turn On

(83) – Move Blades

(72) – Cool Mode

(84) – Stop

(73) – Heat Mode

(86) – Auto

(74) – Auto Mode

(87) – Auto 2

(75) – Fan Mode

(88) – Auto 3

(76) – Dry Mode

(89) – Auto 4

(77) – Very Low Fan

(78) – Low Fan

(79) – Medium Fan

(80) – High Fan

(81) – Very High Fan

NUMBERS

(100) - Zero

(105) - Five

(101) - one

(106) - Six

(102) - Two

(107) - Seven

3 (103) - Three

4 (104) - Four

0 (110) – 0

8 (108) - Eight

9 (109) – Nine

1 (111) - 1

SOUND & IMAGE

■ (150) – Stop

▶ (151) – Play

◀◀ (152) – Rewind

▶▶ (153) – Forward

◀| (154) – Before

|▶ (155) – Next

● (156) – Record

|| (157) – Pause

▲ (158) – Eject

VOL (159) – Lower Volume

VOL (160) – Raise Volume

✗ (161) - Mute

◀)) (162) – Sound On

TV (163) - TV

AV (164) - Audio/Video

AUX (165) - AUX

■ (166) - Movie

■ (167) - Claqueta

OTHER

◯ (200) - Clock 1

◯ (201) - Clock 2

◯° (202) - Clock Off

◯' (203) - Clock On

⌂ (208) - Comfort

☽ (209) - Night

↱ (210) - Out

Ψ (211) – Strong

(204) - Clock Off 2   (212) – Very Strong

(205) - Clock On 2   (218) – Key 2

(206) - Set   (219) – New

(207) - Ok

ANNEX III. DOUBLE CONTROLS

BINARY

▢▢ (1) – Turn On/Off   ▢▢ (9) - Turn On/Off Light 2

▢▢ (3) - Turn On/Off 2   ▢▢ (11) – Out/In

▢▢ (5) - Turn On/Off 3   ▢▢ (13) – Cancel/Accept

▢▢ (7) - Turn On/Off Light   ▢▢ (19) - Off / On

▢▢ (21) – Disarmed / Armed

DIRECTIONAL & INCREMENTAL

▢▢ (30) – Down/Up   ▢▢ (38) – Lower/Raise Shutter

▢▢ (32) – Left/Right   ▢▢ (40) – Lower/Raise Shutter 2

▢▢ (34) - Down/Up Arrow   ▢▢ (50) – Minus/Plus

▢▢ (36) – Left/Right Arrow   ▢▢ (52) – Lower/Raise Temperature

AIR CONDITIONING

(70) - Turn On/Off A/C

(82) – Stop / Swing Blades

(72) - Cool / Heat

(84) - Stop / Swing Blades 2

(79) - Minus / More Fan

NUMBERS

(100) – Zero / One

(106) – Six / Seven

(102) – Two / Three

(108) – Eight / Nine

(104) – Four / Five

(110) – 0 / 1

SOUND & IMAGE

(150) – Stop / Play

(159) – Minus / More Volume

(152) – Rewind / Forward

(161) – Sound Off / On

(154) – Befote / Next

(163) - TV / AV

(202) - Clock Off / On

(204) - Clock Off / On 2

(211) - Strong / Stronger

(217) – Key 1 / Key 2

ANNEX IV. INDICATORS

BINARY

○ (1) – On   ✗ (13) - Rejected

❙ (2) - Off   ✓ (14) - Ok

● (7) – Light Off   (15) – Open Door

☼ (8) – Light On   (16) – Closed Door

(9) – Light Off 2   (17) – Open Window

(10) – Light On 2   (18) – Closed Window

OFF (19) – Off   ON (20) – On

(21) – Disarmed   (22) - Armed

DIRECTIONAL & INCREMENTAL

(38) – Lowering Shutter   (40) – Lowering Shutter 2

(39) – Raising Shutter   (41) – Raising Shutter 2

AIR CONDITIONING

(70) – A/C Off

(71) - A/C On

(72) – Cool Mode

(73) – Heat Mode

(74) – Auto Mode

(75) – Fan Mode

(76) – Dry Mode

(77) – Very Low Fan

(78) – Low Fan

(80) – High Fan

(82) – Stop Blades

(83) – Move Blades

(84) – Stop

(85) – Move Blades 2

(86) – Auto

(87) – Auto 2

(88) – Auto 3

(89) – Auto 4

(79) – Medium Fan

(81) – Very High Fan

NUMBERS

0 (100) – Zero

1 (101) – One

2 (102) – Two

3 (103) – Three

4 (104) – Four

0 (110) – 0

5 (105) - Five

6 (106) - Six

7 (107) - Seven

8 (108) - Eight

9 (109) - Nine

1 (111) - 1

SOUND & IMAGE

⊗ (162) – Sound Off
🔊 (163) – Sound On

OTHER

🕐 (200) - Clock 1

🕐 (201) - Clock 2

🕐° (202) - Clock Off

🕐ᴵ (203) - Clock On

🕐ᴼᶠᶠ (204) - Clock Off 2

🕐ᴼᴺ (205) - Clock On 2

SET (206) – Set

OK (207) – Ok

⚠ (216) – Danger Wind

🔑 (218) – Key 2

🏠 (208) - Comfort

☾ (209) - Night

🚶 (210) - Out

Y (211) - Strong

Y (212) – Very Strong

⚠ (213) - Danger

⚠ (214) – Danger Cold

⚠ (215) – Danger Hot

🔑 (217) – Key 1

NEW (219) - New

SIGN UP!

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