User Manual

EN54-16 and EN54-4 Voice Alarm and Public Address
Certified System LDA ONE

SAFETY INSTRUCTIONS

Please read these safety instructions carefully.

1 Save this user manual for future reference.

2 Power connectors must be accessible for disconnection and where people cannot step on or trip. Disconnect the equipment from the AC/DC (AC) outlet before cleaning it.

3 The appliance must not be exposed to falling water or splashes and no liquid-filled objects should be placed on the appliance. Do not use liquid or spray detergent for cleaning. Do not expose this equipment to wet areas.

4 Bare flame sources, such as burning candles, should not be placed on the appliance.

5 Install this equipment on a secure surface. If you do not place the equipment on a safe surface, it may fall and be damaged.

6 The roof grilles are used for convection of air. DO NOT COVER THE GRIDS. Leave 5 cm of gap in front and on the sides for proper ventilation.

7 Never open the device. For safety reasons, the team should only open it with qualified personnel.

8 The equipment must be connected to a protective ground outlet.

9 Pay attention to the connection polarity when operating the equipment with a DC (DC) power supply. The reverse polarity connection may cause damage to the equipment, or to the power supply.

10 If any of these situations arise, let the technical staff check the equipment:

   a) The power cord or plug is damaged.

   b) Liquid has infiltrated the inside of the team.

   c) The equipment has been exposed to moisture.

   d) The equipment has not worked well or does not work properly following the instruction manual.

   e) Equipment has fallen off and is damaged.

   f) If the equipment has obvious signs of damage.

11 Wiring should be done only by trained personnel. Disconnect the audio inputs and outputs while making connections or disconnect the equipment from power. Make sure you use the right cables to make connections.

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1 INTRODUCTION

LDA ONE PA/VA family is certified according to EN 54-16 and EN54-4 requirements, ensuring safe and controlled emergency evacuation. Its high performance, versatility and audio quality make it a powerful and cost-effective music and voice distribution system for all types of installations. This User Manual applies to ONE500 and ONE-150. To identify the version of your ONE-500**,** please refer to chapter **¡Error! Marcador no definido.**.

Range of products and accessories for ONE:

- **ONE500**. Scalable VA central unit
    - **ONELOOP**. Expansion card for multi-device scalable systems
- **ONE-150**. VA central unit
- **ONE-BC1**: Battery management module according to EN54-4
- **TFL-2**. Speaker Line Terminator
- **MPS-8Z**. Expandable 8-zone microphone station
- **VAP-1**. Voice Alarm Panel with optional zone selection
- **ONE-PTT**. Push-to-talk microphone installation kit

Other accessories:

- **ONE-WMA** wall mount brackets and **ONE-RMA** for rack

1.1 ONE-500 System features

Each ONE unit consists of an EN54-16 system capable of controlling up to 6 zones and delivering a maximum total power of 500W. In addition, larger systems can be created by linking multiple ONE unit, allowing control of up to 60 zones with a total power of up to 5000W.

Characteristics of each ONE unit:

- Up to 6 zones
- 6 amplified audio outputs for speaker lines
- 4 pre-amplified audio outputs
- 3 physical audio inputs, 2 of them with dynamic request for speech
- 1 internal mixer capable of generating an additional MIX source from the 3 physical inputs
- ACSI port for connection of up to 8 microphones or fire panels
- PTT microphone port, with emergency microphone functionality
- Internal memory for evacuation and alert messages, organized in 2 independent playlists
- Interface for connection to fire stations (ECI / CIE):
    - General emergency activation and reset inputs Zonal emergency activation inputs
    - Emergency and fault status outputs RS485 / Modbus serial integration port
- 6 attenuator override outputs (24V override)

ONE Extended System Features:

- Connection of up to 10 ONE devices with redundant communication link
- Up to 60 zones
- ACSI port for connections of up to 8 microphones or fire panels, with access to all zones of the scalable system

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- Global PTT microphone with access to all the zones in the scalable system and emergency microphone function
- Monitoring of the emergency system from any ONE unit
- Manual control of the evacuation system from any device or fire panel in the system
- Distribution of global audio sources, generated from the main unit:
    - System-wide audio distributed from the MIX of the main unit to other units of the system
    - ACSI and PTT microphones and fire panels, both for public address and evacuation operations
- In addition to the integrated functions, each unit meets the mandatory requirements of the EN54 standard and includes its own independent features:
    - Independent emergency messages
    - Emergency activation inputs per zone
    - Independent emergency power supply
    - For public address use, each unit includes 1 audio input for music (Input 3) and 1 priority microphone input (Input 1)
    - Input 2 receives the audio from the main unit and forwards it to the next unit

1.1.1 Scalable ONE-500 system diagram

The system will always consist of a main unit, which receives the connection to the ACSI bus and its devices. Optionally, a ONE-500 system may consist of more than one unit. In this case, the first unit must have a redundant system link card (ONEL-OOP) installed in its expansion bay. For more information about the connection and configuration of these systems, refer to sections 2.2.12 and 3.5 respectively.

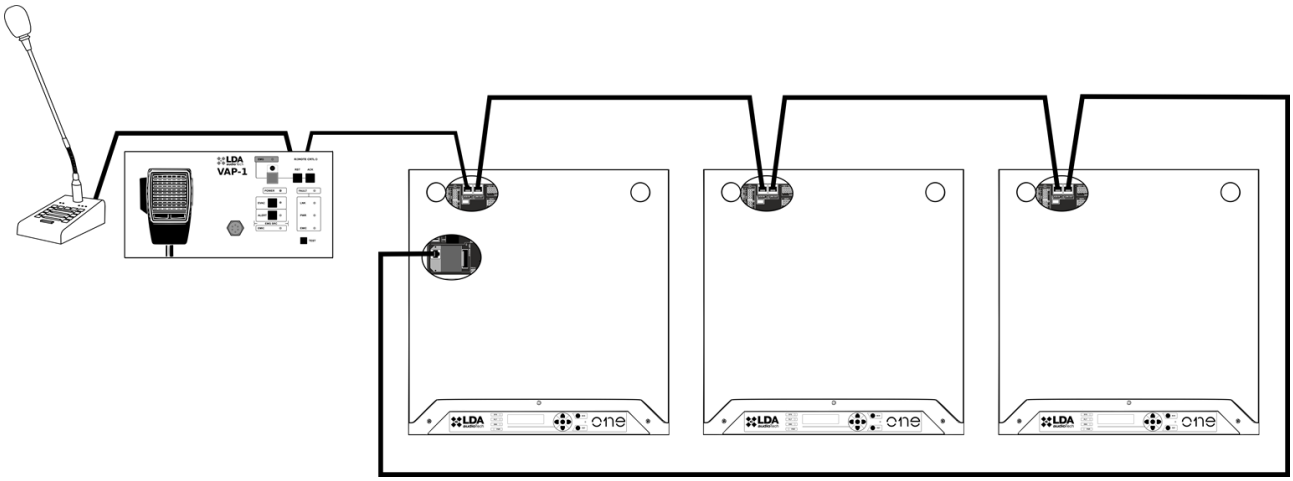

Figure 1: Example of a system with 3 units

1.2 ONE-150 System features

Like the ONE-500, the ONE-150 consists of an EN54-16 system capable of controlling up to 2 zones and delivering a maximum total power of 150 W.

Features of each ONE unit:

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- Up to 2 zones
- 2 amplified audio outputs for speaker lines
- 2 pre-amplified audio outputs
- 3 physical audio inputs, 2 of which include dynamic talk activation
- 1 internal mixer capable of generating an additional MIX source from the 3 physical inputs
- ACSI port for connection of up to 8 microphones or fire panels
- PTT microphone port with emergency microphone functionality
- Internal memory for evacuation and alert messages, organized into 2 independent playlists
- Interface for connection to fire control panels (ECI / CIE):
    - General emergency activation and reset inputs
    - Zonal emergency activation inputs
    - Emergency and fault status outputs
    - RS485 / Modbus serial integration port
- 2 attenuator override outputs (24 V override)

1.3 Hardware and firmware versions

To ensure correct system operation, the firmware version installed is checked before performing any update or intervention on the equipment. The use of incompatible firmware versions may cause incorrect system operation.

It is recommended to periodically verify that the equipment has the latest firmware version available on the Support website.

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1.3.1 ONE-500

The ONE-500 model is compatible with firmware versions **v03.xx.xx.00.**

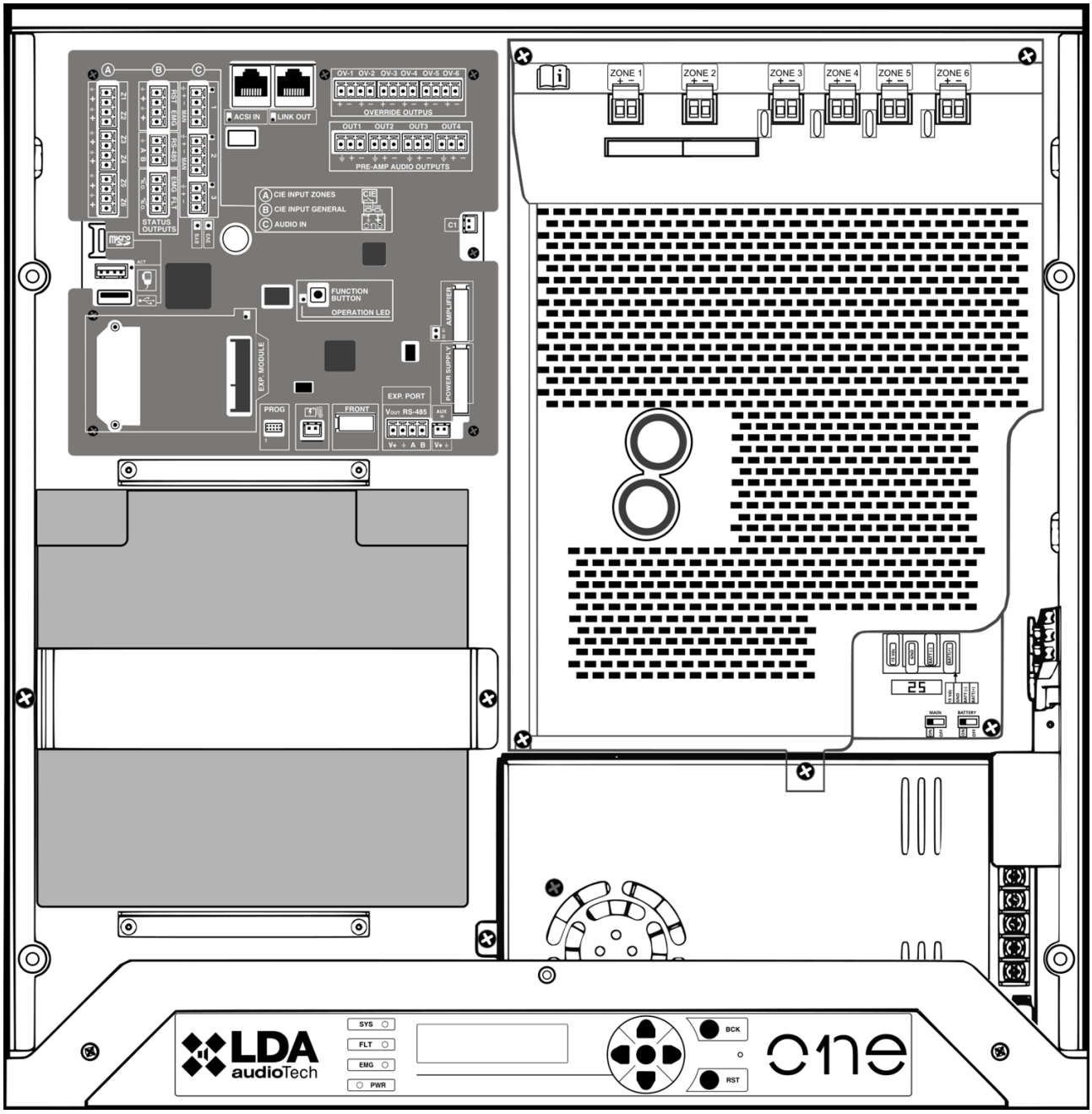

Figure 2: ONE-500 Inside view

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1.3.2 ONE-150

The ONE-150 model is compatible with firmware versions **v03.xx.xx.01.**

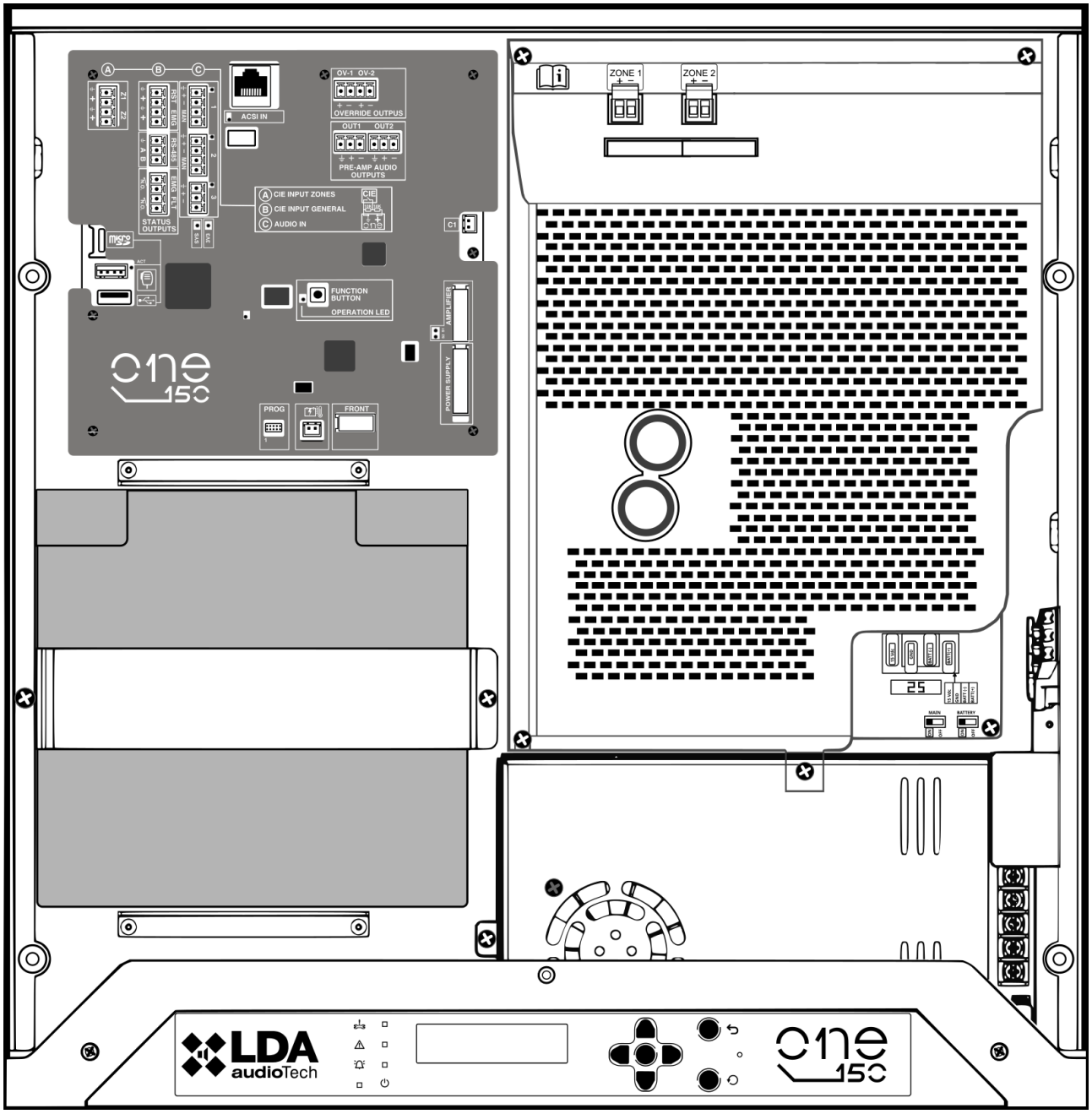

Figure 3: ONE-150 Inside view

1.4 User interface description

The device includes a manual control interface that acts as an information and control point for the system user. Figures 3 and 4 show this interface for the ONE-500 and ONE-150 systems respectively. This interface is described in the following sections.

