



IWAC Display v3

Access Controller with Display

ZVIIWACDV3

Application Program Version: 3.2
User manual edition: [3.2]_a

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DOCUMENT UPDATES

Version	Changes	Page(s)
[3.2]_a	Changes in the application program: <ul style="list-style-type: none"> Access control module update: <ul style="list-style-type: none"> New functionality: elevator access control. New object “[Access] Guest/Employee Access”. 	-
[3.1]_a	Changes in the application program: <ul style="list-style-type: none"> New functionality: Welcome Message. Room names can have up to 2 lines. Room numbers and names can be modified by object. Access control module update: <ul style="list-style-type: none"> New object “[Access] Check-in/Check-out”. 	-
[3.0]_a	Changes in the application program: <ul style="list-style-type: none"> Access control module update: <ul style="list-style-type: none"> BLE (Bluetooth Low Energy) module. New object to inform the language and region after the correct reading of a NFC card or BLE key data: “[Access] Locale”. New binary object to inform if accesses granted during a KNX bus failure: “[Access] Offline access”. Possibility to choose the action when one of the groups with granted access tries to access an occupied room. New parameter to select the timeout for the second access attempt. Possibility to restrict the use of the <i>Make Up Room</i> state. Optimisation of modules: binary inputs, temperature probe and motion sensor 	-

1 INTRODUCTION

1.1 IWAC Display v3

IWAC Display v3 from Zennio is a KNX interface presented as an access control system to rooms or other parts of the installation through reading ID cards.

The most notable features of this device are:

- **Access control** to rooms using:
 - Cards with **NFC** (Near Field Communication) technology of MIFARE DESFire and MIFARE Classic types.
 - **BLE** (Bluetooth Low Energy) keys provided through the Zennio **ZenKey** application. Please refer to the “**ZenKey**” at www.zennio.com, for detailed information.
- 2.4-inch **OLED** display with 128 x 64 pixels resolution.
- **Multilanguage**.
- **Buzzer** for an audible acknowledgement of user actions (with the possibility of disabling it by object).
- **Encrypted communication** with **Securel v3** for door opening.
- **Communication with Z-Access** for the management and monitoring of accesses.
- Possibility of controlling access to the different floors through **elevator access functionality**.
- **3 touch buttons**, which can operate as individual control.
- Possibility of **locking / unlocking the touch panel** through binary object.
- Possibility of setting a **press detection delay**.
- **Two analogue/digital inputs** (for motion detectors, temperature probes, additional switches, etc.).
- **Heartbeat** or periodic “still-alive” notification.

1.2 START-UP AND POWER LOSS

After the device start-up, it requests date and time through the object **“Request Date and Time”**. The group address of this object is the one that must be indicated in Z-Access to respond to the request.

For proper operation of the buttons, it is recommended not to be pressing them during the initialization, either after programming or after connecting the external power supply.

On the other hand, a KNX bus power failure **does not imply any change in the device status since it has external power supply**. Therefore, the device will continue operating normally, although, of course, there will be no communication with the KNX bus.

2 CONFIGURATION

2.1 GENERAL

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

ETS PARAMETERIZATION

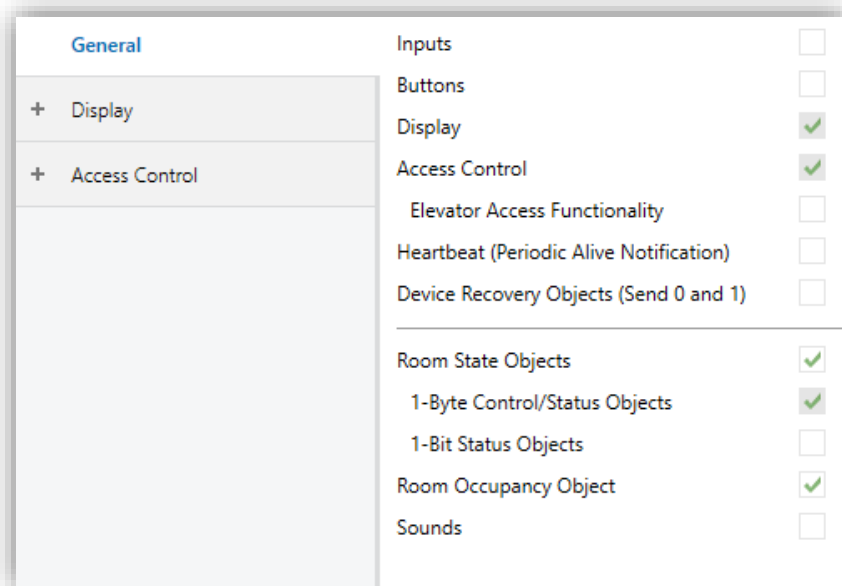


Figure 1. General

- **Inputs** [\[disabled / enabled\]](#)¹: enables or disables the “Inputs” tab in the tree on the left, depending on whether the device will or will not be connected any external accessories. See section 2.2 for details.
- **Buttons** [\[disabled / enabled\]](#): enables or disables the “Buttons” tab in the tree on the left, depending on whether the device will or will not be connected any external accessories. See section 2.2.1 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 2.4 for details.

