NEO+

User's Manual

EN 54-16 certified Voice Alarm System for Evacuation and Public Address LDA NEO+

LDA audioTech

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 computer. 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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APPENDIX INDEX

1 INTRODUCTION

The LDA NEO+ voice and public address evacuation system is certified according to the requirements of EN 54-16, ensuring a safe and controlled emergency evacuation. Its high performance, versatility and audio quality make it a powerful and affordable music and voice distribution system for all types of installations.

This user manual is valid for the following NEO+ series equipment:

- **NEO+**. Main system controller
  - Includes all major functions required by the evacuation system
- **NEO+ 8250E**. System extension including 8 amplifiers/zones of 250W
- **NEO+ 4250E**. System extension including 4 amplifiers/zones of 250W
- **NEO+ 4500E**. System extension including 4 amplifiers/zones of 500W
- **NEO+ 4500LE.** System extension including 4 amplifiers/zones of 500W (8/4 Ω)

Other equipment referenced in this manual are:

- Line terminators TFL series
- MPS-8Z
- MPS-8Z+
- VAP-1
- VAP1-FES

1.1 System features

The LDA NEO+ voice and public address system with EN 54-16 certification ensures a fast, safe and controlled emergency evacuation. Its innovative features, excellent audio quality and flexibility in just 2U: 8 class D amplifiers, 5 audio inputs, 8x8 audio matrix (1024 zones), touch screen, AES67, etc.

Features:

- Redundant controller.
- 5 audio inputs. 8 preamplified outputs.
- Class D amplifiers for 100V/70V lines. Power range from 60W to 1000W per channel depending on the model.
- Audio matrix up to 1024 zones.
- 8 preamplified outputs.
- ACSI port for bus connection up to 32 devices via CAT5 UTP cable.
- ACSI Net protocol:
  - Up to 128 ACSI Net devices.
  - 32x128 (up to 4096 ACSI v2 devices).
- Up to 16 simultaneous channels.
- DSP: 7-band parametric input/output equalizer, loudness, LDA sound enhancer, independent volume controls for each input and output channel, and audio filters.
- Up to 16 simultaneous channels Triple configurable Ethernet port: FlexNet technology integrating AES67 Digital Audio IP Layer 3, remote control and monitoring, scaling the system with NEO+ Extensions in loop mode (up to 1024 zones and 128 devices).
- Front 4.3' touch screen with access control.
- 4GB of memory for pre-recorded messages (more than 600 minutes).
- Integrated emergency microphone.
- Control for up to 32 LDA AT-6 attenuators.
- Integrated front speaker for monitoring.
- 24 GPIO ports (10 monitored for integration in the Central Fire Alarm Panel).

Features voice/emergency alarm:

- Certified to EN 54-16.
- Detection and indication of failure in all emergency functions.
- Integration with the Central Fire Alarm Panel.
- Pre-recorded evacuation messages.
- Evacuation in stages.
- Manual control of emergency states with access control.
- Audio output recording in emergency state.
- Emergency log-in.
- Monitoring of speaker lines.
- Connection A+B (8-16 lines).
- Backup amplifier connection: 7+1 or 3+1.

2 DESCRIPTION

The NEO+ evacuation system controller is responsible for managing the system's audio inputs, whether emergency or conventional, and assigning them to any of the existing zones. The NEO+ controller includes all requirements for compliance with EN 54-16.

For system expansion, there are different NEO+ Extension models that connect to the controller via a redundant Ethernet connection and expand the number of zones, Available amplifiers and lines including the required and certified functions as system elements EN 54-16.