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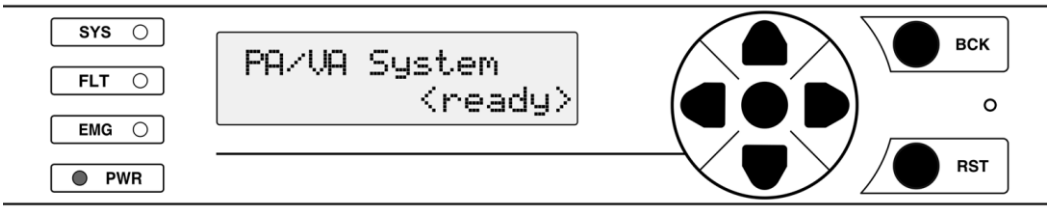

Figure 4: ONE-500 control panel

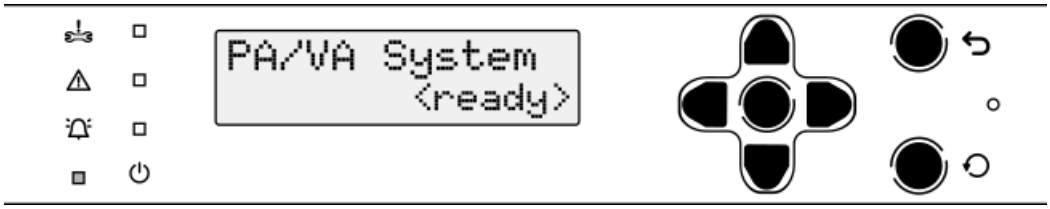

Figure 5: ONE-150 control panel

1.4.1 Status indicators

The status indicators show at all times the operating condition of the device or system. They are located on the left side of the display.

(a) PWR: “POWER”. Green

On: when the device is powered from any available power sources.

(b) EMG: “EMERGENCY”. Red

On: when the system is in an emergency state (voice alarm), whether triggered manually or automatically from the CIE (Control and Indicating Equipment) from any of the zonal emergency inputs.

At the same time, a continuous audible warning is emitted, which can be silenced using the BCK button.

(c) FLT: “FAULT”. Amber

On: When the system is in fault condition. This indicator is automatically activated when a fault is detected in any supervised function.

At the same time, an intermittent audible warning is emitted, which can be silenced using the BCK control or automatically when using the emergency microphone.

(d) SYS: “SYSTEM FAULT”. Amber

On: when a fault occurs in the execution of the device firmware of the unit, or in its memory. Reset the fault condition. If the problem persists, refer to section 5.1.7.

1.4.2 Alphanumeric display

Display based on a 2-line, 16-character alphanumeric screen.

It allows displaying the device configuration menus and provides extended system information not shown by the status indicators, such as zonal emergency and fault conditions.

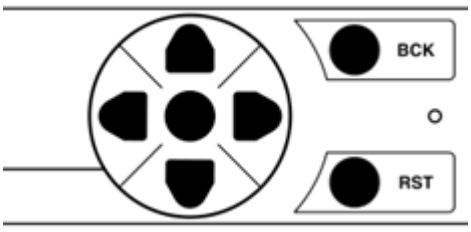

Figure 6: Interface buttons

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(e) Navigation controls

Located to the right of the display. They allow navigation through the operating and configuration menus. The **central button** corresponds to the **ENTER/OK** function, used to access menus and confirm operations.

(f) Direct access controls

- **OK/ ENTER:** Press for 2 seconds to perform the indicators test.
- **RST/ RESET:** Press for 2 seconds to reset the system operating condition, when it is in an emergency or fault state.
- **BCK/ BACK:**
    - Menu navigation: moves one level up or goes back. When pressed for 3 seconds, it returns to the initial screen and resets the access level (log-out). It silences the acoustic warning (ACK function)

1.5 User profiles. Access level. Passwords

Access levels define the different user profiles that can operate the device or system. Each level includes permission for different menu options, with level 1 being the lowest access level and level 5 the highest.

Access levels allow:

- Level 1 (L1): EN54-compliant indication and PA system use[1]
- Level 2 (L2): System management and emergency functions. Password[2]: **0002**
- Level 3 (L3): System configuration and advanced functions. Password[2]: **0003**
- Levels 4 and 5 (L4 and L5): Manufacturer access only.

Each screen requires the corresponding access level. A user with a higher level can access lower-level functions.

To access a certain level or to configure the access mode, use the Login menu (see section 3.4). Access can be granted either by confirmation or by entering a 4-digit password.

The login remains valid for 5 minutes. This time can be reduced by pressing the BCK button for 2 seconds, returning to the initial screen with a level 1 user.

[1]PA Lock: A password access can be optionally configured for PA controls (volume, routing, etc.). See section 3.4.

[2]This is your default password, which can be modified using the corresponding configuration menu (see section 3.4).

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2 INSTALLATION INSTRUCTIONS

The device allows **wall** or **rack** installation in vertical or horizontal orientation Installation accessories are available to facilitate mounting. To fix the device to the brackets, installation is carried out from the outside of the enclosure. First, 4 of the 8 screws located on the outer corners of the device are removed.

For each pair of screws, remove the one closest to the side where the bracket is to be installed. The mounting brackets are inserted into the corresponding slots and secured using the screws, preventing the device from falling

NOTE: In Australia, cable terminations and internal wiring must comply with the relevant sections of AS/NZS 3100 and AS/CA S009 standards.

NOTE: Most of the images in this manual refer to the **ONE-500** model. Minor visual or functional differences may exist compared to the **ONE-150** model, without affecting the procedures described.

2.1 Change of orientation

To change the orientation, after removing the device cover, remove the 4 screws securing the front panel to the chassis.

This releases the front panel, which can be repositioned so that the controls remain accessible according to the final installation orientation.

Figure 7: Front fixing and interior view

2.2 Inputs and outputs

The enclosure includes 9 pre-cut openings for cable entry and exit, which can be easily removed using a flat-head screwdriver.

- 7 openings of Ø 34 mm, compatible with metric M32 × 1.5 or PG29 fittings
- 2 openings of Ø 17 mm, compatible with M12 × 1.5 or PG9 fittings

For proper installation, the wiring is protected and securely fixed.

2.2.1 Power supply

The device includes redundant power supply in accordance with EN54-4 through the battery charger accessory.

The AC input range is universal **90-240 V~** at a frequency of 50 or 60Hz.

The backup power supply source consists of an internal battery.

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(a) Mains main input, AC power

Power is connected by direct internal wiring to the device, so connection is always made through a **disconnection** element that cuts both poles.

It is recommended to label it with the indication "Evacuation system, do not disconnect".

To handle the device, the external power supply is disconnected.

A 3-pole connector is provided for cables from 1.5 to 2.5 mm², marked for Phase, Neutral and Ground. The cable can be inserted and removed using the push button.

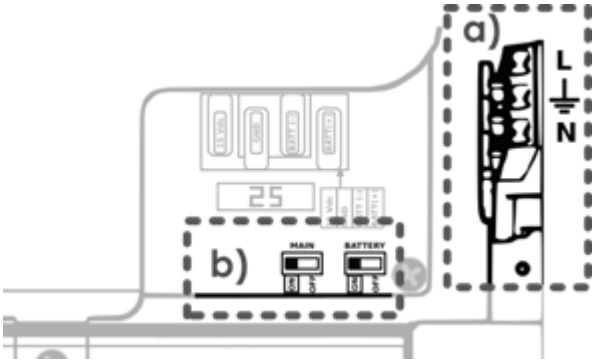

Figure 8: a) Power connections

(b) Disconnection switches

These switches cut the power supply from both the main and the battery.

They help prevent the risk of sparks when connecting the battery or fully restarting the device.

2.2.2 Battery installation

Before installing the battery, disconnect the main power supply. It is also recommended to use the off **switches** (image). This allows safe battery installation, preventing possible unintentional short circuits.

Additionally, there is a 25 A safety fuse provided for the battery input, located on the power supply board.

The available space is designed for 12 V batteries with a maximum size of 167 (height) × 181 (width) × 76 (depth) mm of sealed lead-acid type. The installed model must comply with the corresponding battery standard:

For example, EN 60896-21/22 and EN 61056. In case of valve-regulated lead-acid batteries, the device must be installed in a place with ventilation (<0.003 m³/h.)

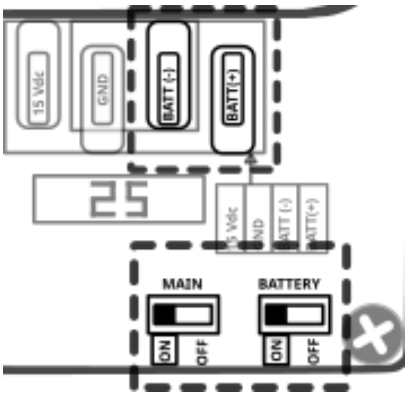

Figure 9: Power (mains & battery) connections and power-off switches

Autonomy: The consumption in standby is 0.45 A per hour. The consumption during evacuation is 5 A for 30 minutes. Example: With the **YUASA NP17-12I** battery we have 17 Ah are available to cover 24 hours in standby plus 30 minutes in evacuation.

Battery connection and fixing:

Release the fixing bracket and remove the cable tie used for transport.

Connect one end of the cables to the power supply board, as shown in Figure 7, and the other end to the battery, ensuring that the positive and negative terminals are correctly connected.

Once connected, place it in its position and screw the fixing bracket.

NOTE: The battery should **never** be inverted once **installed**.

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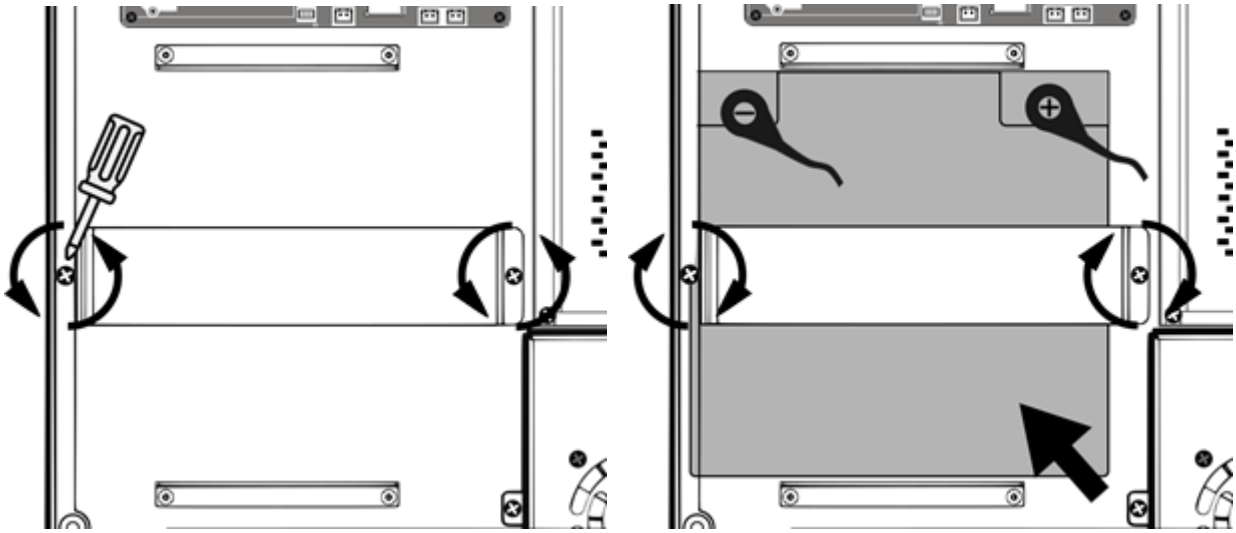

Figure 10: Battery installation

2.2.3 Fire Panel Interface

The emergency activation interface allows interconnection with fire control and indicating panel (**CIE**).

All input connections are supervised against line faults. This interface is made up of four sections.

The connection is made using female euroblock connectors supplied with the device. The cable section range for each pole is: 0.14 → 1.5mm² (30 → 14 AWG).

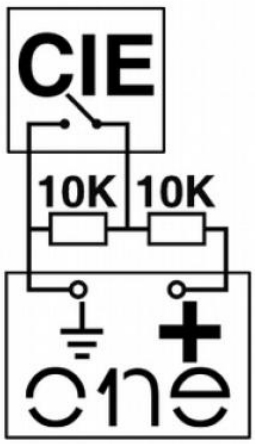

Figure 12: Connection to Supervised ECI

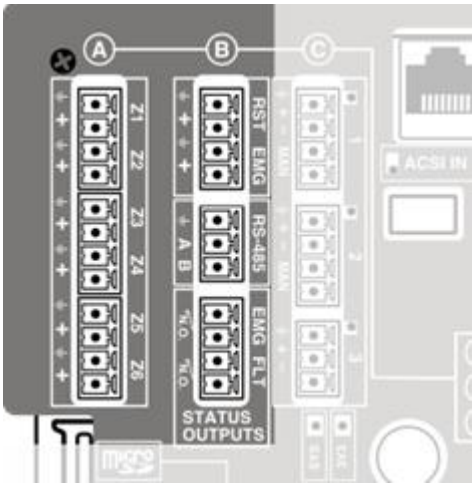

Figure 11: Interface for ONE-500 Fire Control Panel

The inputs are activated when a contact closure is detected with the specified supervisory load. (**N.O. = normally open**). See chapter on manual configuration for other options and operating modes (section 3.3.7).

(a) General emergency control inputs: RST and EMG

Supervised inputs for connection of voltage-free contacts closures (**N.O.**): **Reset (RST)** and **Emergency (EMG)**.

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To ensure supervision of the link, wiring is carried out using shielded cable with two external 10KΩ resistors (supplied with the device) placed at the exit of the fire panel as indicated in figure 9.

Default operation: When the general emergency input (**EMG**) is activated by a contact closure (0V), the device automatically switches operating mode, activating the emergency state and broadcasting evacuation message to all zones. When the reset input (**RST**) is activated, the device exits the emergency mode and returns to idle (**PA**).

NOTE: When a system reset is made through the RST input, it will not be possible to return to emergency until a few seconds have passed.

(b) Zonal emergency activation inputs (Z1 - Z6)

They operate in the same way as the general inputs.

Default function: When an input Zx is activated, the system enters emergency state and messages are broadcast in that zone. Deactivating the closure will stop message playback, and a reset operation will be required to return to idle or PA mode.