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

- **Access Control** [[enabled](#)]: read-only parameter to make it evident that the “Access Control” tab is always enabled in the tab tree on the left. See section 0 for details.
 - **Elevator Access functionality** [[disabled](#) / [enabled](#)]: this parameter sets the mode of operation of the device for access control to floors.
- **Heartbeat (Periodic Alive Notification)** [[disabled](#) / [enabled](#)]: this parameter lets the integrator incorporate 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*).

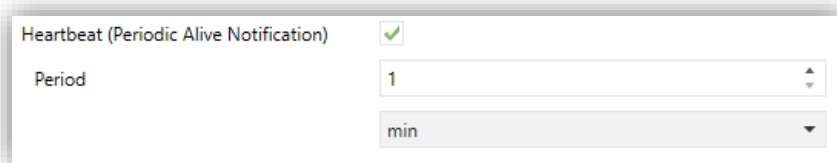


Figure 2. Heartbeat (Periodic Alive Notification)

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 match 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” respectively whenever the device begins operation (for example, after a bus power failure). It is possible to parameterise a certain **delay** [[0...255](#)] to this sending.

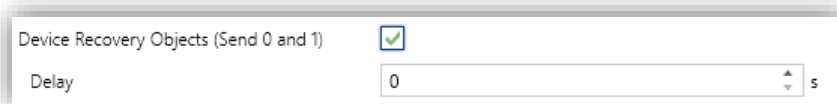


Figure 3. Device Recovery Objects

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.

- **Room State Objects** [[disabled](#) / [enabled](#)] and **Room Occupancy Object** [[disabled](#) / [enabled](#)]: parameters to enable objects intended for room state monitoring and notification.

- **Sounds** [[disabled](#) / [enabled](#)]: incorporates the object “**Sound**” to enable/disable sound at runtime.
 - **Sounds Object Polarity** [[0 = Disable; 1 = Enable](#) / [0 = Enable; 1 = Disable](#)].

The project topology shows by default, in addition to the objects of the **access control module**, the following:

- “[**General**] **Scene: Send**” and “[**General**] **Scene: Receive**”: objects for respectively sending and receiving scene values from/to the KNX bus whenever it is necessary.
- “[**General**] **Room Number**”: 2-Byte object for sending the room number to be displayed.

2.2 INPUTS

IWAC Display v3 incorporates **2 analogue/digital inputs**. Each one has three possible configurations, which are explained below.

2.2.1 BINARY INPUT

Configuration for the connection of a pushbutton or a switch/sensor. Please refer to the “**Binary Inputs**” user manual, available under the product section at www.zennio.com.

2.2.2 TEMPERATURE PROBE

Configuration for the connection of a temperature sensor from Zennio. Please refer to the “**Temperature Probe**” user manual, available under the product section at www.zennio.com.

2.2.3 MOTION DETECTOR

Configuration for the connection of a motion detector. It is possible to connect motion detectors from Zennio to the input ports of IWAC Display v3.

Please refer to the “**Motion Detector**” user manual, available under the product section at www.zennio.com, for detailed information about the functionality and the configuration of the related parameters.

2.3 BUTTONS

2.3.1 CONFIGURATION

As indicated in previous sections, IWAC Display v3 features **three buttons** at the user's disposal for the execution of different actions.

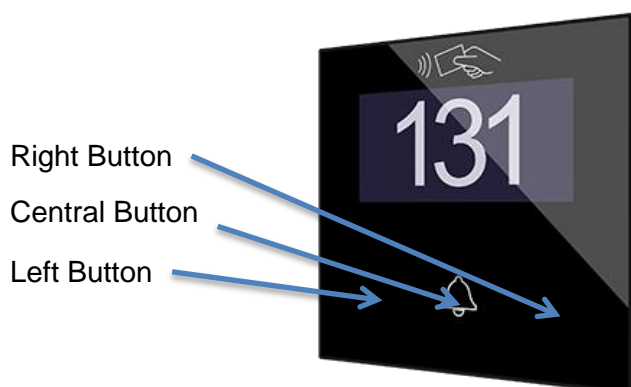


Figure 4. Buttons

The touch panel of IWAC Display v3 can be optionally locked and unlocked anytime by writing a configurable one-bit value to a specific object provided for this purpose.