2.1 Frontal. Indicators

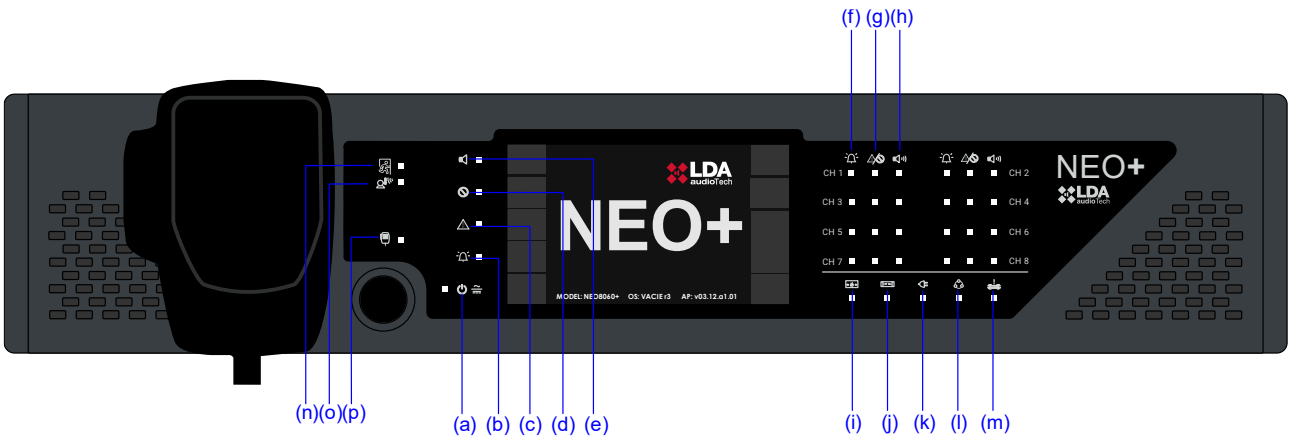

Illustration 1: Indicators


POWER


EMERGENCY


FAULT


DISARMED


PUBLIC ADDRESS


FAULT/DISARMED


SIGNAL/SIGNAL


CIE


PROTECTION


POWER


LINK


SYSTEM


EVACUATION


ALERT


EMERGENCY MICROPHONE

2.1.1 General state indicators

State indicators show the operating condition of the equipment or system at all times. They are located on the left side of the screen.

(a)  "POWER". Green

Power on: when the equipment is powered from one of the possible power supplies.

(b)  "EMERGENCY". Red

On: when the equipment is in emergency operating state (voice alarm), either by manual, automatic activation from the ECI (Fire Control and Indication Equipment) or any of the zone emergency inputs.

An audible continuous warning shall be given simultaneously with the ignition of the indicator lamp. This warning can be muted by the "ACK" control, or automatically when using the emergency microphone.

(c)  "FAULT". Amber

Power on: when the equipment is in a fault state. This indicator is automatically activated upon failure detection of any of the monitored functions.

An audible intermittent warning shall be given simultaneously with the ignition of the indicator lamp. This warning can be muted by the "ACK" control, or automatically when using the emergency microphone.

(d)  "DISARMED". Amber

On: when any area of the voice alarm zones is deactivated.

(e)  "PUBLIC ADDRESS". White

On: Normal PA operation. The system is not in emergency state.

2.1.2 Channel state indicators

The state indicators by channel show their operating state or condition at all times.

(f)  "EMERGENCY". Red

On: when the channel is in emergency operating state.

(g)  "FAULT/ DISARMED". Amber

On: when the voice evacuation channel is disabled.

Flashing: when a fault is detected in a voice evacuation channel.

(h)  "SIGNAL". Verde

On: when the signal output of the amplifier channel corresponding to the voice evacuation zone is detected. The level at which the indicator will light is -50dB.

2.1.3 Supervised functions indicators

The monitored function indicators show failures affecting general system functions.

(i)  "CIE"

On: when a failure occurs in the transmission line between the system and the ECI. Reset the failure condition. If the problem persists, see chapter 5.2 for resolution. Amber color.

(j)  "PROTECTION"

On: when any of the system protection devices are active. Reset the failure condition. If the problem persists, see chapter 5.3 for resolution. Amber color.

(k)  "POWER"

On: when the system is not powered up. It may be due to a failure in the main power supply, or emergency power. Reset the failure condition. If the problem persists, see chapter 5.4 for resolution. Amber color.

(l)  "LINK"

On: when there is a link failure between the equipment, and some element of the distributed system. Reset the failure condition. If the problem persists, see chapter 5.5 for its resolution. Amber color.

(m)  "SYSTEM"

On: when the computer's firmware or memory fails to run. Reset the failure condition. If the problem persists, see chapter 5.6 for resolution. Amber color.

2.1.4 Emergency sources indicators

Emergency source indicators indicate the operating state of pre-recorded messages, and the emergency microphone.

(n) "EVACUATION"

On: when the message being played is intended for evacuation of the selected voice alarm zone or zones. Red color.

(o) "ALERT"

On: when the message being played is intended for the alert of the selected voice alarm zone or zones. Amber color.

(p) "EMERGENCY MICROPHONE"

On: when the microphone is available to issue an evacuation message for the selected area/areas. If the indicator is off, wait for it to turn on, a warning signal may be playing. Amber color.

2.2 Controls

Illustration 2: Controls

2.2.1 Direct access controls

They are located on the left side of the screen. Allow direct access to the notification windows of active states. They will show extended information about the operating state and available options.

(a) EMG: "EMERGENCY"

Allows access to the emergency state menu. When the equipment or system is in this state, the expanded emergency state information window will be directly accessed. To continue operating the computer, press the "BACK" key.