(c) Status outputs. EMG and FLT status outputs

Dry contacts are intended for connections to fire panels or other external monitoring devices. They will indicate if the device is in emergency or faulty when they are closed. (**N.O.**)

They allow a maximum current of 350 mA and a maximum voltage of 350 V.

(d) RS-485 / MODBUS interface

RS-485 half-duplex communication port for integration with external systems. Connection requires 2 twisted wires (A, B) plus a GND wire.

Itoperates using the MODBUS RTU protocol and allows integration of the system with others such as fire detection panels. This is an advanced function of the device. To learn more, please consult the specific advanced manual, available on the LDA Support website.

2.2.4 Speaker line outputs

The ONE-500 device includes 6 amplified outputs for speaker lines. The total device power, 500 W, can be distributed among its outputs according to the installation design, without exceedingly either the maximum limit of the device or the limit of each output: outputs 1 and 2 up to 500 W; outputs 3, 4, 5 and 6 up to 120 W. The ONE-150 device includes 2 amplified outputs for speaker lines. It has a total power of 150 W, which can be distributed among its outputs without exceeding the maximum limit of the device.

Each connection has two terminals, + and –, for connecting speakers in 100 V or 70 V public address lines.

The speaker lines can be supervised by measuring their impedance, thus allowing the detection of possible faults according to the EN54 standard. It must be taken into account that, for correct supervision, the use of volume controllers is avoided, and each line must have an impedance within the measurement range (below 600 Ohms).

The line measurement is performed by default at a frequency of 19KHz. The use of **TFL-2** line terminators is **recommended** to stabilize line conditions in this range and improve supervision results.

The lines are connected consecutively from output 1 onwards. Example: If 4 lines are used, outputs 5 and 6remain unused.

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The connection is made using a 2-pin female euroblock connector and a 5.08mm pitch (supplied with the device). The cable section range for each pole of this connector is: 0.5 → 2.5mm² (22 → 12 AWG).

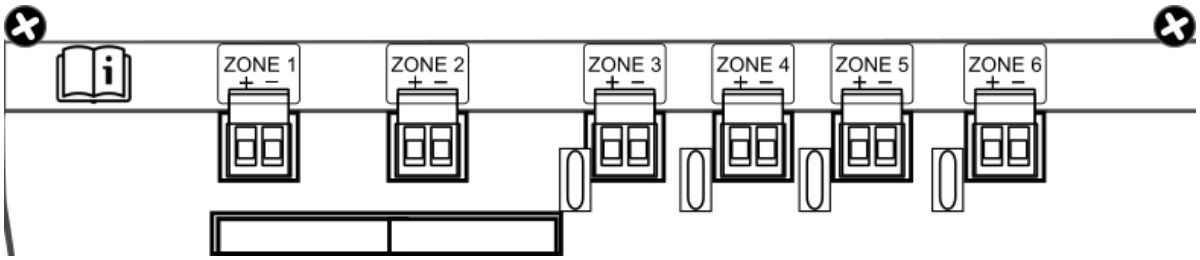

Figure 13: ONE-500 Speaker line outputs

NOTE: Output voltage up to 100V can be dangerous, so correct **insulation** of the speaker lines must be ensured. Check that there are no short circuits, false contacts or earth leakage in any of its wires with an impedance meter (remember that conventional multimeters are not efficient). For more information, more specific documentation on impedance measurement can be consulted on the LDA Support website.

(e) Backup amplifier:

ONE has two amplifiers and an output matrixing system. Each ONE outputs can have 3 different sources: amplifier 1 (audio 1), amplifier 2 (audio 2) and mute (no audio).

Each amplifier acts as backup for the other unit without requiring any additional configuration. However, as long as no problem occurs, both remain available and 2 simultaneous audio sources are allowed in the device.

When an amplifier fault occurs (e.g. Amp1), the system automatically readjusts the routing by assigning the remaining operational amplifier (e.g. Amp2) to the highest priority audio source (e.g. evacuation message). In this way, the most important audio source is prioritized during matrixing and gain access to the available amplifier over less important sources (e.g. BGM background music). Zones that have lost use of the amplifier switch muted.

NOTE: For more information about PA and VA priority management, refer to sections 3.7.2 and 4.2.7 respectively.

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2.2.5 Audio source inputs

The system includes **3 inputs** for background music and/or microphones. For further details, see the audio inputs configuration, section 3.3.1.

An audio signal LED indicator is located next to each input and is activated when the signal exceeds -40 dBV.The audio input connection is made using euroblock connectors that allow cable sections from 0,14 → 1,5mm² (30 → 14 AWG). Input impedance 10Kohm.

(f) Inputs 1 and 2

Inputs for background music or priority signal.

Activation is performed by dry contact closure, TTL signal to GND, or audio signal level, with zone routing configuration. Input level is 1 Vrms. Balanced audio.

(g) Input 3

This input is intended only as a background music input, BGM, as it does not have an activation trigger. Input level is 1 V RMS, balanced audio input.

(h) Input 4. Internal mixer

An input is provided without an external connector, as it is a mixer integrated into the DSP that uses a configurable combination of the 3 previous inputs.

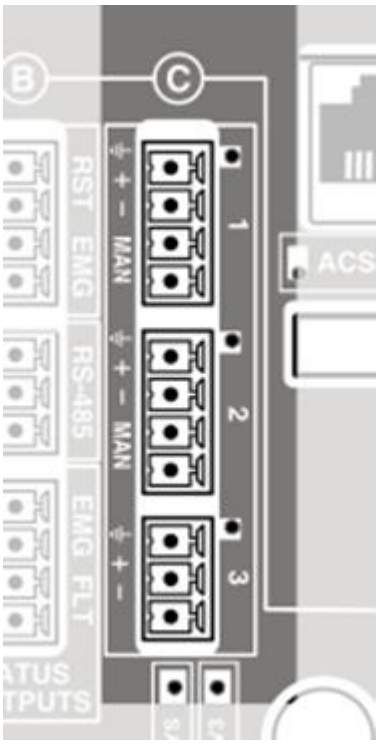

Figure 14: ONE-500 audio source inputs

2.2.6 PTT Mic input

A physical input is provided for connection of a PTT microphone with emergency microphone function.

It physically shares the audio with Input 1, therefore **when PTT operation is enabled, the use of Input 1 is blocked**.

Additionally, in the default configuration of the device, the PTT has audio compression and equalization functions enabled to optimize its sound response. All aspects related to the installation and configuration of a PTT microphone in the system are described in detail in section 3.3.1(d).

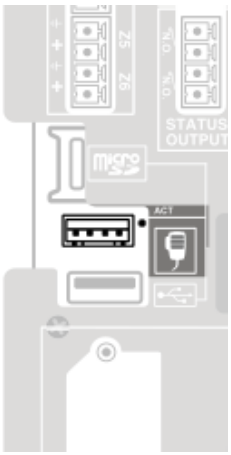

Figure 15: PTT Mic Input

2.2.7 ACSI devices and microphones input

This input allows the connection of up to 8 compatible devices, such as **MPS-8Z** microphones or **VAP-1** emergency panels.

The ACSI input integrates audio, communications and power, allowing emergency devices to be powered directly from the main or backup power supply, both integrated in the device.

Connection is made using a shielded **FTP** network cable with **T568B** standard. The connection is made in bus topology, with a maximum connection length of **1000 m**.

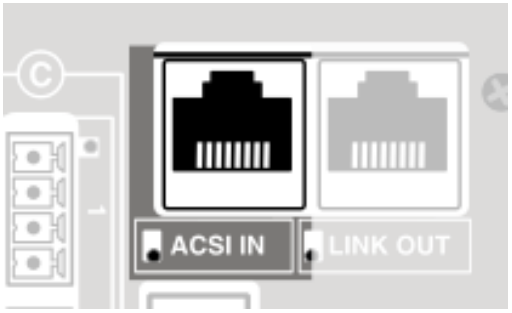

Figure 16: ACSI-IN Port

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This input includes a signal LED indicator for audio testing and a status LED that indicates that devices are connected.

In scalable systems with multiple ONE-500 units, this input changes its functionality in devices that are not in the first position, becoming used for connection between different ONE-500 devices. This mode of operation is described in more detail in section 2.2.12.

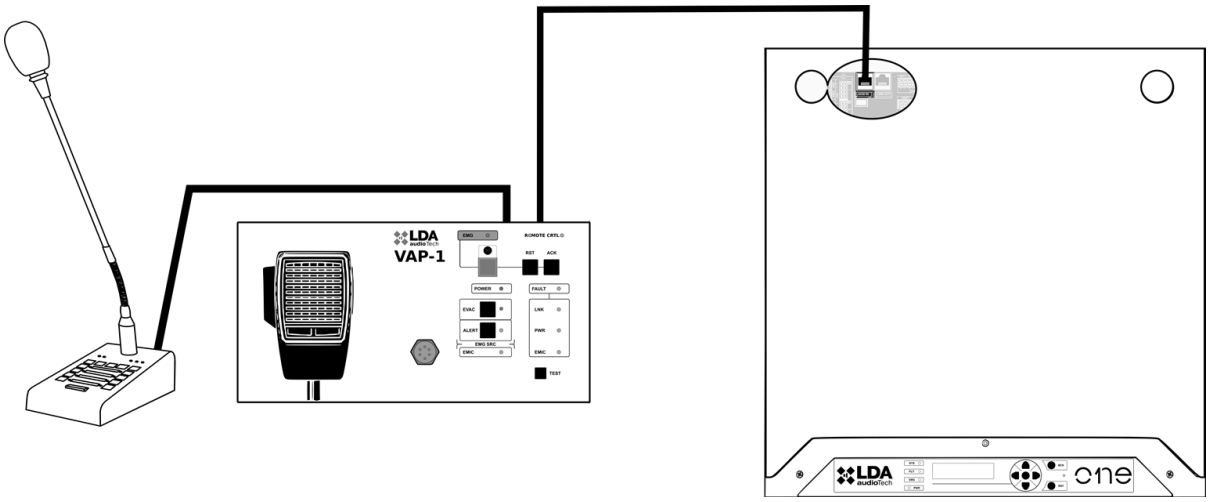

Figure 17: Example of ACSI Device Connection

2.2.8 System expansion output. LINK-OUT

Available only in ONE-500.

The LINK-OUT port provides the interface required for system expansion between multiple devices.

This connection internally includes a serial communications bu for control data and 2 audio channels for distribution of the global audio sources, generated by the system main unit; all over the same cable.

Connection is made by a shielded **FTP** network cable with **T568B** standard, with a maximum connection length between devices of **200 m.**

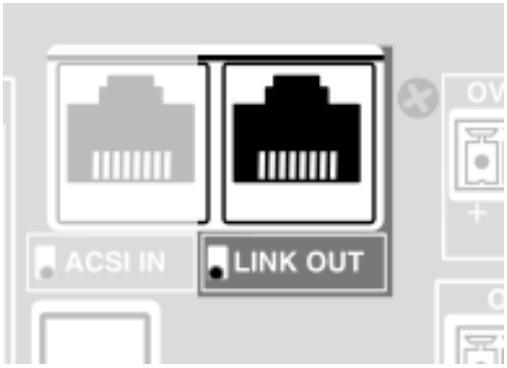

Figure 18: ONE-500 LINK-OUT Port

2.2.9 Pre-amplified audio outputs. PRE-AMP OUTPUTS

4 outputs are available in ONE-500 and **2 outputs** in ONE-150, at line level (1 Vrms) for connection to external devices such as backup amplifiers. These outputs can be configured to provide the same audio as the zones or to be used as a recording output for microphone messages during evacuation.

Connection is made using 3-contact euroblock connectors with 3.81 mm pitch (supplied with the device). The cable section range for each pole of this connector is: 0.14 → 1.5mm² (30 → 14 AWG). The maximum output load is 10 kΩ.

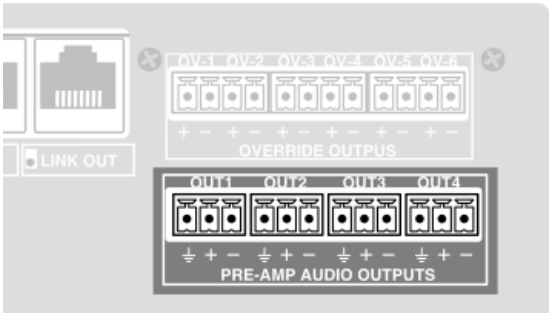

Figure 19: ONE-500 preamplified outputs

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2.2.10 Attenuators override output. OVERRIDE 24V

On the control board, **6 outputs** are available in ONE-500 and **2 outputs** in ONE-150 for attenuator override in public address lines. In idle state, each output voltage is 0V. In active state, each output provides a voltage of **24 VDC** and **a** maximum current of **20 mA.**

Connection is made using 2-contact euroblock female connectors with 3,81 mm pass (supplied with the device). Cable section range for each pole of this connector is: 0,14 → 1,5mm² (30 → 14 AWG).

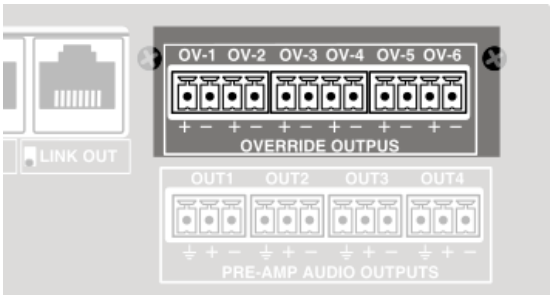

Figure 20: ONE-500 attenuators override output

2.2.11 Internal connections

Several internal connection ports are provided for internal wiring; some of them must never be handled by the user.

(a) MicroSD card connector

This connection is used for system software expansion, such as installation of the EN54-4 battery charger.

(b) MIC PTT

Input port for PTT microphones (push to talk). It allows connection of the **ONE-PTT** accessory (for more information see sections 2.2.6 and 3.3.1).

(c) USB

USB type A connector for connection of external storage that allows message import, firmware update, and configuration or log import and export.

(d) Expansion bay

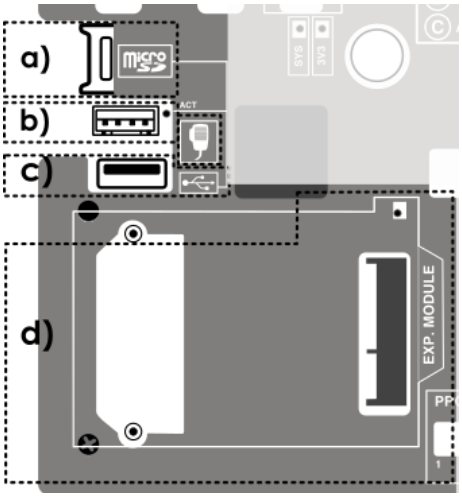

Figure 21: Other internal connections

Available only in ONE-500.

Expansion slot for connection of boards that allow extending the functionality of ONE-500 devices. of cards allowing the expansion of system functionality. For example, the ONELOOP accessory is installed here, enabling the creation of scalable systems with multiple ONE-500 units. Figure 21 shows how to install it in this bay.

(e) RS485 expansion port

Available only in ONE-500.