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

- Binary.
- Two objects (short / long press).
- Hold & release.
- Scene.

ETS PARAMETERIZATION

When the Buttons function has been activated in the “General” parameter screen, the “Buttons” section will be available in the tree on the left, containing itself a tab named Configuration.

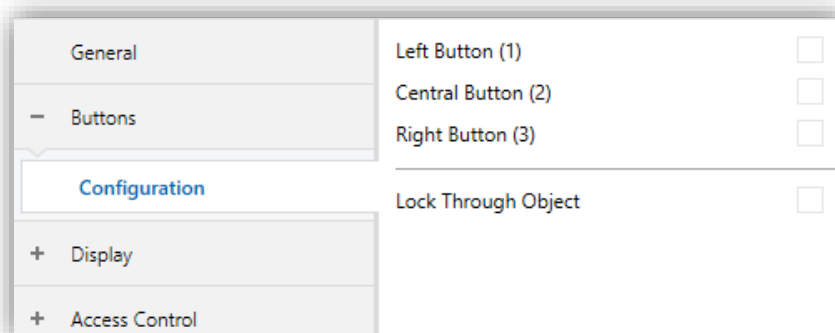


Figure 5. Buttons - Configuration

- **Left (1) / Central (2) / Right (3) Button** [[disabled](#) / [enabled](#)]: after enabling each button, a new tab will be available in the left tree.
- **Lock Through Object** [[disabled](#) / [enabled](#)]: the communication object “[Buttons] Lock” is added, and the following parameter appears:
 - **Lock Object Polarity** [[0 = Unlock; 1 = Lock](#) / [0 = Lock; 1 = Unlock](#)].

2.3.2 LEFT / CENTRAL / RIGHT BUTTON

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

- **Disabled**: while a button stays disabled, it will not be functional. Touching on it will not cause the execution of actions.
- **Binary**: 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 →
- **Hold & Release**: as soon as the user touches the button, a binary value (“0” or “1”, configurable) will be sent to the KNX bus. And as long as the user releases the button, another value (“0” or “1”, also configurable) will be sent through the same object.
- **Two Objects (short press / long press)**: integer or specific binary values will be sent both after a short or a long press (a different object will be used in each case).
- **Scene**: after the user touches the button, an order to run a specific scene (configurable) will be sent to the bus.

In all cases, it can be configured a **Press Detection Delay**.

ETS PARAMETERIZATION

When an individual button has been enabled, a specific tab becomes available under “Buttons” in the tree on the left.

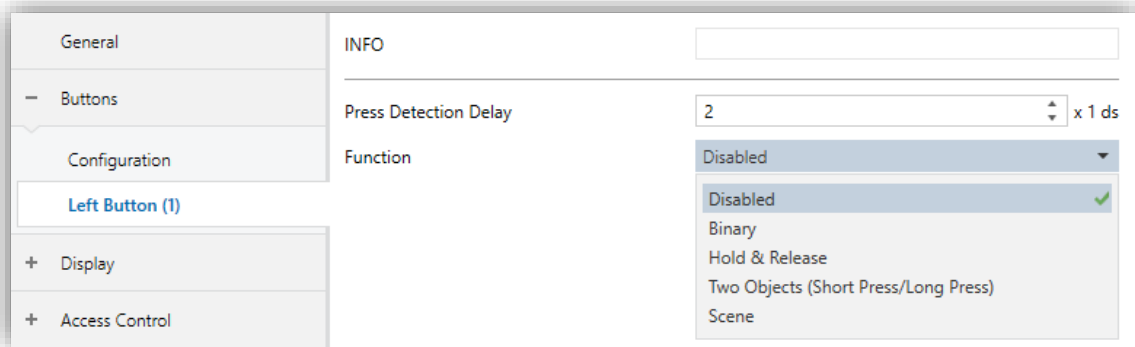


Figure 6. Button - Individual Button

Note: the INFO textboxes are functionless. They simply bring the option to add a description to each button of the project.

- **Press Detection Delay** [1...2...255] [x 1 ds]: during this time, no press will be considered.
- **Function** [Disabled / Binary / Hold & Release / Two Objects (Short Press/Long Press) / Scene]: 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 “[n]” is used as a general notation for the communication objects, where “n” depends on the particular button (1 → Left button, 2 → Central button and 3 → Right button).

Binary

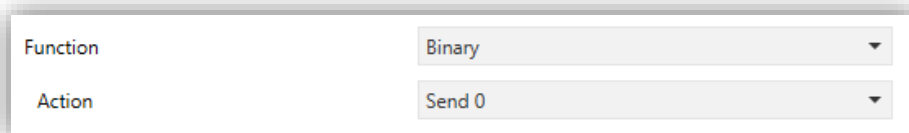


Figure 7. Button – Binary

- **Action** [Send 0 / Send 1 / Toggle 0/1]: sets the value to be sent to the bus (through object “[Button] [n] Binary Control”) when the button is touched.