(b) FLT: "FAULT"

Allows access to the expanded fault state information window. Failures shall be displayed while the fault state is not restarted, and up to 5 minutes after a restart has occurred.

(c) DIS: "DISARMED"

Allows access to the deactivation menu.

(d) PA / BACK: “PA/BACK”

Allows access to the PA menu when equipment is at rest, that is, if there is no emergency state.

It also allows the back function to be used for menu navigation. The "PA" button will change to "BACK" button when the return option is available.

2.2.2 Scroll controls

They are located on the right side of the screen. Allow the function to move up/down within the windows shown on screen. Includes the "OK" key for operations requiring confirmation.

2.2.3 TEST

The "TEST" button is located under the shortcut controls. Allows you to check the correct functioning of all indicators on the equipment. While pressing the "TEST" button, all of them will be switched on simultaneously and an audible warning will be given. The display will enter test mode. When you release the button, the check is completed. During the test process all manual controls will remain inactive and if a signal is received from the ECI, for the activation of an emergency warning, the test will be terminated.

2.2.4 RESET/ RST

The "RST" button is located in the upper right of the screen, this button allows to restart the operating condition of the equipment when it is in emergency state or failure.

NOTE: Pressing 2 times in a period of less than 10 seconds will restart the firmware of the NEO+ Master and Extensions control module. This action stops the execution of events, cuts the microphone word, reproducing messages, etc.

2.2.5 ACK

The "ACK" button is located under the "RESET" button on the right side of the screen. Allows to confirm, that the indication of emergency state or failure has been displayed. By pressing the button, the audible emergency or failure signal is muted.

2.2.6 Control window

The information is described below and can be found continuously in the control window.

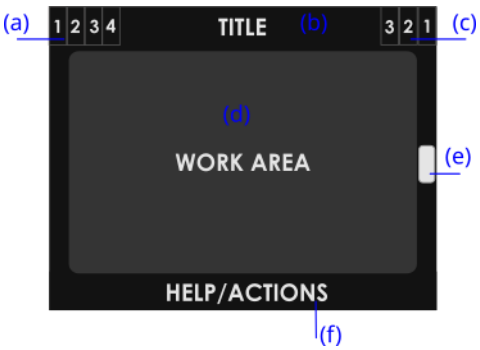

Illustration 3: Control window

(a) NAVIGATION LEVEL

In the upper right corner, you will find the menu level indicator, where the user is. As you go deeper into the menu, a higher level will be displayed.

(b) TITLE

The title of the section in which the user is operating will be indicated at the top of the window.

(c) ACCESS LEVEL

The current access level indicator is located in the upper right corner of the screen (see 2.3).

(d) WORK AREA

The central area of the screen will contain the controls or information that are available to the user.

(e) SCROLL BAR

In some windows this element may appear. Indicates that there are more objects, of the same by displaying up or down. To access them, use the scroll controls (see 2.2.2).

The advance indicator can have three positions, up, center or down, indicating start, middle zone and end respectively.

(f) HELP/ ACTION

In the lower area, you will find in each window a help text about the action the next step to be taken by the user.

2.2.7 Zone selection window

In the zone selection window, tap on the zones to select them. If you click on a selected area, it will be deselected. When the zone is selected, a selection strip will appear on top of the button. There may be areas not displayed on the screen, to move through the area selection window use the scroll control located to the right of the screen. On the right side of the window, you can see where it is by using the advance indicator (see 2.2.6).

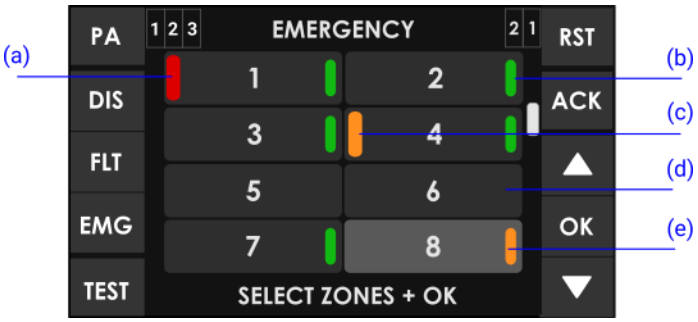

Illustration 4: Zone selection window

When the selection is complete, press the "OK" button on the navigation control to confirm; if you press the "BACK" button, the selection will be deleted. If you have not selected any zone, and press the "OK" key, the equipment/ system will automatically select all zones.