RS-485 communication and power port for future device expansion. It currently has no use and is reserved for future versions. **Do not connect anything.**

(f) AUX IN

Internal power input for future device expansion. It currently has no use and is reserved for future versions. **Do not connect anything.**

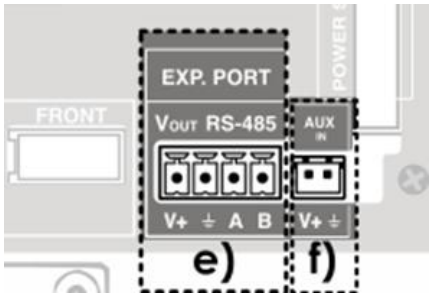

Figure 22: ONE-500 other internal connections

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2.2.12 Connecting expandable systems

There is the possibility to create scalable ONE-500 systems formed by several devices. For this purpose, installation of an **ONE-LOOP** board in the expansion slot of the first device is required, as shown in the figure 21.

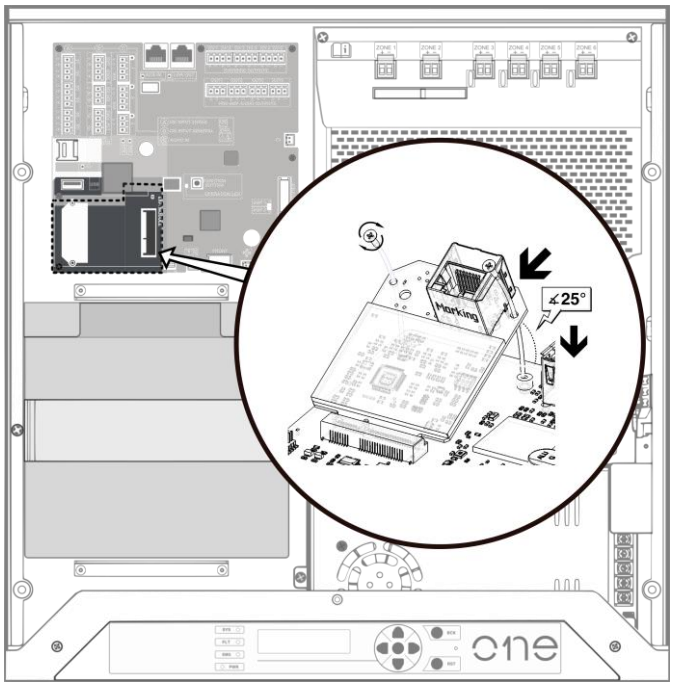

Figure 23: ONE-LOOP board installation

This board has a dual function: enabling scalable system features and providing an additional port to perform a return connection (LOOP) from the last device in the network to the first one. The number of devices that can be grouped in the same system is limited by the ONE-LOOP board model installed, with a **maximum of 10 devices**.

Devices are connected in chain topology so that each unit has a physical connection with its predecessor and successor on the bus. The LINK-OUT port of each device is connected to the ACSI-IN input of the next device on the bus. This applies to all units except the last device, where the connection is made from its LINK-OUT port to the LOOP port provided by the expansion board of the first device.

All these connections are made using **shielded FTP network cable or Cat 5E (or higher) with T568B standard pinout**. **standard**

NOTE: The sum of the distance between all devices in the system must not exceed 800 m

The order of device placement is important since, when forming the system, **zone numbering is assigned consecutively** starting from the main device and counting the zones previously installed and configured in each device.

Figure 22 shows an example of a system connection, consisting of 3 ONE-500 devices. For more information on the configuration and use of this type of system, please refer to section 3.5.

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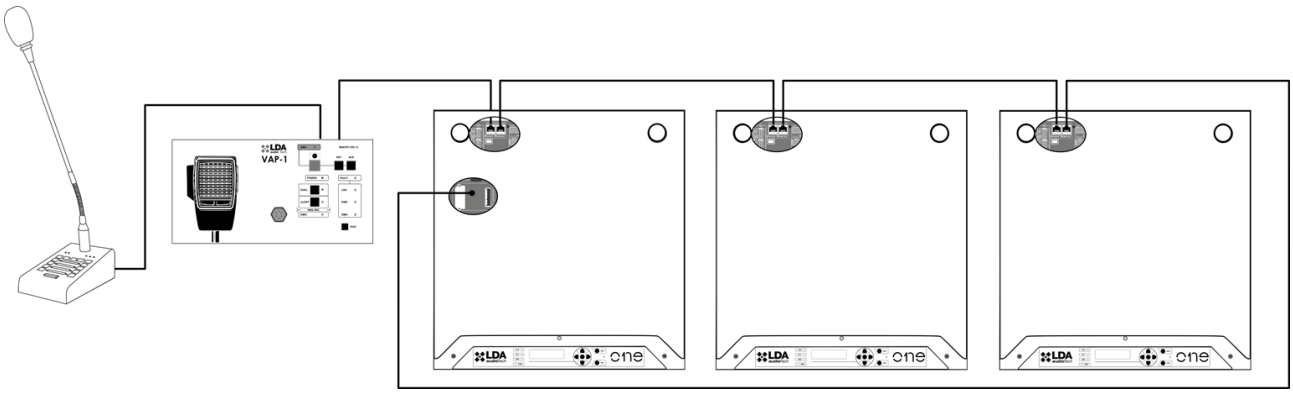

Figure 24: Example of a system with 3 ONE-500 units

NOTE: As shown in the diagram, the main device in the bus is the only one with its ACSI-IN port available for connection of microphones and other compatible ACSI devices. The remaining devices use this port to receive the connection from the LINK-OUT output of the previous unit in the bus.

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3 CONFIGURATION AND STARTUP

Once the needed connections are made, the elements and options used in the system should be configured.

3.1 Power supply

Before activating the power supply, first check the service switches that disable the AC and battery source inputs, see figure 6 b).

Connect the device to the mains, it must turn on correctly. The front power indicator lights up and the firmware version is displayed during startup, followed by the home screen.

3.1.1 Battery charger installation

Before powering the device, the battery charger activation card must be installed, if available.

The **memory card** includes battery charging software. It is installed in the microSD card connector marked as **(a)** in Figure 19. Turning on the unit, the option is loaded automatically, and charger activation and battery supervision option appears in the manual configuration menu (see section 3.3.8).

3.1.2 Device closure

Once the battery is installed and the internal connections are made, **close** and screw the device **cover** to proceed with the configuration.

3.2 Automatic Configuration. <Run Autosetup>

The device includes an automatic configuration function that allows quick setup of the system with basic parameters. Any configuration can be edited later manually. It is launched by pressing the OK button on the “Run AutoSetup” option menu: **Configuration → Device → Run AutoSetup**.

The autosetup process verifies the installed elements according to EN54 requirements by following these on-screen steps.

NOTE: The Run Autosetup function performs a **factory reset** of the device, so any previous **configurations will be erased**.

This includes the configuration of scalabe systems with ONE-LOOP. A device belonging to a system will be unlinked from it after executing Run Autosetup.

3.2.1 Languaje selection

This is the first screen that appears during the process and allows configuring the language of the device menus.

There are two available options: the default language (English) and a secondary language that depends on the firmware installed on the device. Once selected, it is applied after completing the autosetup process.

Menu screens with access level higher than L2 are not translated, so the device configuration menu remains in the default language.

In addition to menu screens with access level L2 and below, the selected language is also applied to the system logs. Therefore, these are exported, they will be displayed in the configured language.

The language can also be configured manually, as described in section 3.3.10 **¡Error! No se encuentra el origen de la referencia.**.

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NOTE: visit the support website to see the list of available languages and download the version with the desired language.

3.2.2 Evacuation messages.

Before starting the autosetup process, if the device detects that a USB memory is inserted, it asks the user whether to import pre-recorded messages from it.

If yes, it also asks whether to delete the messages already installed on the device beforehand. Section 3.3.5 details the message import process and the requirements that messages must meet in order to be copied to the device.

LDA provides a free audio file conversion tool on its Support website.

Once the messages are loaded, the user is asked to **close the cover** of the unit in order to perform calibration of the speaker lines and amplifier.

3.2.3 Advanced mode selection

When advanced mode is activated, the user is asked a series of previous questions to customize the autosetup process:

Use A/B Lines?: allows selecting the installation of speaker lines in A/B mode instead of the default single-line mode.

PTT Setup Mode: allows indicating how the PTT microphone is installed (if detected). It allows the user to choose whether it will be used only for PA, only for VA, both modes or none. By default, the microphone is installed for both operating modes (PA and VA).

3.2.4 Autosetup Execution

After completing the previous steps described, the Autosetup process execution starts, which is divided into several phases:

(a) Speaker lines and zones.

The device performs a check of the speaker lines to detect those that are installed. These must be connected in ascending order since, when the device detects a line without load or with impedance above the measurement range (**600 Ohm**), it interprets that neither that line nor the following ones are installed. To avoid this problem, a **TFL-2** line terminator must be installed so that the unit recognizes it as a line in use. All the detected zones are configured with line supervision active. This can be adjusted from the menu **Configuration -> Speaker Lines.**

When A+B mode is selected, each zone must have 2 valid consecutive A and B lines.

For example, in ONE-500 zone 1 is formed by lines 1 and 2, zone 2 by lines 3 and 4, and zone 3 by lines 5 and 6. Lines that remain unpaired when an odd number is detected remain unassigned to any zone.

NOTE (1): Volume control cannot be used with active line supervision, since the line impedance varies according to the adjusted level and generates a fault.

NOTE (2): The impedance values are measured by default at 19kHz and differ from those measured with a manual impedance meter at 1kHz.

(b) Fire control panel interface (CIE)

It checks which inputs are connected and has terminators as specified in section 2.2.3. For each detected input, link supervision is activated.

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(c) Battery

Battery management depends on the installation of the EN54-4 charger accessory.

The system checks whether **memory card** with the **charger module** license is installed. If so, it checks whether a battery is installed by measuring its internal impedance and charge voltage, which must have a **minimum value of 10.5 V.** After battery installation, supervision is activated by configuring a maximum impedance equal to **twice the value measured** during autosetup.

It is recommended to perform autosetup with the battery fully charged for more accurate monitoring. Otherwise, it is recommended to readjust this nominal battery impedance value according to the value measured once it is fully charged (see configuration “Fault Levels” in section 3.3.8).

(d) ACSI devices

ACSI devices connected during autosetup are**installed** automatically. In this way, these devices are supervised and will generate a fault signal if the connection with any of them is lost.

In case of error, check that the **address** of each device is correctly configured, that there are no address collisions, and that the bus terminator of the last device is active.

To edit this associated address, refer to the user manual of the ACSI device.

(e) Backup amplifier

The backup amplifier is **activated automatically,** and amplifier supervision is also enabled.

A fault is indicated if any of them stops working or does not provide the appropriate gain level.

(f) PTT Microphone

It is checked whether a PTT microphone is connected.

If so, the user is asked whether to install it in the device for use in PA and VA (default), only in PA, only in VA, or not install it.

(g) Setup Report

At the end of the process, the screen shows the number of detected zones, lines and ACSI devices. It also indicates whether the PTT microphone has been installed and whether Input 1 has been blocked by it. It is important to check that this matches the expected configuration. Otherwise, perform a manual configuration or resolve potential issues before a new autosetup process.

3.3 Manual configuration. <Configuration>

This menu allows the installer user to manually adjust system parameters and perform advanced diagnostics.

3.3.1 Audio Inputs. <Audio Inputs>

(a) Inputs 1 and 2 configuration

- **Vumeter**: Input audio level indicator. (from -100 to 0dBV)
- **PA Volume**: Volume adjustment in PA mode. (-100 a +12dB)
- **VA Volume**: Volume adjustment in evacuation mode from -100 to 12dB. It is activated when the system is in an emergency status.
- **Mute:** It mutes the input.
- **Eq. Enable, Eq Settings:** These controls allow you to activate and configure the input parametric equalizer.

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- **Compressor**: It activates a compressor expander to improve input dynamic range.
- **Override 24V**: When a priority input is activated, it turns on the override outputs of the zones where it is routed.
- **Trigger Mode**: These inputs can be configured with 3 trigger modes. TTL operation for normally open contact closure, noise gate (VOX) or always active (Always ON). The r trigger allows input activation of an audio source without user intervention. Their intended use is for temporary sources, such as microphones, warning systems, etc.
    - **Always ON:** Input always active. In this mode, the highest priority source occupies all zones where it is selected.
    - **TTL Contact:** It enables or disables the TTL input to close normally open contact.
    - **VOX Enabled:** It enables the signal activation system by level called VOX.
    - **VOX Threshold:** It adjusts the noise gate signal level for noise gate activated operation.
- **Label**: It allows you to customize a name for this input.

NOTE: In the configuration screen corresponding to Input 1, a message appears indicating that it is blocked if a PTT microphone is installed in the device.

(b) Input 3. Input 3

Input intended for background music.

The menu includes the same functions as Inputs 1 and 2, except for the activation parameters (Trigger Mode), since it is always active.

(c) Mixer input, Input 4 - MIX.

The mixer allows us to work with priority sources, such as microphones, without interrupting background music.

It includes functions like Inputs 1 and 2:

- **Inputs Select:** It selects which physical sources (1 through 3) can enter the mixer.
- **Inputs Volume**: It adjusts the input level of each source to the mixer.
- **Mix Fade**: It configures the attenuation of lower priority sources when a priority source is activated. Ex: Speaking into a microphone connected to Input 2, you want the music connected to Input 3 to drop -15 db.

Sources priority highest to lowest: Input 1, Input 2, Input 4 MIX, Input 3.

(d) PTT Microphone input

- **Main Config:** Audio level indicator at the input (from -100 to 0 dBV)
    - **Enable on PA**: enables the operation of the PTT Mic during the PA status
    - **Enable on VA**: enables the operation of the PTT Mic during the VA status
    - **Supervision**: Enables supervision of the PTT microphone. It checks the link status and the status of its internal capsule.**Advanced:**
        - **MIC Priority**: the priority of the PTT microphone regarding other audio sources of the system can be edited through this option.
        - **Global Mode**: it allows to configure the PTT mic as a global microphone for the whole extended system (this option is only available on the main unit of the system, see section 3.6.2).

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        - **Login Request**: enables or disables the L2 user login request when using the microphone in VA and L1 login for PA.
- **Routing Config**: Allows configuring up to 8 zone selection memories. By default, these are named “Memory n” where n is the memory index (see more details on section 3.6.3 ***¡Error! No se encuentra el origen de la referencia.***).
    - **Memory n:**
        - **Label**: the name for each memory can be configured here.
        - **Edit routing**: the zones selection for this memory can be set here.
- **Audio Config:**
    - **Vumeter**: audio level indicator for the PTT input (from -100 to 0 dBV).
    - **PA Volume**: volume level for the PTT during PA status (from -100 to +12dB)
    - **PA Volume**: volume level for the PTT during VA status (from -100 to +12dB)
    - **Eq. Enable, Eq. Settings**: to activate and configure the parametric equalizer of each input.
    - **Compressor**: activates an expander compressor to improve the dynamic range of the input.
    - **PA Override 24V**: When the PTT microphone input is activated, it also activates the override outputs of the zones where it is routed.

3.3.2 Audio Outputs. <Audio Outputs>

In this menu, amplifier outputs and preamplifier outputs are configured.

(a) Amplifier

The amplifier output manages the main amplifier and the backup amplifier simultaneously.