Hold & Release

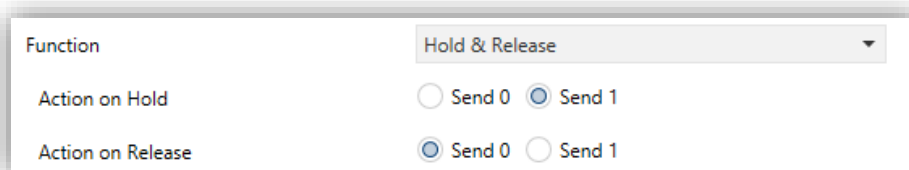


Figure 8. Button - Hold & Release

- **Action on Hold / Release** [[Send 0](#) / [Send 1](#)]: sets the value to be sent to the bus (through “[Button] [n] **Binary Control, Hold&Release**”) when the user touches or releases the button, respectively.

Two Objects (Short Press/Long Press)

Function	Two Objects (Short Press/Long Press)
Action on Short Press	Send 1-byte Value (Unsigned Int)
Value	0
Action on Long Press	Send 1-byte Value (Unsigned Int)
Value	0
Long Press Threshold Time	6 ds

Figure 9. Button - Two Objects (Short Press/Long Press)

- **Action on Short / Long Press** [[Send 0](#) / [Send 1](#) / [Toggle 0/1](#) / [Send 1-byte value](#)]: sets the value to be sent to the bus through “[Button] [n] **Two Objects, Short press**” or “[Button] [n] **Two Objects, Long press**” when the user short-presses or long-presses the button, respectively. In case of selecting the latter, an additional parameter (**Value** [[0...255](#)]) will be displayed to enter the desired one-byte value.
- **Long Press Threshold Time** [[4...6...255](#)] [$\times 1$ ds]: sets the minimum time the user should hold the button in order to consider it a long press. The available range is 4 to 255 tenths of a second, being 6 tenths the default value.

Note: To detect a long press, the pressing time must be the sum of the **Press Detection Delay** plus the **Long Press Threshold Time**.

Scene

Function	Scene
Scene Number	1

Figure 10. Button – Scene

- **Scene Number** [[1...64](#)]: number of the scene to be sent to the bus.

2.4 DISPLAY

IWAC Display v3 features a 2.4-inch OLED display with 128 x 64 pixels resolution. The screen shows to the user fixed information as well as notifications. The information that can be shown on the display is:

- **Name or number of the room.**
- **Room state.**
- **Notification of events.**

The characters supported in IWAC Display v3 are: Unicode U+0021 - U+00FF (refer to [this link](#) to see the character table for these codes).

ETS PARAMETERIZATION

Figure 11. Display - Configuration

This parameter screen contains the following options:

- **Type of Room Identifier** [[Number](#) / [Name](#)]: when selecting *Number*, an additional parameter will be displayed:
 - **Minimum Number of Digits** [[Match Number](#) / [2](#) / [3](#) / [4](#)]: sets the minimum number of digits that will be shown (for example, if number is set to 19 and the minimum number of digits is 3, the display will show 019).



Figure 12. Room Identifier. Left: number, right: name

While if *Name* is chosen, two 14-byte text fields where you can respectively enter the text to be displayed on **lines 1 and 2** appear. In addition, in this case, the objects “[**General**] Room name: Line n” appear, which allow to modify the text of their respective line.

- **Translations** [*disabled* / *enabled*]: enables or disables the “Translations” tab in the tree on the left. See section 2.4.1 for details.
- **Show Room State Icons** [*disabled* / *enabled*]: enables or disables the room status indicator icons to display on the screen. As indicated before, the room status are: *normal* (no icon), *make up* and *do not disturb*.
 - **Make Up Room Icon** [*Person Cleaning* / *Broom*]: icon that will be displayed when the room status is Make Up.

When in “Do not disturb” status, a lock is displayed.

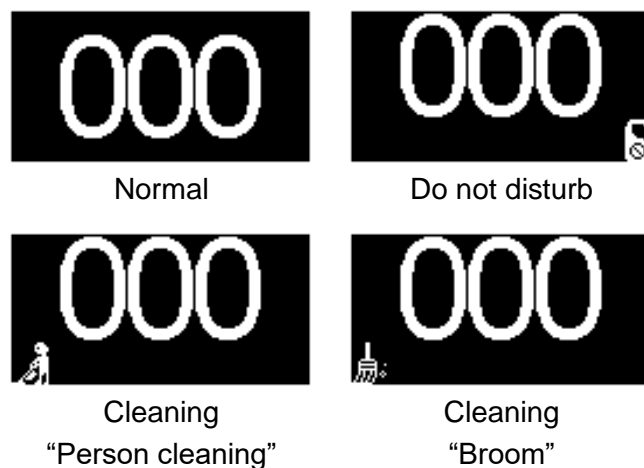


Figure 13. Room State

- **Show Access Control Messages** [*disabled* / *enabled*]: enables or disables the “Texts” tab in the tree on the left. See section 2.4.2 for details.
- **Welcome Message** [*disabled* / *enabled*]: enables or disables the “Welcome Message” tab in the tree on the left. See section 2.4.3 for details.