- **Master PA Vol, Master VA Vol:** Configure the general volume levels in PA and VA with which the device operates. These volumes will apply to all zones.
- **Mute:** Controls muting of all the unit outputs.
- **Eq Enable and Eq Settings**: It allows activating and configuring the parametric equalizer.
- **Loudness**. Activates the automatic equalization system adapted to human hearing. This system improves sound perception when the volume is low.
- **Advanced:** Advanced configuration parameters of the amplifier.
    - **Amplifier N.** It allows enabling or disabling amplifier **supervision** and displaying **gain** (19kHz/39dB +/-1dB) and **temperature**.
    - **Common config.** Fault detection parameters and mode for **70 V** lines can be adjusted.

(b) Pre-Outputs

Preamplified outputs can be used for **external amplifiers** for zone amplification reinforcement or emergency warning recorder. Each output has its independent volume adjustment.

- **PA Volume, VA Volume:** It sets PA and VA volume levels of the selected preamp output.
- **Mute:** It controls Mute of the selected output.
- **Link to zone**. Configures which zone it is linked, to receive the same audio of that zone.

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(c) VA Rec-Out

This control allows activating the “recording output” or “rec-out” mode. When active, pre-out 4 is no longer linked to a zone and instead reproduces live voice messages that are broadcast to zones in evacuation (e.g. manual messages from VAP-1 panels)..

3.3.3 Speaker Lines configuration. <Speaker Lines>

For each line, its label and line supervision parameters can be configured individually.

- **Supervision**: It enables or disables line/zone supervision
- **Line Status:** It indicates if the status is correct or faulty. Possible status are:
  - **Sup. Off**. Supervision deactivated
  - **Earth Fault**. Leakage fault in speaker line
  - **Calibr. Error**. Error trying to calibrate the line.
  - **Invalid M.** Measurement out of hardware range (5-800 Ohms).
  - **Open C.** Open circuit or deviation on calibrated impedance.
  - **Short C.** Short circuit or deviation on calibrated impedance.
  - **OK.** Correct line, within tolerance ranges.
- **LastMeas Z**: It reports the impedance value of the last measurement.
- **Nominal Z:** It is the impedance value saved at the time of the calibration.
- **Nominal Z mute**: Impedance value calibrated by the measurement system in Mute. (The two values may slightly differ, due to the use of two independent measurement systems)
- **Calibrate:** It starts a new calibration of the line.

NOTE: It is only performed when the line is correct. The device has a maximum measurement limit (600 Ohm); when the impedance exceeds this limit it shows 9999. A line terminator must be used in these cases.

- **Lower Tol% and Upper Tol%**: The limits of variation allowed in percentage with respect to the calibrated impedance. Outside these margins, the system indicates an open or a short circuit.
- **Owner Zone:** Number of the zone to which the line belongs.
- **Owner Z. Label**: Label of the zone to which the line belongs.

3.3.4 Configuration of device zones. <Device Zones>

(d) Zones Config

- **Zone X Mute:** It mutes the audio of the selected zone.
- **Zone X Label:** It allows you to see and edit the label of the selected area

(e) A/B mode

Enables A / B mode in all zones of the device.

In this way, each zone has 2 assigned speaker lines, so the system has 3 zones. This mode is simultaneously activated for all zones.

In case of a fault in speaker line A, the zone continues operating with line B. **NOTE (1):** line assignment to zones is always consecutive, so lines 1 and 2 would belong to zone 1, lines 3 and 4 to zone 2, and 5 and 6 to zone 3.

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NOTE (2): this parameter is locked when the device belongs to a scalable system with more than one ONE device. To modify it, the device must be unlinked from the system first (see section 3.5).

(f) Zones Number

Number of zones in the unit. It allows configuring the number to the zones that are actually used.

NOTE: this parameter ise locked when the device belongs to a scalable system with more than one ONE device. To modify it, the device must be unlinked from the system first (see section 3.5).

3.3.5 Import and edit messages. <Messages>

It allows managing evacuation and alert messages of the system.

To convert messages to the correct format, the LDA Audio Converter utility must be used, available on the LDA Support website.

The ONE device allows playback of multiple messages distributed in 2 playlists. These are called Evac and Alert, which are played when evacuation or alert is triggered respectively.

- Storage:
  - **View Playlists:** It allows you to consult the files included in each playlist and the order in which they will be played. It also enables you to individually delete messages.
  - **Import MSG:** Option to import messages from a USB memory to the unit. The user will be asked to indicate which DATAxx folder number of the USB is to be used as the source. Folders from DATA01 to DATA99 can be used as the source. USB Flash Drive Information and Requirements:
    - The USB memory must be formatted in **FAT32** file system format.
    - Location “DATAxx \EVAC\” in the root directory/folder of the USB memory for evacuation messages. Ex: F:\DATA01\EVAC
    - Location “DATAxx\ALERT\” on the USB for alert messages.
    - The files must be in **WAV PCM mono** format, with **16 or 24 bit** resolution and a sampling rate of **48kHz**.
    - File **names** must have a **maximum of 8** characters with no spaces or special characters (symbols) with the extension “.wav”.
    - Messages import will work as follows:
    - The device screen will show a progress bar during the process.
    - If, when importing a message, another message with the same name already existed in the memory of the unit, **it will be overwritten.**
    - After the import process, the playlist will be reordered in **alphabetical order**.
    - At the end of the process, the device screen **will show a summary** indicating the import result for all the files that have been detected in the DATAxx folder of the USB memory.
  - **Backup MSG:** It is possible to make a copy of the messages currently installed on the device to a USB memory. As in the import process, the user will be asked which folder DATAxx he wants to use, choosing between 01 and 99. The USB drive must be formatted in the FAT32 file system format. The evacuation and alert message files will be stored in the folders “\DATAxx\EVAC\” and “\DATAxx\ALERT\” respectively.
  - **Erase MSG**: It allows you to **erase** all messages from the device internal memory.
  - **Disk Usage.** It shows the number of messages in each list and the available memory. Disk full size is 64944 KB.

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- **Player Slot N**: Configuration of message players 1 and 2. Player 1 will be used for evacuation messages, and player 2 for alert messages. Following parameters can be viewed/configured:
    - **Vumeter:** Real-time view of the audio level generated by the selected message player.
    - **VA Volume:** The volume level that the message player will have at emergency mode.
    - **Eq. Enable, Eq. Settings:** It allows activation and adjustment of each player parametric equalizer.

3.3.6 ACSI devices

To customize the configuration and supervise ACSI devices, they must be previously **installed** in the system, either through an automatic **AutoSetup** process or manually through the menu **Configuration** -> **ACSI Devices** -> **Install**.

They are installed by indicating at each bus address which device model is connected. Installed devices are supervised and a fault is indicated if they are disconnected. Addresses that are not used must be set as “<none>”.

The priority of the devices depends on their address on the bus and the type of device. Address 1 has the highest priority. VAP emergency microphones have higher priority than MPS microphones regardless of their address.

- **Monitor**: It shows complete information for each bus address, indicating the device that is currently connected, the one that is installed and the status
- **Install**: It allows you to install the ACSI devices for its supervision, choosing in each address of the bus which model we want to install.
- **Input Config**: It adjusts the audio parameters **common** to the ACSI bus.
    - **Vumeter:** Real-time display of the audio signal level being received by the ACSI input.
    - **Eq. Enable, Eq. Settings:** It enables and configures the 3-band parametric equalizer assigned to the ACSI audio input.
    - **Compressor:** It activates a compressor expander to improve the dynamic range of the ACSI input.
- **MICs Config**: Custom settings for installed microphones:
    - **Vumeter**: It indicates the signal level of the ACSI input. (only take into account when the device is active)
    - **Volume**: Input level adjustment tuner from -100 to + 12dB of each installed device.
    - **Override 24V**: It sets up the activation of override outputs for PA microphones. In VA, the exits of the emergency zones are always activated.
    - **Label**: It allows you to edit a label for this device.

3.3.7 Interface with the fire panel. <CIE>

It allows the configuration of the contact closure inputs as well as the activation and configuration of the RS-485 MODBUS bus, for operatives with integrated fire control panels.

- **Input Status:** It displays the status of each input.
- **Inputs Config**: It configures the activation and supervision of each independent input.
    - **RST**
        - **Enable**: It activates or deactivates the input.
        - **Supervision**: It activates input monitoring. See section 2.2.3 **¡Error! No se encuentra el origen de la referencia.**.

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        - **N/C Mode**: It changes the input activation polarity. If enabled, it will work in N/C mode (normally closed), otherwise it will work in N/O mode (normally open).
    - **EMG**
        - **Mode:** Choose the operating mode of this input from the following modes.
            - **Evac All:** Launch EVAC message at all zones when activates. Default value.
            - **Alert All:** Launch ALERT message at all zones when activates.
            - **Set Sys EMG:** Sets the EMG mode at the system, but launches no message.
            - **Disabled:** Disable the input.
        - **Supervision**: It activates input monitoring. See section 2.2.3 **¡Error! No se encuentra el origen de la referencia.**.
        - **N/C Mode**: It changes the input activation polarity. If enabled, it will work in N/C mode (normally closed), otherwise it will work in N/O mode (normally open).
    - **CIE zonal input Zx**
        - **Enable:** Enables or disables the input.
        - **Supervision**: It activates input monitoring. See section 2.2.3 **¡Error! No se encuentra el origen de la referencia.**.
        - **N/C Mode**: It changes the input activation polarity. If enabled, it will work in N/C mode (normally closed), otherwise it will work in N/O mode (normally open).
        - **Alert-mode**: The Zx input will activate alert mode, instead of evacuation mode, in the linked zone.
        - **Zone Id**: Choose to which zone the Zx input is assigned.
- **CIE Auto-Alert**: It activates the automatic reproduction of the alert message in the other zones, when any zone is evacuated from the CIE.
- **CIE Auto-Reset**: When this parameter is active, the system will exit emergency when releasing the input closure that activated it.
- **CIE Local Mode**: By activating this mode, the general control inputs EMG and RST will only act on the zones of that unit, but not on the entire system. This option is particularly useful in expandable multi-device systems, to better segment the use of general ECI interfaces.

NOTE: The opposite of CIE Local Mode is CIE Global Mode. It is the default value, so it does not have explicit activation. In this mode, EMG and RST contacts affect the complete system.

- **Status OUT N/C:** It inverts the polarity of the FLT and EMG output signals, switching to N/ C mode (normally closed).
- **MODBUS**: it configures the parameters of the RS485 MODBUS port.:
    - **MODBUS Addr**: device address used for MODBUS communications.
    - **Access Level**: max user access level allowed for operations done through this interface. By default, it will be level 2 which allows to perform L2 operations (evac, alert, …), but L3 operations like system configuration will be blocked.
    - **Link Timeout:** configures a timeout period (in seconds) used to monitor the link with an external device over this bus. When set to zero the link supervision is disabled.

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- **RS485 Conf**: specific configuration for the RS485 communications:
  - **Baud Rate:** Transmission speed
  - **Parity:** Parity mode of serial communications
  - **Stop Bits:** Stop bits to be used in serial communications

3.3.8 Battery Charger. <Battery>

These options are only available if the **charger** accessory is **installed**.

The battery charger manages charging, activation, discharge and monitoring of a 12V lead acid battery.

- **Monitor**: In this section we can see information about the battery and the charger: status, impedance, voltage, charging current and temperature.
- **Charger Enable**: It enables/disables the battery charger. The charging current is 2 Amps.
- **Supervision**: It enables monitoring of battery status and fault detection. Only when the charger is enabled. Voltage monitoring is performed every minute, and impedance monitoring is done every 10 minutes.
- **Temp Sensor**: It enables monitoring of the battery temperature sensor. It is checked every minute.
- **Faults Levels**: The minimum battery voltage and maximum impedance can be adjusted. Factory settings are 10.5V and 200 mOhms. It is recommended to adjust the maximum impedance value after a full charge. The autosetup process sets this value to twice the measured value; however, it is advisable to reduce this margin, setting it to 40% above the measured value to ensure more accurate supervision. E.g. 50 mOhms for YUASA NP17-12I battery.

(a) Battery charger operation and monitoring. ONE-BC

- To assist the user in **diagnosing battery status**, the monitor menu is available.**Voltage**: It indicates the current battery voltage.
- **Impedance**: Value obtained from the impedance measurement of the battery.
- **Chg status**: Battery charger status. It indicates the current status of the load:
  - **Disabled**: Battery charger disabled.
  - **Bulk**: Phase of maximum load intensity where it is possible to reach 80% of the load in the shortest time, it has a limit of 24 hours. If it does not manage to finish this stage, it will indicate “Chg timeout” fault.
  - **Absorption**: In this phase, the charge current decreases progressively until the battery achieves 100% charge. It also has a 24h time limit according to regulations.
  - **Float**: The battery is fully charged, and this is the condition to keep it 100% charged. Generally, the voltage will be between 13 and 13.8V.
- **Current**: It indicates the charged current at the moment.
- **Temperature**: Temperature value of the battery sensor in Celsius degrees.

3.3.9 Save and charge configuration. <Load/Save>

Device configuration can be saved or loaded.

- **Export Dev CFG**: It sends a copy of the device configuration to the USB memory. By selecting the number, the parameters will be saved in the \DATAxx folder. If there is a previous configuration, the system will overwrite previous data.

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- **Import Dev CFG**: It imports the device configuration data from the selected DATAxx folder from the USB memory.

NOTE: When exporting/importing a device configuration, all the device data are included, together with its user management (passwords and authorization for each access level). Therefore, these data must be know before importing any configuration from a USB memory.

3.3.10 Device Configuration. <Device>

General parameter configuration of the device:

- **Run AutoSetup**: It launches the device automatic configuration, according to EN54. See details in 3.2 **¡Error! No se encuentra el origen de la referencia.**
- **Restart Device**: It restarts the unit as well as the internal processors.
- **Factory Reset**: It restores device **Factory settings**. It deletes **all** the parameters configured by the user, except logs and pre-recorded messages. If the device belongs to an expanded system, it will be disconnected from it.
- **FW_Update**: It allows to update the firmware version through a file saved on a USB memory connected. You can find the latest firmware version on the LDA Support website.

NOTE: The file must be in the root directory and be named as **fw.bin** or **update.bin**. The USB memory stick must be formatted in **FAT32** files system format.

- **Location**: It allows modifying a textual label that describes device location or name. This information can be made visible on the home screen by activating the "*Show on Home*" option available in this menu.
- **Language**: allows the user to select the language of the equipment's menus between two options: the default language (English) and a secondary language that will depend on the firmware installed. This language will apply to screens with access level L2 and below, note that the configuration menu requires access level L3 and its screens will always be displayed in the default language (English).

NOTE: check the support website for the list of available languages and download the language version of your choice.

3.3.11 System configuration. <System>

This category includes the options to configure the system.