2.4.1 TRANSLATIONS

The information shown on the display can be translated into up to five different languages, among which the IWAC Display v3 will show the one corresponding to the language settings recorded on the access card.

ETS PARAMETERIZATION

After enabling **Translations** in the “Configuration” screen of the display, a new tab will be incorporated into the tree on the left.

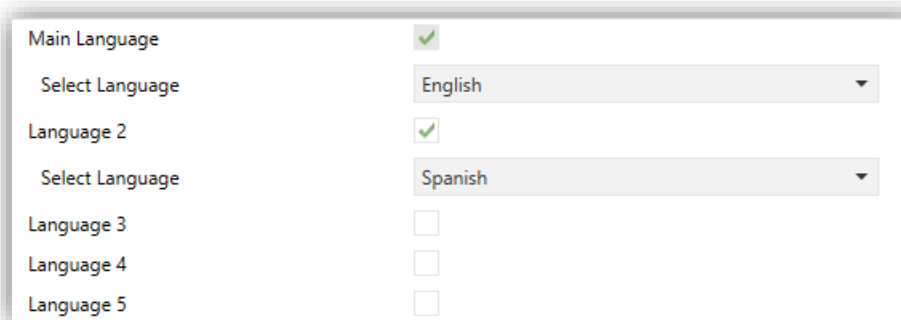


Figure 14. Display – Translations

This screen contains the following parameters:

- **Main Language** [[enabled](#)]: read-only parameter to make it evident that the main language is always enabled.
 - **Select Language**: list of the available languages.
- **Language X** [[disabled](#) / [enabled](#)]: enables the additional language X.
 - **Select Language**: list of the available languages to select the language X.

2.4.2 TEXTS

In the “Texts” tab, the texts of the messages prompted up when some events occur are configured:

- Access granted: reading a card with access permission.
- Access denied: reading a card with no access permission.
- Access granted when in “do not disturb”: reading a card with access permission when IWAC Display v3 is in do not disturb mode.

- Access granted when occupied room: reading a card with access permission when IWAC Display v3 is occupied.
- Access granted when in “do not disturb” and occupied room: reading a card with access permission when IWAC Display v3 is in do not disturb mode and occupied.

ETS PARAMETERIZATION

After enabling “**Show Access Control Messages**” in the “Configuration” screen, a new tab will be incorporated into the tree on the left.

This screen is divided into up to five parts, depending on whether or not the room status and/or occupancy objects are available:

- **Message When Access Is Granted.**
- **Message When Access Is Denied.**
- **Message When Access Is Granted (DND Active).**
- **Message When Access Is Granted (Occupied Room).**
- **Message When Access Is Granted (DND Active + Occupied Room).**

Parameters **Line 1** and **Line 2** permit setting the texts for each message. If several languages have been enabled in the “Translations” tab (see section 2.4.1), it can be set the text for each language.



Figure 15. Messages displayed examples

The screenshot shows the configuration interface for the IWAC Display v3. On the left is a sidebar with a tree view containing the following items: 'General', 'Display' (expanded), 'Configuration', 'Translations', 'Texts' (highlighted in blue), and 'Access Control' (expanded). The main area displays the 'Texts' configuration for 'Access Control'. It contains five sections, each with a 'Main Language' label and two input fields for 'Line 1' and 'Line 2':

- Message When Access Is Granted:** Line 1 is 'Access', Line 2 is 'Granted'.
- Message When Access Is Denied:** Line 1 is 'Access', Line 2 is 'Denied'.
- Message When Access Is Granted (DND Active):** Line 1 is 'Please', Line 2 is 'Do Not Disturb'.
- Message When Access Is Granted (Occupied Room):** Line 1 is 'Occupied', Line 2 is 'Room'.
- Message When Access Is Granted (DND Active + Occupied Room):** Line 1 is 'Occupied Room', Line 2 is 'Do Not Disturb'.

Figure 16. Display – Texts.

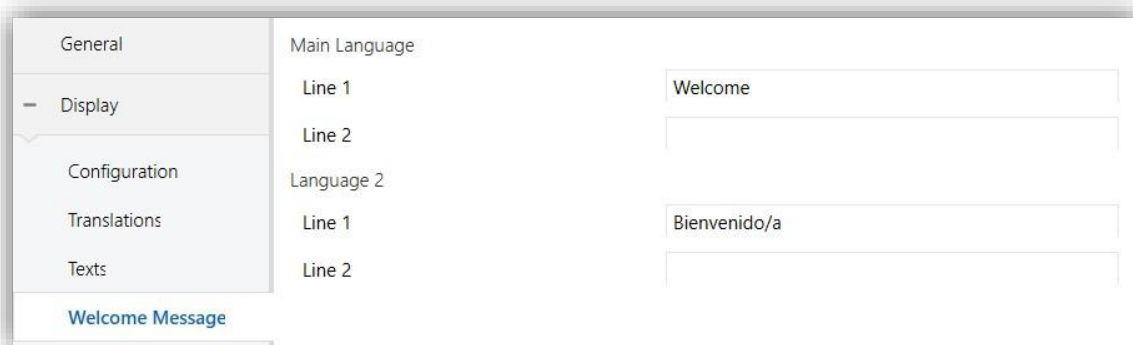
2.4.3 WELCOME MESSAGE

In the “Welcome Message” tab, will be configured the text to be displayed on IWAC Display v3.

ETS PARAMETERIZATION

After enabling “**Welcome Message**” in the “Configuration” screen, a new tab will be incorporated into the tree on the left and the “**[Welcome] Enabling**”, “**[Welcome] Line 1**” and “**[Welcome] Line 2**” objects which allow enabling and modifying the text displayed on the screen on line 1 and line 2 respectively.

In the case of sending from the objects “**[Welcome] Line 1**” and “**[Welcome] Line 2**” they will overwrite the translations parameterised in that line.



The screenshot shows a configuration window for the IWAC Display v3. On the left is a sidebar menu with options: General, Display (selected), Configuration, Translations, Texts, and Welcome Message (highlighted in blue). The main area is titled 'Main Language' and contains two input fields: 'Line 1' with the text 'Welcome' and 'Line 2' which is empty. Below this is a section for 'Language 2' with 'Line 1' containing 'Bienvenido/a' and 'Line 2' which is empty.

Figure 17. Display - Welcome Message.

Line 1 and **Line 2** parameters allow establishing the texts to be displayed for each of the messages. If several languages have been enabled in the “**Translations**” tab (see section 2.4.1), the texts to be displayed for each language can be determined.



Figure 18. Welcome Message Example

2.5 ACCESS CONTROL

IWAC Display v3 incorporates a functional module for **access control to rooms** or other areas of a building by reading identification elements (**NFC cards and BLE keys**) issued to each user.

Please refer to the specific user manual “**Access Control**”, available at www.zennio.com, for detailed information about the functionality and configuration of the related parameters.

ANNEX I. COMMUNICATION OBJECTS

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

Number	Size	I/O	Flags	Data type (DPT)	Functional Range	Name	Function
1	1 Byte		C - - T -	DPT_SceneNumber	0 - 63	[General] Scene: Send	Scene Value
2	1 Byte	I	C - W - -	DPT_SceneNumber	0 - 63	[General] Scene: Receive	Scene Value
3	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Sound	0 = Enable; 1 = Disable
	1 Bit	I	C - W - -	DPT_Enable	0/1	[General] Sound	0 = Disable; 1 = Enable
4	2 Bytes	I	C - W - -	DPT_Value_2_Ucount	0 - 65535	[General] Room Number	Room Number to Show on the Display
5	14 Bytes	I	C - W - -	DPT_String_UTF-8		[General] Room Name: Line 1	Room Name to Show on the Display at Line 1
6	14 Bytes	I	C - W - -	DPT_String_UTF-8		[General] Room Name: Line 2	Room Name to Show on the Display at Line 2
7	1 Bit	I	C - W - -	DPT_Switch	0/1	[Welcome] Enabling	0 = Hide Message; 1 = Show Message
8	1 Byte	I	C - W - -	1.xxx	0/1	[Welcome] Translations - Select Language	0 = Main; 1 = Lang. 2; ...; 4 = Lang. 5
9, 10	14 Bytes	I	C - W - -	DPT_String_UTF-8		[Welcome] Line x	Text to Show on the Display at Line x
11	1 Bit	I	C - W - -	DPT_Enable	0/1	[Buttons] Lock	0 = Lock; 1 = Unlock
	1 Bit	I	C - W - -	DPT_Enable	0/1	[Buttons] Lock	0 = Unlock; 1 = Lock
12, 14, 16	1 Bit	O	C R - T -	DPT_Switch	0/1	[Button] [x] Two Objects, Short Press: "1"	1-Bit Generic Control
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Button] [x] Two Objects, Short Press: "0/1"	1-Bit Generic Control
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Button] [x] Binary Control: "0"	1-Bit Generic Control
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Button] [x] Binary Control: "1"	1-Bit Generic Control
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Button] [x] Binary Control: "0/1"	1-Bit Generic Control
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Button] [x] Binary Control, Hold&Release	1-Bit Generic Control
	1 Byte	O	C R - T -	DPT_Value_1_Ucount	0 - 255	[Button] [x] Two Objects, Short Press: 1-byte Value (Unsigned Int)	0 - 255
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Button] [x] Two Objects, Short Press: "0"	1-Bit Generic Control
13, 15, 17	1 Bit	O	C R - T -	DPT_Switch	0/1	[Button] [x] Two Objects, Long Press: "1"	1-Bit Generic Control