- **Run Discover**: It executes the Discover operation that will constitute a new expandable system of several ONE units. This operation will only be allowed if the device launching this operation has an ONE-LOOP card installed. For more details, consult section 3.5.
- **System Info**: This screen shows information on the current system linked to the device being accessed. It contains the following information:
  - **Device Addr**: Device address on the bus (from 1 to 10).
  - **Sys Zone Count**: Number of zones in the system (between 1 and 60).
  - **Sys Dev Count**: Number of devices constituting the system (between 1 and 10).
  - **System UID**: Unique identifier of the system to which the unit is linked.
- **Device Monitor**: This screen shows information and status of each of the units that are part of the system, either the local unit from which you are accessing or a remote unit. You must choose the address you want to consult, and then you can access the following information:

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- **Dev x Link**: Device link status with address x.
- **Dev x Zones**: Number of zones managed by device with address x.
- **Dev x First Z**: Identifier of the first zone of the device with address x.
- **Identify x**: It launches an identification of the selected unit, which will activate its indicators for a few seconds, thus allowing the user to physically identify which unit it is.

- **Local Config**: Device local settings. It contains the following options:
  - **Bus Baudrate**: Transmission speed for the serial bus that is established between each unit. It is important that this value is the same between all the units of the system, otherwise there will be communication and connection problems between the units.
  - **Loopback FLT**: It establishes the supervision of the return link (from the last unit to the first one in the network). If this option is disabled, the system will stop monitoring this link, and it will not flag a fault if it is not operating.
  - **Slave beep on**: When this option is activated, the unit will emit audible warnings when it is a linked unit in the system. Not activating this option, linked units warnings issuing will be blocked, and the main device will be in charge of performing this function.
  - **Unlink**: When executing this operation, the accessed unit will be unlinked from the system to which it currently belongs.
- **Date/Time**: Feature to check and modify the date and time configured for the system.

3.4 User management <Login>

This menu category is intended to manage the access control of the different users of the unit. In this menu you can find these two sections:

- **Insert Login**: The user can be logged in with the password corresponding to his access level. However, when browsing the rest of the menus, password access will be requested automatically on those screens that require it.
- **Access Config**: In this section you can customize each level password. You can enable a **password** for PA management (L1) and modify or disable passwords for **L2** and **L3** access levels.

3.5 Multi-device expandable systems

3.5.1 Introduction

Originally, each ONE unit represented itself as a system of up to 6 zones. To undertake larger installations, there is the possibility of expanding the system by grouping together several ONE units that are conveniently connected and configured.

The ability to form these expandable systems is enabled by installing an ONE-LOOP card in the expansion bay of the **first** unit, which will act as the **bus main device**. The installed card model will establish the limit of devices that can be connected, being able to reach a maximum of 10.

The specific aspects of the system wiring and the ONE-LOOP card installation have been detailed in section 2.2.12 Connecting expandable systems.

3.5.2 Individual configuration of each unit

The system will be constituted as the grouping of each one of the units that compose it. These units must be **previously configured** separately, as if they were independent systems by themselves.

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The individual configuration of each unit can be achieved in two ways, the simplest will be by running the **autosetup** process where the unit will detect the connected lines, battery, etc. (see section 3.2). The other option is a manual configuration that must include, among others, the following operations:

- Loading prerecorded messages
- Speaker line and number of zones configuration
- ICE interface configuration with fire panel
- Battery charger configuration
- Configuration of sources, volumes and local matrix
- ACSI Device Configuration (only for main device)

3.5.3 System setup: Discover operation

Once the unit has been properly wired (see section 2.2.12) and each unit has been configured separately, it is time to create the new expandable system. This can be achieved by executing the Discover action from the system main device. This option is available in the **Configuration** -> **System menu.**

After the Discover process, each unit will display an overview message indicating the number of units and zones that have been detected and that will constitute the new system.

3.5.4 Expandable system operation

(a) Zones

The new system will group all the zones included in each unit. The zones will be ordered under a new nomenclature using common indexing. Thus, if for example we connect 3 units with 2 zones each, there will be a total of 6 zones in the system. The identifiers of the zones would look like this:

- Device 1: zones 1 and 2
- Device 2: zones 3 and 4
- Device 3: zones 5 and 6

(b) Audio sources

Each unit will continue to maintain the normal operation of its matrix of audio sources (see section 4.3.2). The only exception will be that, in the linked unit, **the Input 2 source will be disabled and nothing should be wired to this connector**.

Instead, Input 2 of these devices will be replaced by the global system source, which corresponds to Input4-MIX of the main device. This means that, using the Input 2 matrix of each linked unit, you will be able to select which of its zones will receive the global audio source and which will not.

The Input 1, Input 3 and Input 4-MIX sources of each unit will continue to function as before, allowing their **use for local audio sources**, which can only be routed to the zones of that same unit.

(c) ACSI microphones and global PTT microphone

It has already been seen that the only device that will have its ACSI port available will be the main unit of the network.

It happens the same with the global mode configuration for the PTT microphone (see configuration details on point 3.3.1 **¡Error! No se encuentra el origen de la referencia.**), which will only be available in the main unit.

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In this case, both the ACSI microphones and the global PTT microphone will work globally with the entire system. This means that they can act on any of the zones in the system, regardless of the unit that these zones belong to.

This is possible thanks to the unified global nomenclature of the zones, which has been described above in section *a)*.

NOTE: although the PTT microphone is not physically connected to the ACSI-IN connector, as it has its own physical port, when used in global mode it will share the global microphone channel to send its audio and control commands to the rest of the system along with the ACSI devices.

(d) VA control

Control of the emergency in a expandable system will be similar to that of a single-unit system, having the same operations already described in section 4.2. However, it is important to draw attention to certain details:

- **System emergency status:** The system will have an unified emergency status, and there will be no units in VA or in PA. This means that, in order to evacuate zone X of any of the units, all units will activate their emergency status. This also affects the RESET operation, which will reset the emergency status of the entire system (and units and zones members), executed from any of the ONE units;
- **Distributed control**: Each unit of a expandable system will act as an **external control interface for the other units**. From the screen of any of these units, it will be possible to control and monitor the status of any zone of the system, either its own or that of others. This also applies to ACSI emergency panels (VAP-1) that will be able to act on all zones, and to connection interfaces for fire stations (ECI/CIE). The control that this type of switchboards performs on each device is distributed to the rest of the system, so an appropriate configuration must be used to avoid the generation of contradictory orders that could cause undesired behaviour in the expandable system.
- **Local evacuation and warning messages**: each unit in the system has its own player and its own message memory. Therefore, each zone of the system will be evacuated or alerted with the messages configured for that device. This gives the system the ability to customize the evacuation and alert messages that each unit will emit through its zones.

NOTE: It is recommended to configure physically contiguous zones on the same ONE device to avoid message overlaps due to possible delays in audio transmission between different devices.

3.5.5 Expandable systems with different versions of ONE

Scalable systems can contain both **ONE-500 V2 and ONE-500 V3** devices, as long as the ONE-500 V3 devices are running firmware version **v03.01.01.01 or earlier,** which maintains backward compatibility with the ONE-500 V2.

In a scalable system composed only of ONE-500 V2 devices or only of ONE-500 V3 devices, all devices in the system must have **the same firmware versión.**

NOTA: ONE-150 is not compatible with scalable systems.

3.6 PTT Microphone operation

3.6.1 Introduction

This point will describe the behaviour of the PTT microphone and its different modes of operation.

As mentioned above, each ONEv3 unit has a PTT microphone port, so in a distributed system with several ONE unit there could be more than one PTT microphone installed.

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The following will explain how each of these microphones behave depending on whether they are installed in a main or secondary unit, how the priorities between them are managed and what the difference is between the configuration in local mode or global mode for this microphone.

3.6.2 Comparison between global and local modes

The PTT microphone of each equipment can be configured in **local or global** mode, which determines whether you can speak only to the zones of your device (local mode) or globally to all zones of the distributed system.

The PTT **global mode** setting will **only be available on the main unit** of the system. In the other units of the system, **the secondary units**, the PTT microphone **will always work in local mode**.

By default, the PTT microphone on the main unit will be set to global mode. This means that it will compete with all other global microphones (such as ACSI microphones) when making a call to the system zones. This will occur even when there is no conflict in zone selection between the two microphones, as the audio channel for sending microphones to the rest of the extended system is unique and can only be used by one global microphone at a time.

On the other hand, a global microphone and one or more local microphones in the system can speak at the same time, as long as there is no collision in access to any of the zones.

The priority level of a PTT microphone, either global or local, by default, will be higher than the rest of the microphones and audio sources of the system. However, this priority level is configurable (see section 3.3.1 d), and it can be reduced and make another microphone or audio source to be above the PTT microphone in priority.

Subsequently, in section 3.6.6, the possible use cases of a PTT microphone within a system are explained in detail, providing an example case.

3.6.3 Preconfigured routing memories

There are several routing memories or groups of zones that can be pre-configured in the device by the installer. There are **up to 8 memories**, for which an identifying text label can also be defined.

These memories are a set of zone selection presets, independent of the system's PA and VA modes of operation, which allow the user to easily route the PTT microphone to a pre-configured zone group.

These pre-configured memories are stored together with the equipment's configuration parameters in its internal non-volatile memory. Thus, upon a system reboot, the memories will still retain their zone selection. Section 3.3.1 d explains how to configure them.

3.6.4 PTT Microphone routing

The unit has two internal live memories for storing the current PTT microphone routing, separated between PA and VA. These two memories contain the routing that will be used in case of making a call from the PTT microphone.

By default, at each start-up, these memories, both in PA and VA, are configured to make a call to all zones in the system (or in the equipment if operating in local mode). It is important to be clear that the content of these memories will be erased after a reboot of the system.

The user **can edit the PTT microphone routing at any time from the VA and PA operator menus** (see sections 4.2 and 4.3 respectively). From the "*PTT Routing*" option of these menus, it is possible to choose between one of the previously configured routing memories (where it will appear with its identifier), make a routing "to all", or edit the current selection zone by zone. Each time this screen is accessed again, the symbol (*) will indicate the last configuration, as indicated in the section 3.3.1 d).

3.6.5 PTT current talking status

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When using the PTT microphone, the ONE device shows on the LCD display the status of the microphone so that the user always knows whether it is speaking in the system or not.

The following messages are displayed:

- **PTT Talking:** the microphone is transmitting.
- **PTT Busy:** the microphone is blocked.
- **PTT Mic Busy Invalid Sel.:** the zone selection is not valid. To correct this problem, access the PA or VA operator menus and correct the routing.

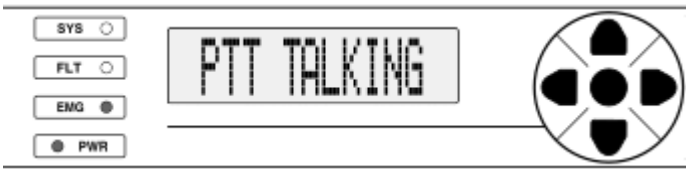

Figure 25: View of the PTT talk request status screen

3.6.6 Example of an expandable system with PTT mics

Figure 24 shows an example of an expandable system containing three units of ONEv3 where each of them has its own PTT microphone, appart from the MPS8Z and VAP1 connected to the main unit via ACSI bus.

Zones selection: the key points to understanding which zones could be addressed by each microphone in the diagram will be discussed below:

- The **PTT MIC 1**, attached to the main unit can be configured as either a global microphone (by default) or local microphone (see section 3.3.1 d).
    - If configured as **global**: it will be able to talk to any of the zones in the entire system, between 1 and 18. In this case, it will compete with the other ACSI global microphones to access to these zones.
    - If configured as **local**: it can only speak into the zones of its local system (between 1 and 6). In this case it could speak simultaneously together with an ACSI global microphone as long as there is no collision in the zone selection.
- PTT microphones connected to distributed units **(PTT MIC 2 and 3) can only work in local mode**:
    - PTT MIC 2 will only be able to talk to its local zones, between 7 and 12.
    - PTT MIC 3 will only be able to talk to its local zones, between 13 and 18.
- ACSI microphones (MPS8Z and VAP-1) will always work y global mode, so they will be able to talk to any zone in the whole distributed system (between 1 and 18).

Collision and priority management: some important details regarding priority management in case of collision between several microphones will be given below:

- Collisions between microphones will be managed on the basis of the same priority system as explained in section **¡Error! Marcador no definido.**.
- When the PTT MIC 1 microphone is configured **as global** it will compete for **access to the global microphone bus** with the other ACSI microphones. By default, the PTT microphones will have higher priority than the ACSI devices, but this can be changed in its configuration.
- A global microphone can speak at the same time as one or more local microphone(s) when there is no conflict in access to any area.

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- In the event of a collision between two microphones having the same priority, (e.g. PTT MIC 1 in global mode and PTT MIC 3), the first to make the talk request will be the one that can speak, and the second request to arrive will be blocked.

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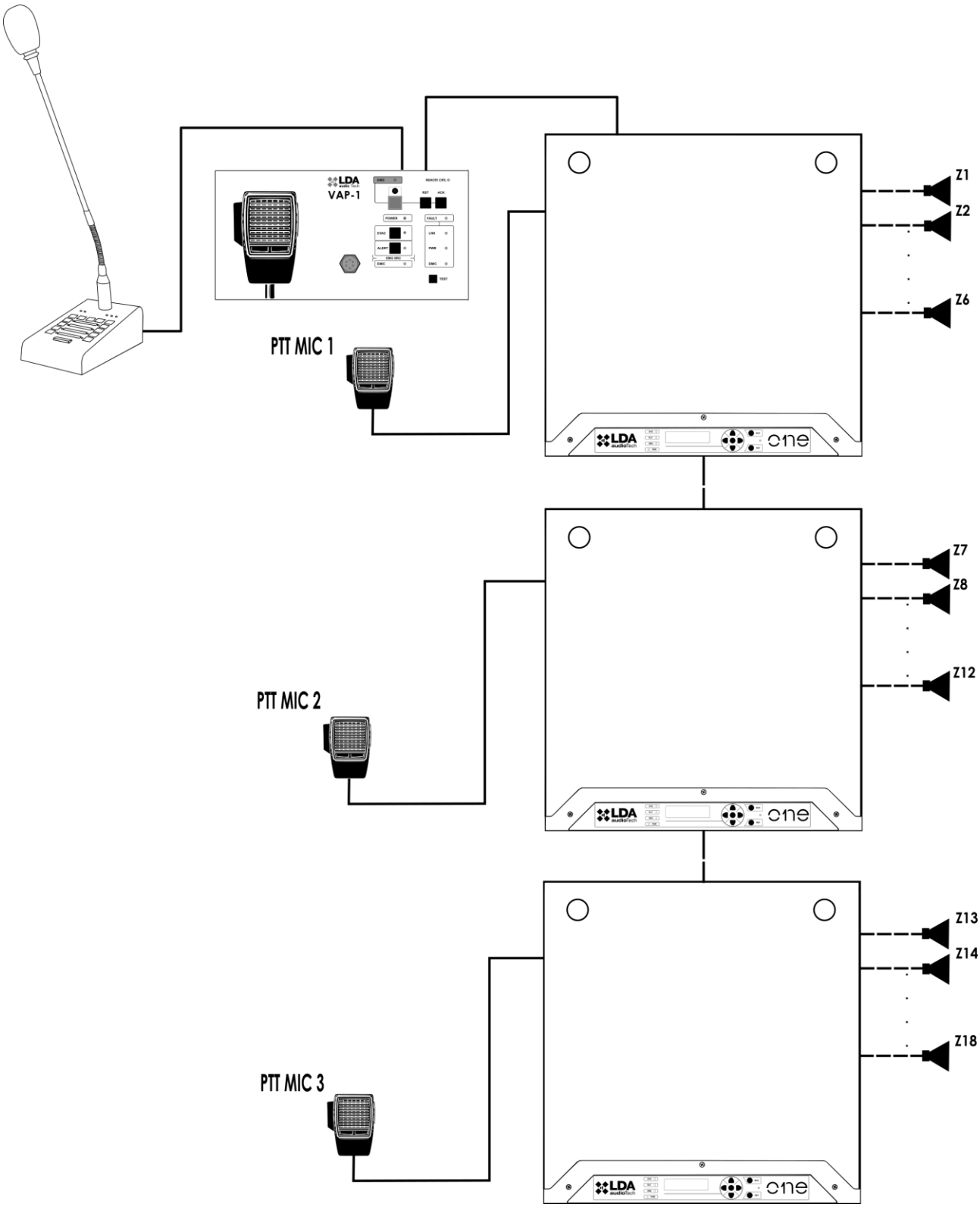

Figure 26: Scalable 3-unit ONE-500 V3 system with PTT microphones

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3.7 Advanced configuration

3.7.1 Advanced configuration variables

Some configuration parameters are not available on the menus because they are not commonly used. However, these parameters can be edited in special cases. This information are published on the LDA Support website with more specific documentation, focused on applications. Some examples of these parameters are:

- Advanced line monitoring settings: timing, tone setting, etc.
- Audio sources configuration allowed in emergencies or battery (this option will be explained in detail in section 39);
- Use of SD card for pre-recorded messages.
- Equalization parameters customization.

These advanced settings are based on access to internal variables of the unit. Each of these variables has a unique identifier, called ID. Knowing this identifier, the user will be able to consult the variable and even modify its value, if he has the authorization to do so.

To access an advanced configuration variable, the OK and BCK buttons on the user interface must be pressed simultaneously for 2 seconds, then a special screen will be shown in which you can enter the ID. If necessary, the user will be asked to register with the level of access required for the variable, and access will be denied in case of insufficient permission.

3.7.2 Blocking PA sources in battery and emergency

ONE can block the operation of its PA sources, considered non-essential, during special system operation statuses. There are two special statuses: **battery powered** unit operation or **system emergency** status. Upon entering one of these two statuses, the unit will review the routing of all its zones, blocking the use of sources that are not enabled. This blocking is done based on a **priority system**, which will be described below.

The priorities of the system's PA sources, by default, are as follows:

Fuente PA	Nivel de prioridad
PTT-PA Microphone	9
ACSI-PA Microphone	8
Input 1	3
Input 2	2
Input 4 (MIX)	1
Input 3	0

There are two cut-off thresholds, that discriminate which sources can or cannot operate in each status. To enable a source, it must have a priority equal to or greater than the threshold configured for that status. These thresholds are:

- **VA CUT THRESHOLD**: PA sources cut-off threshold in VA (emergency) system status;
- **BATT CUT THRESHOLD**: PA sources cut-off threshold during device battery operation.

In both cases, the **default value is 8**, which indicates that only the ACSI-PA microphones will be able to speak during these statuses, and the rest of the sources will be disabled.

These thresholds **can be customized** by using their respective advanced configuration variables, as shown below:

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Variable	ID en v03.01.01.00
DAM_PA_SRC_IN_VA_CUT_THRESHOLD	2299
DAM_PA_SRC_IN_BATT_CUT_THRESHOLD	229A

3.7.3 Equalizers

Adjusting the equalizers for each input and output consists in a common operation that is detailed as follows. Each band is a second order peaking filter.

- **Eq Enable:** To enable or disable (bypass) the equalizer.
- **Eq Settings:**
  - **Band x/y:** Select the band you want to edit and the total bands of this channel.
    - **Freq:** Frequency. 10Hz (<1KHz) and 100Hz (> 1KHz) steps
    - **Gain:** 1dB steps from -10 to +10
    - **Width:** Select between 5 filter widths: Wide2 (Q=0,5); Wide1 (Q=1); Mid (Q= 1,41); Narrow1 (Q= 2); Narrow2 (Q= 4)

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4 SYSTEM USE

4.1 Main screen.

The home screen displays always the relevant system information according to EN54 standard. The message **PA/VA System <ready>** is displayed by default, although this message can change to **<FAULT>** or **<EMERGENCY>** depending on the current unit status.

In addition, when the system is idle and an emergency or fault entry occurs, the VA monitor or fault log screen will automatically appear respectively.

4.2 Emergency management. <VA Operator>.

This menu allows manual control and monitoring of the emergency system.

These actions require level 2 access, default **password 0002**.

4.2.1 Launch evacuation and alert.<Launch EVAC/ALERT>

To launch the evacuation or alert, access the **Launch EVAC** or **ALERT** menu respectively, after that select the option for all zones or the individual zone(s) independently.

Both statuses could be activated for a single zone; the system will choose the status with the highest priority (EVAC). In all cases, live messages on emergency microphones have higher priority than messages.

4.2.2 PTT Routing Selection <PTT Routing>

This menu allows selecting the routing to be used by the PTT microphone when the talk request button is pressed during the VA state. From this menu, it is possible to select the “All Zones” routing, load one of the preconfigured zone selection memories, or perform a manual configuration by selecting zones individually.

The option currently selected on this screen is indicated with the symbol “*”. **By default**, at system startup, **routing to all zones of the system or the device is selected**, depending on whether the PTT microphone operates in global or local mode. It is recommended to read section 3.6 PTT Microphone operation for a complete functional analysis of the PTT microphone and its routing capabilities.

NOTE: Routing selections for VA and PA modes are completely independent and use different routing memories. There is an analogous PTT routing option in the <PA Operator> section where routing for PA operation is configured.

4.2.3 Emergency activation.<Enter EMG>

The **Enter EMG** option puts the system in an emergency status, deactivating PA audio sources (except microphones) and activating emergency volumes but does not reproduce any evacuation messages.

4.2.4 Stop voice announcement. <Silence Zones>

Silencing any or all zones will deactivate the reproduction of evacuation and alert messages in the selected zone(s), still maintaining the evacuation status in the respective zone.

4.2.5 Deactivate emergency. <Reset Zones/Sys EMG>

The **Reset Zones** option allows a reset of the voice alarm condition in the selected zone(s), keeping the system in an emergency status.

Reset System launches a global reset that can also be done from the frontal push button (RST) by pressing it for 2 seconds.

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NOTE: If the emergency was activated remotely, it will reactivate after a few seconds. If the faults persist, they will be reactivated within the usual time required.

4.2.6 VA System monitor. <VA Monitor>

This screen condenses information about the entire system, zone by zone, indicating faults and emergency status of each one of them. The external zones of expandable systems of several units will be as well shown here (see section 3.5), allowing navigation between all of them with left and right cursors.

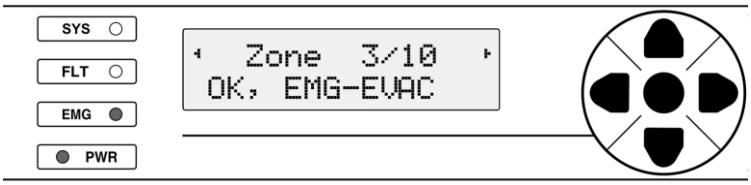

Figure 27: View of the VA Monitor screen

Figure 27 shows an example of this screen. The information is represented as follows:

- Line 1: It will show the index of the currently selected zone and the total number of zones constituting the system. The picture shows zone 3 of a system consisting of 10 zones in total.
- Line 2: It will show the fault status followed by the zone emergency status, both separated by a comma.

Possible fault statuses:

- **OK**: Area without incidents.
- **FLT**: A problem has been detected in the area. For a more advanced diagnosis, it is recommended to consult the fault log.

Possible emergency statuses:

- **IDLE-Muted**: Zone at rest, without active emergency and no routed source.
- **IDLE-PA**: Zone at rest, without active emergency and with a PA source routed.
- **EMG-Active**: Zone in emergency without emergency source or mute active. This status allows PA sources and microphones to be used in the zone. To find out if there are routed PA sources in the area, you should consult the system PA monitor (explained in section 44).
- **EMG-SILENCED**: Zone in emergency with silent status, indicating that the use of PA sources is blocked.
- **EMG-ALERT**: Zone in emergency, issuing the alert message.
- **EMG-EVAC**: Zone in emergency, issuing the evacuation message.
- **EMG-EMIC**: Zone in emergency, issuing a live voice message from an emergency microphone.

NOTE: in the default configuration, it is usual for all zones to enter the IDLE-Muted status when the system faces an emergency. This is due to a block of the PA sources during this status. This block can be customized through advanced settings, see sections 39 and 39.

4.2.7 Behaviour and priority between VA sources

There are two types of VA sources in the system: microphones and pre-recorded messages:

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- **Microphones:** their live voice messages have a higher priority than pre-recorded messages. Within the microphones there are two types: PTT-VA microphone and ACSI-VA microphones (e.g. VAP1). By default, the PTT mic has higher priority than the ACSI mics, although these can be configured as indicated in section 3.3.1d.

  Be aware that, according to EN54-16, only one VA microphone may be active during the state of emergency of the system. In case several microphones try to talk at the same time, the highest priority microphone will get access while the other ones will be blocked.

- **Pre-recorded messages:** there are two types of pre-recorded messages: **evacuation** and **alert**, where evacuation has the higher priority.

As mentioned in section 2.2.4, the equipment has two amplifiers, so it can reproduce up to two different audio sources. Therefore, a VA microphone may speak in some zones while an EVAC message may be played in other zones. When the VA microphone attempts to talk into a zone that is playing a pre-recorded message, the message will be blocked, and the microphone will gain access to the zone. If both amplifiers are being used by a VA microphone and the EVAC message, the ALERT message will be blocked from being played to any other zone, as it has the lower priority among the VA sources.

4.3 Public Address Settings. <PA Operator>

When not in use for evacuation, the system can act as a warning system and/or background music. In this menu, you can configure the usual settings of any public address system.

4.3.1 Volume Settings. <Volume>

It is possible to adjust the overall (master) volume and the input volume. The input adjustment range is -100dB to + 12dB. The overall volume can be between -100dB and 0dB.

The overall volume can also be adjusted directly from the main screen, using the up and down buttons.

4.3.2 Matrix. <Matrix>

In the **Matrix** menu, you can manage the PA sources and their assignment to each zone.

For each zone, inputs 1 and 2 may or may not be allowed- these inputs are intended for microphones that will be activated temporarily by user.

BGM stands for “background music”, this source will remain active by selecting between input 3 and the internal mixer (Input 4 mix).

Example: Zone 1

In 1: Yes - No
In 2: Yes - No
BGM: < In3 | In4Mix | None >

The source priority management system will decide which signal goes to each zone when multiple zones are active. From highest to lowest priority, you have: Emergency microphone, evacuation message, alert message, MPS microphones, input 1, input 2, input Mix, and finally Input 3.

4.3.3 PTT Routing for PA <PTT Routing>

The operation of this menu is identical to the one described in section 4.2.2, but to select the PTT microphone routing in PA mode. It is recommended to read this section to know how this screen works.

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4.3.4 Monitor. <Monitor>

The monitoring menu allows you to view the status of the zones and the inputs of the unit. You will be able to see these parameters:

Zones:

- **Source:** Audio source currently assigned to the zone.
- **Vumeter:** Current audio level.
- **Lab:** Label or name configured for the zone.

Inputs:

- **Vumeter:** Current audio level.
- **Lab:** Label or name configured for the input.

4.4 System monitor. <Sys Monitor>

This menu includes fault and emergency logs, status and system information.

Common structure of the LOGs screen

In all cases, the display of logs on screen follows this structure:

Upper line:

- Current list information: **FLT**, **EMG** or **SYS**
- Displayed entry **number** / **Total** entries in the log.
- Use the right **(>)** or left **(<)** keys to change the entry number

Lower line: Up and down keys change the visible information between these options:

- Event description.
- Status: (only for the fault log) It indicates whether it is active or has been resolved.
- Date when the fault occurred.
- Time when the fault occurred.
- Internal code of the registered entry.

4.4.1 VA system monitor. <VA Monitor>

This option allows you to access the same information screen that has already been described in section 4.2.6. It is replicated here, so that users with L1 level can also access this information, since the “VA Operator” menu requires L2 access level.

4.4.2 Emergency log. <EMG_Log>

Events related to emergency management, reproduction of evacuation and alert messages, operations from the fire panel, etc. are registered.

4.4.3 Fault Log. <FLT_Log>

It reports the faults detected in accordance with the monitoring required by the EN54 standards. By default, this log will show only the active faults; in order to see the history you need to activate the option to see all the faults in the configuration menu of logs <Logs Config>.

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4.4.4 System log. <SYS_Log>

It records system events or supervisory information not required by the EN54 standard, but which can be useful for system diagnostics.

4.4.5 LOGs configuration. <Logs Config>

Log displays and utility configurations can be made.

- **See Solved FLT:** It can be configured to see all faults or only active faults.
- **View Interval:** It allows configuring the age of past faults that you can see in the LOG. It indicates the number of **days** since the fault occurred. The number **0** allows you to see all the faults since the device was turned on. Number **365** shows all existing faults.
- **Export Logs:** It exports the logs to the USB memory to be able to see them from a PC. They are exported in a DATAxx slot of your choice and can be seen in .txt files.
- **Erase Logs:** It erases all internal logs.

4.4.6 System information <Sys Info>

It shows the most relevant information of the system, distributed in several categories:

(a) Device

Device specific information, such as its address in the system, firmware version, bootloader version, serial number and name (“location” field).

(b) System

General system information, whether it is a expandable system with more than one device or a single device. Here the “system UID” (unique identifier of the system) will be shown, as well as the number of zones and devices that make it up. In addition, a “Device Monitor” submenu is included, allowing access to the following information, for each of the devices constituting the system:

- Link status.
- Number of zones.
- ID of your first zone.
- Device identification (by launching this action, the selected device will perform a test of its indicator, allowing the user to identify it).

(c) Date/Time

This category allows you to view the current date and time of the system. It will not be possible to modify them from this screen. To do that, it will be necessary to access through the configuration menu, following the path /Configuration/System/Date-Time.

4.4.7 Test

It performs a 5 seconds indicator test.

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5 MAINTENANCE INSTRUCTIONS

The device requires reduced periodic maintenance.

The periodicity of the maintenance must be adjusted according to the device installation conditions.

Typical operations:

- Check the indicator and fault log. Weekly
- Clean the air inlets and outlets of the unit. Annually
- Check connections and ground connections of the unit.
- Perform system tests, evacuation drills, etc. to verify the correct operation of the entire system.
- The Battery should be replaced in approximately 3 years, or when it shows malfunctions or fault indications.

5.1 Resolution of fault indications

This chapter explains the most common possible fault indicators, in most cases the faults indicated here will be triggered by an error in the configuration of the device, so it is recommended to check section 3.3 “Configuration”.

5.1.1 Loss of system date and time

The device will indicate an incorrect date and time fault (“*date-time invalid*”) when these values have not been configured or have been erased due to prolonged power loss. It is a common warning when **carrying out the first installation** of the unit, which does not arise a serious problem since it is a logical consequence of the period of transport and storage to which the device has been subjected.

To solve this error, correct system date and time must be configured. This can be done through an autosetup process or by manual configuration (see sections 3.2 and 3.3.11, respectively).