	1 Bit	O	C R - T -	DPT_Switch	0/1	[Button] [x] Two Objects, Long Press: "0/1"	1-Bit Generic Control
	1 Byte	O	C R - T -	DPT_Value_1_Ucount	0 - 255	[Button] [x] Two Objects, Long Press: 1-byte Value (Unsigned Int)	0 - 255
	1 Bit	O	C R - T -	DPT_Switch	0/1	[Button] [x] Two Objects, Long Press: "0"	1-Bit Generic Control
18	1 Bit	O	C R - T -	DPT_Trigger	0/1	[Heartbeat] Object to Send '1'	Sending of '1' Periodically
19	1 Bit	O	C R - T -	DPT_Trigger	0/1	[Heartbeat] Device Recovery	Send 0
20	1 Bit	O	C R - T -	DPT_Trigger	0/1	[Heartbeat] Device Recovery	Send 1
21, 27	1 Bit	I	C - W - -	DPT_Enable	0/1	[Ix] Input Lock	0 = Unlock; 1 = Lock
22, 28	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 - W T -	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		C - - 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		C - - 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		C - - 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 Off	Sending of 0 (Off)
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Short Press] Light On/Off	Switching 0/1
	1 Byte		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 Bit	I/O	C R W T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] Edge	Sending of 0 or 1
	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
23, 29	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%
24, 30	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		C - - 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		C - - 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		C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Long Press] Brighter/Darker	Long Pr. -> Brighter/Darker; Release -> Stop
	1 Bit		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	I	C - W T -	DPT_Switch	0/1	[Ix] [Long Press] Light On/Off	Switching 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 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] [Switch/Sensor] Alarm: Breakdown or Sabotage	1 = Alarm; 0 = No Alarm
	2 Bytes		C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Long Press] Constant Value (Float)	Float Value
	2 Bytes		C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Long Press] Constant Value (Integer)	0 - 65535
	1 Byte		C - - T -	DPT_Scaling	0% - 100%	[Ix] [Long Press] Constant Value (Percentage)	0% - 100%

	1 Byte		C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Long Press] Constant Value (Integer)	0 - 255
25, 31	1 Bit		C - - T -	DPT_Trigger	0/1	[Ix] [Long Press/Release] Stop Shutter	Release -> Stop Shutter
26, 32	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
33	1 Byte	I	C - W - -	DPT_SceneNumber	0 - 63	[Motion Detector] Scene Input	Scene Value
34	1 Byte		C - - T -	DPT_SceneControl	0-63; 128-191	[Motion Detector] Scene Output	Scene Value
35, 64	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Ix] Luminosity	0-100%
36, 65	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Open Circuit Error	0 = No Error; 1 = Open Circuit Error
37, 66	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Short Circuit Error	0 = No Error; 1 = Short Circuit Error
38, 67	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Ix] Presence State (Scaling)	0-100%
39, 68	1 Byte	O	C R - T -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Ix] Presence State (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
40, 69	1 Bit	O	C R - T -	DPT_Switch	0/1	[Ix] Presence State (Binary)	Binary Value
	1 Bit	O	C R - T -	DPT_Start	0/1	[Ix] Presence: Slave Output	1 = Motion Detected
41, 70	1 Bit	I	C - W - -	DPT_Window_Door	0/1	[Ix] Presence Trigger	Binary Value to Trigger the Presence Detection
42, 71	1 Bit	I	C - W - -	DPT_Start	0/1	[Ix] Presence: Slave Input	0 = Nothing; 1 = Detection from slave device
43, 72	2 Bytes	I	C - W - -	DPT_TimePeriodSec	0 - 65535	[Ix] Presence: Waiting Time	0-65535 s.
44, 73	2 Bytes	I	C - W - -	DPT_TimePeriodSec	0 - 65535	[Ix] Presence: Listening Time	1-65535 s.
45, 74	1 Bit	I	C - W - -	DPT_Enable	0/1	[Ix] Presence: Enable	According to parameters
46, 75	1 Bit	I	C - W - -	DPT_DayNight	0/1	[Ix] Presence: Day/Night	According to parameters
47, 76	1 Bit	O	C R - T -	DPT_Occupancy	0/1	[Ix] Presence: Occupancy State	0 = Not Occupied; 1 = Occupied
48, 77	1 Bit	I	C - W - -	DPT_Start	0/1	[Ix] External Motion Detection	0 = Nothing; 1 = Motion detected by an external sensor
49, 54, 59, 78, 83, 88	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Ix] [Cx] Detection State (Scaling)	0-100%
50, 55, 60, 79, 84, 89	1 Byte	O	C R - T -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Ix] [Cx] Detection State (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
51, 56, 61, 80, 85, 90	1 Bit	O	C R - T -	DPT_Switch	0/1	[Ix] [Cx] Detection State (Binary)	Binary Value
52, 57, 62, 81, 86, 91	1 Bit	I	C - W - -	DPT_Enable	0/1	[Ix] [Cx] Enable Channel	According to parameters
53, 58, 63, 82, 87, 92	1 Bit	I	C - W - -	DPT_Switch	0/1	[Ix] [Cx] Force State	0 = No Detection; 1 = Detection
93, 97	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00° - 670433.28°	[Ix] Current Temperature	Temperature Sensor Value
94, 98	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Overcooling	0 = No Alarm; 1 = Alarm
95, 99	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Overheating	0 = No Alarm; 1 = Alarm

96, 100	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Probe Error	0 = No Alarm; 1 = Alarm
101	1 Byte	I	C - W T U	1.xxx	0/1	[Access] Room State Indicator	0 = Normal; 1 = Make Up Room; 2 = Do Not Disturb
102	1 Byte	O	C R - T -	1.xxx	0/1	[Access] Room State	0 = Normal; 1 = Make Up Room; 2 = Do Not Disturb
103	1 Bit	O	C R - T -	DPT_Bool	0/1	[Access] Room State: Make Up Room (Status)	0 = No Active; 1 = Active
104	1 Bit	O	C R - T -	DPT_Bool	0/1	[Access] Room State: Do Not Disturb (Status)	0 = No Active; 1 = Active
105	1 Bit	I	C - W T U	DPT_Enable	0/1	[Access] Room State: "Make Up Room" State Availability	0 = Not Available; 1 = Available
106	1 Bit	I	C - W T U	DPT_Occupancy	0/1	[Access] Presence: Occupancy State	0 = Not Occupied; 1 = Occupied
107	1 Bit		C - - T -	DPT_Trigger	0/1	[Access] Request Date and Time	Make Request
108	8 Bytes	O	C R - - -	DPT_DateTime		[Access] Date and Time (Status)	Current Date and Time
109	14 Bytes	O	C R - T -	DPT_String_8859_1		[Access] Access Log	Access Log Data
110	2 Bytes	O	C R - T -	DPT_LanguageCodeAlpha2_ASCII		[Access] Language	User Language
111	4 Bytes	O	C R - T -	1.xxx	0/1	[Access] Locale	User Locale (ISO 639-1/ISO 3166-1 Four Letters Code)
112	1 Bit		C - - T -	DPT_Ack	0/1	[Access] Offline Access	Notify Offline Access
113	1 Bit	I	C - W - -	DPT_Ack	0/1	[Access] Welcome Scenes: Trigger	0 = Send Welcome Scene
	1 Bit	I	C - W - -	DPT_Ack	0/1	[Access] Welcome Scenes: Trigger	1 = Send Welcome Scene
114	1 Bit	I	C - W - -	DPT_DayNight	0/1	[Access] Welcome Scenes: Day/Night	0 = Day; 1 = Night
	1 Bit	I	C - W - -	DPT_DayNight	0/1	[Access] Welcome Scenes: Day/Night	1 = Day; 0 = Night
115	1 Bit	I	C - W - -	DPT_Ack	0/1	[Access] Welcome Scenes: Guest First Access	1 = Guest First Access
116	1 Bit	I	C - W - -	DPT_Bool	0/1	[Access] Check-in/Check-out	0 = Check-out; 1 = Check-in
117	1 Bit		C - - T -	DPT_Switch	0/1	[Access] Guest/Employee Access	0 = Employee; 1 = Guest
	1 Bit		C - - T -	DPT_Switch	0/1	[Access] Guest/Employee Access	0 = Guest; 1 = Employee
118	1 Bit		C - - T -	DPT_Trigger	0/1	[Access] Floor Always Accessible Trigger	Trigger Sending When Granted Access in Elevator
119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138	1 Bit		C - - T -	DPT_Trigger	0/1	[Access][X] Floor X Trigger	Trigger Sending When Access to Floor X

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