5.1.2 Cover opening protection

When the cover is removed, the system will indicate a fault. This is a safety measure since there are dangerous voltages inside the device, especially the main power input, to remember that only expert personnel should operate the device when it is powered and open. The system detects it thanks to a switch that is activated with one of the closing screws. The text “Open cover detected” will be displayed in the entry of the fault log.

5.1.3 Speaker lines

In case a short or open circuit has been detected or the impedance has varied by more than 15%, the system will indicate a fault in the loudspeaker line. In the event of a short circuit, the system will protect itself by disconnecting the line until a manual restart is performed.

The normal load range is between 20 and 600 Ohms. In the zone menu, you can see the calibration measurement that has been established for each line. In the event of an error at the time of calibration, the status 'Calib. Error' will be shown. If this fault occurs, check the line. To do this, disconnect the line and measure the impedance with the help of an LCR meter between the cable terminals (+ and -) and between each of the terminals with ground. Verify that the values correspond to those expected based on the number and power of the existing loudspeakers on the line.

5.1.4 Transmission line with CIE

The system will indicate a transmission fault with the CIE when it is detected that the transmission path is short-circuited or disconnected.

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If this fault occurs, check that the connection between the system and the CIE has been made correctly. To debug the fault, disconnect the two ends of the cable connected between the CIE and the device, and measure between the cable terminals with a multimeter on the kΩ scale. If the measurement result is 0, the line is short-circuited. If the result is 1 (inf), it means that it is open. The line is correct if the result is 20kΩ. In either of the first two cases, replace or repair the transmission line.

5.1.5 Power supply

The system will indicate a power fault in either of these situations:

Main power: A fault has occurred in the main power supply (AC power). If this fault has occurred, check that the network power reaches the unit. If so, check the output of the AC/DC source, it should give 15V. In this case, verify that the disconnection switches are ON.

Redundant power: The device monitors the battery charger and the battery. It can register faults related to these devices. It should be noted that the battery has a shorter lifetime than the system.

If the battery is discharged continuously, the device will indicate a battery fault and will not charge it until it reaches a minimum level of voltage in the battery. In the monitoring menu, you can see the current battery voltage, and if it is below 10.5V it will not be charged. To try to recover the battery, you must use a specific charger, always under supervision.

5.1.6 Link

Each ONE device will supervise its connection with the rest of the devices in the system, for example ACSI devices that have been installed or other ONE devices in a expandable system. In the event of a link fault (LINK), the power supply of the failed units must be checked, as well as the status of the wiring of these connections.

In the case of multi-device expandable systems, a link fault will be indicated when one unit has lost its connection to the master device through the main bus.

5.1.7 System

The system will indicate a system fault when a problem has occurred in the execution of the software, in the memory, or in the required internal devices. Reset the prompt in case it is due to an occasional fault, and if the problem persists proceed to restore a copy of the system configuration, if you have it, or restore to factory data. After this operation, the device should work normally. If not, contact LDA Support.

In case of data loss, the unit will work in safe mode, this mode uses the default configuration. An unintentional emergency trigger could be generated if the ECI inputs are configured and connected in reverse mode and return to factory data.

5.1.8 Firmware upgrade does not apply

If the firmware update process is completed correctly, but after restarting the device the version has not changed, check that the firmware version being used is correct for the device version of ONE (see chapter 6 to identify the version).

- ONE-500 V3 devices can only be updated with firmware v03.XX.XX.00
- ONE-150 devices can only be updated with firmware v03.XX.XX.01

These models can never be updated with firmware v01.XX.XX.XX or v02.XX.XX.XX. Likewise, a firmware file v03.XX.XX.XX cannot be used for a ONE-500 V1 or V2 device.

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5.1.9 Issues when installing ONELOOP module

If you happen to find any issues while installing the ONE-LOOP module in your ONE-500 device, check if the ONE-LOOP model is the proper one for your ONE-500 device.

Chapter **¡Error! Marcador no definido.** explains how to identify the ONE-500 version and which ONE-LOOP modules can be used depending on each version.

5.1.10 Issues using my USB unit

If while loading prerecorded messages or upgrading the firmware version with an USB unit your ONE unit shows any fault or restarts itself unexpectedly, there might be an issue with the USB unit that it is being used or the USB/files format.

Please check if the USB unit is properly formatted. Format must be FAT32, chapters **¡Error! Marcador no definido.** (Import prerecorded messages) and **¡Error! Marcador no definido.** (firmware update) requirements must be followed. If all of the above does not solve the issue, we recommend redoing the process with another USB unit.

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6 DEVICE VERSION AND ACCESSORIES COMPATIBILITY

6.1 ONE-500 system versions and its accessories

There are three versions of ONE500 system, to find out how to properly identify them below:

- **ONE-500 V3:**
  - Serial number must be **higher or equal** to **22007765**
  - Firmware version **v03.XX.XX.00**
  - Compatible ONE-LOOP module: **LDAONELOOPXXS02**
  - Compatible PTT microphone: **ONEPTTS02** (using firmware version v03.01.01.00 or later)
- **ONE-500 V2:**
  - Serial number must be **lower** than **22007765**
  - Firmware version **v02.XX.XX.XX**
  - Compatible ONE-LOOP module: **LDAONELOOPXXS01**
  - Compatible PTT microphone: **ONEPTTS01**
- **ONE-500 V1:**
  - Serial number must be **lower** than **22007765**
  - Firmware version **v01.XX.XX.XX**
  - Compatible ONE-LOOP module: **NO COMPATIBLE**
  - Compatible PTT microphone: **ONEPTTS01**

If your version of the ONE-500 system is different than the one of this manual, please consult the LDA Support website to download the corresponding manual.

6.2 ONE-150 system versions and its accessories

- Firmware version **v03.XX.XX.01**
- Compatible ONE-LOOP module: **NO COMPATIBLE**
- Compatible PTT microphone: **ONEPTTS02**

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7 TECHNICAL SPECIFICATIONS

MODEL	ONE-500	ONE-150
Power supply	100 - 240V~ 50/60Hz	100 - 240V~ 50/60Hz
Power consumption	320W max / 100W at 1/8 output power	320W max / 100W at 1/8 output power
Frequency response	80 – 20000Hz +/-1dB	80 – 20000Hz +/-1dB
Signal to noise ratio	SNR~90dB, A-weighted	SNR~90dB, A-weighted
Distortion factor	<1% according to IEC 60268 -15dB. <0,01% pre-out outputs	<1% according to IEC 60268 -15dB. <0,01% pre-out outputs
Gain adjustment per channel	-100dB +10dB, 1dB steps	-100dB +10dB, 1dB steps
DSP	Integrated - 48 kHz, 24 bits - 344 MIPS	Integrated - 48 kHz, 24 bits - 172MHz
BGM audio inputs	Up to 3 x balanced audio 1 Vrms. 10 KΩ, 3 Pin, Euroblock type	Up to 3 x balanced audio 1 Vrms. 10 KΩ, 3 Pin, Euroblock type
Priority audio inputs	2 x balanced audio 1 Vrms. 10 KΩ, 4 Pin, Euroblock type (GPIO)	2 x balanced audio 1 Vrms. 10 KΩ, 4 Pin, Euroblock type (GPIO)
General control (GPIO)	2 x control I/O, 0-5 V, 100 Ω, in PRIO audio inputs	2 x control I/O, 0-5 V, 100 Ω, in PRIO audio inputs
LDA ACSI bus	1 x balanced audio 1 Vrms. 10 KΩ, RJ-45 female, total 1000m	1 x balanced audio 1 Vrms. 10 KΩ, RJ-45 female, total 1000m
ACSI-LINK connectivity	2 x balanced audio 1 Vrms. 10 KΩ, RJ-45 female, total 800m	2 x balanced audio 1 Vrms. 10 KΩ, RJ-45 female, total 800m
Pre-amp audio outputs	4 x balanced audio 1 Vrms. 100 Ω, 3 Pin, Euroblock type	2 x balanced audio 1 Vrms. 100 Ω, 3 Pin, Euroblock type
Attenuators control	6 x override 24V DC, 6 x 30mA, 2 Pin, Euroblock type (4 pin connector)	2 x override 24V DC, 6 x 30mA, 2 Pin, Euroblock type (4 pin connector)
Emergency control inputs	8 x 0 - 5V DC, monitored inputs, 2 Pin, Euroblock type (4 pin connector)	8 x 0 - 5V DC, monitored inputs, 2 Pin, Euroblock type (4 pin connector)
Emergency control outputs	2 x contact closure output, NO, max 60V DC 130mA, 2 Pin, Euroblock type (4 pin connector)	2 x contact closure output, NO, max 60V DC 130mA, 2 Pin, Euroblock type (4 pin connector)
Virtual matrix	15 x 24 maximum	15 x 24 maximum
Amplifier	2 x 500W D class (250Wrms x 2) @ 70 / 100V. Min load 20 Ω	2 x 150W D class @70 / 100V. Min load 66 Ω
Backup amplifiers	1 backup amplifier with automatic priority according to EN 54-16	1 backup amplifier with automatic priority according to EN 54-16
Speaker line outputs	6 x 100V audio. Min. impedance: 20 Ω 500W (outputs 1 and 2), 80 Ω 120W (rest), 2 Pin, Euroblock type	2 x 100V audio. Min. impedance: 66 Ω 150W (outputs 1 and 2), 80 Ω 120W (rest), 2 Pin, Euroblock type
Output power	500 W (Pink Noise 1/8). 200 Wrms according to EN 54-16	150 W (Pink Noise 1/8). 200 Wrms according to EN 54-16
Protection	Over-temperature, infrasonic, short circuit, slow start-up, overload	Over-temperature, infrasonic, short circuit, slow start-up, overload
Emergency power	181x76x167mm battery housing, up to 22Ah	181x76x167mm battery housing, up to 22Ah
Battery charger	Integrated, smart charging up to 3 amperes	Integrated, smart charging up to 3 amperes
Display	Backlit LCD 2 rows x 16 characters	Backlit LCD 2 rows x 16 characters
Operation conditions	-5 ºC to +45 ºC / 23 ºF to 113 ºF 5% to 95% relative humidity (without condensation)	-5 ºC to +45 ºC / 23 ºF to 113 ºF 5% to 95% relative humidity (without condensation)
Finish	Materials: Fe y AL Colors: RAL7016 and RAL9005	Materials: Fe y AL Colors: RAL7016 and RAL9005
Weight	7.5 Kg / 15.76 lb	7.4 Kg / 16.31 lb
Dimensions (w x h x d)	453mm x 88mm x 455mm / 18.2” x 3.46” x 18”	453mm x 88mm x 455mm / 18.2” x 3.46” x 18”
Accessories	Male Euroblock connectors, installation screws, 4 x rubber foot	Male Euroblock connectors, installation screws, 4 x rubber foot

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7.1 EN54-16 functions

ONE system controller implements all the mandatory functions complying with the EN54-16:2008 standard. It also includes the following optional certified functionalities:

1. Audible advice
2. Phased evacuation
3. Manual mute of voice-activated alarm condition
4. Manual reset of voice-activated alarm condition
5. Voice-activated alarm condition output
6. CIE connection fault indication
7. Fault indication relative to voice alarm zones
8. Manual voice alarm control
9. Interface to external control devices
10. Redundant power amplifiers
11. Emergency microphone

Auxiliary functions

1. Background music programs distribution
2. Zonal microphones call management
3. Channel I/O independent audio signal digital processing
4. Prerecorded messages player
5. LDA Sound Enhancer
6. Recording output
7. Control output for attenuators
8. 3-band input parametric equalizer per channel
9. 7-band output parametric equalizer
10. Loudness Compensation

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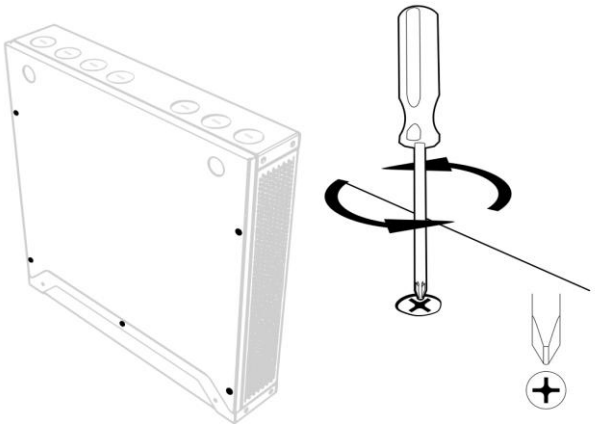
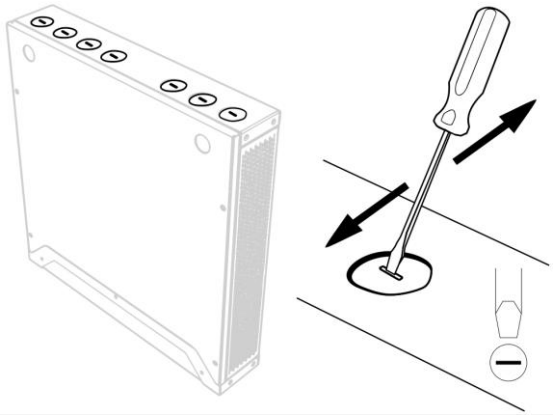
QUICK INSTALLATION GUIDE



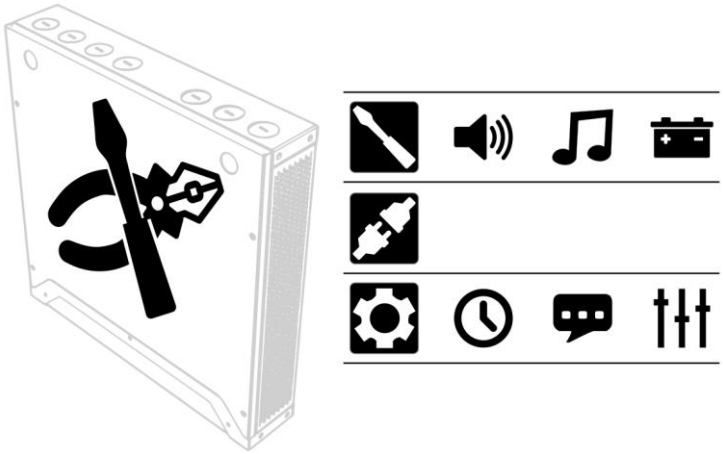
1.- Open the lid. Remove the 5 marked screws.



2.- With the help of a flat screwdriver remove the necessary cable glands depending on the amount of cables to install.

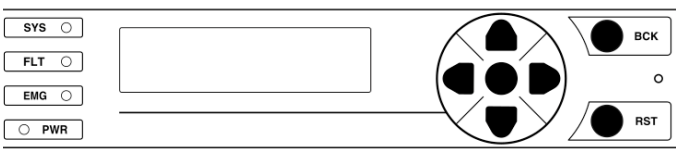
3.- Make the connections inside:

- Speaker lines: (Follow the order from 1 to 6 without leaving gaps, otherwise they will not be detected by the autosetup function)
- Install the battery charger card and battery.
- Connect the audio inputs, microphones, connections to the fire panel and the main power cable.



4.- Once the connections have been made, close the lid to avoid the intrusion detection warning.
Connect the power.

5.- In the on-screen menus, go to Configuration/Device/Run Autosetup, entering the password L3 (default 0003). Press OK to launch the automatic configuration.



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