The state of each zone displayed on the screen is indicated. They are identified as follows:

(a) EMERGENCY STATE ZONE

Red rectangle on the left side of the zone button. In illustration 4, zone 1

(b) SELECTED AREA

Selection band on the right. In illustration 4, zones 1, 2, 3, 4 and 7

(c) FAULT ZONE INDICATIONS

Yellow rectangle on the left side of the zone button. In illustration 4 zone 4

(d) NO SELECTED AREA

No selection band. In illustration 4, zones 5 and 6 where zone 8 cannot be selected by default once deactivated (see 4.4).

(e) DISABLED AREA

Disabled zone. Selection band on the right side yellow. The zone button will be dark in color in illustration 4 zone 8.

2.3 User profiles. Access level. Password

Access levels define the different user profiles that can operate with the equipment/system. Each of the access levels has permissions to different menu options, level 1 being the lowest, and level 3 the highest number of available options. (see 2.2.6(a))

To access with a certain level of access, you must perform the access control satisfactorily. Once done, you can browse the options until you return to the home screen or perform any operation for more than 90 seconds.

The mode of access control can be configured at each level. You can select between confirmation mode, or 4-digit password access, with the configuration application.

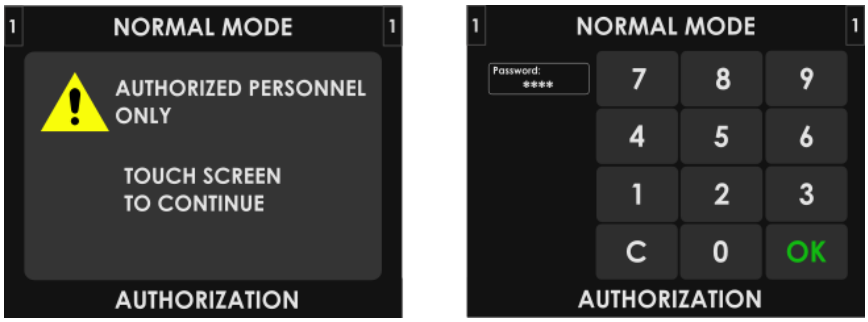

Illustration 5: Types of access control window

2.3.1 Access level 1

Access level 1 corresponds to the general user profile, or persons having overall responsibility for safety oversight, who may initially respond to an emergency state, or failure.

2.3.2 Access level 2

Level 2 access corresponds to the user profile responsible for security, with specific training to operate the equipment/system in the states "Public Address", "Emergency", "Fault Warning" and "Deactivation".

2.3.3 Access level 3

Level 3 access corresponds to the profile of system administrator user, with specific training that allows you to modify the configuration of the equipment/system, and perform the specified maintenance, according to the instructions and data in this manual.

2.4 Rear panel. Inputs and outputs

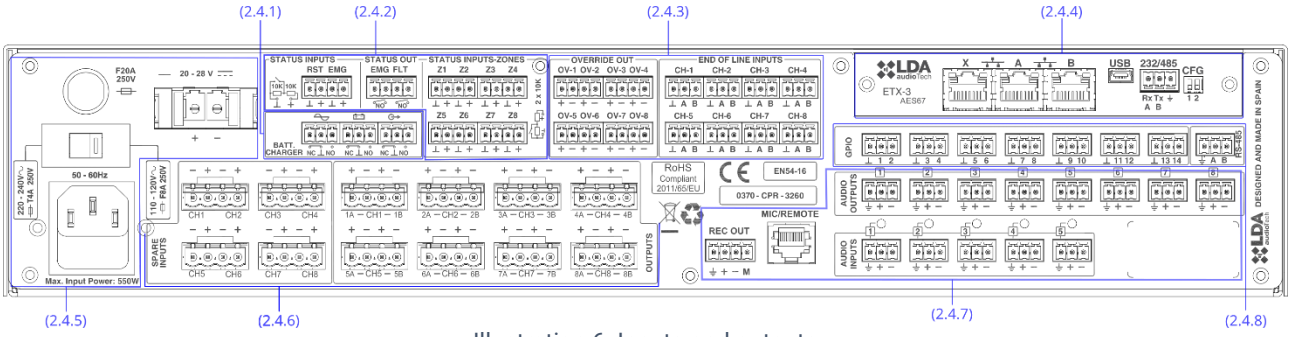

Illustration 6: Inputs and outputs

This chapter describes the rear connectors of NEO+ series equipment, depending on the model will include or not some of these types described and may vary in quantity.

Interfaces for emergency power monitoring and general I/O for emergency activation are available on all equipment. From the configuration application you can choose which/is of them will be used.

2.4.1 Emergency power monitor

(a) EMERGENCY POWER MONITOR INPUT

Allows the connection of the state outputs from the power supply that supplies emergency power to the system. Consists of three double contact shut-off inputs: failure in the main power supply, failure in the batteries, failure in one of the emergency power outlets.

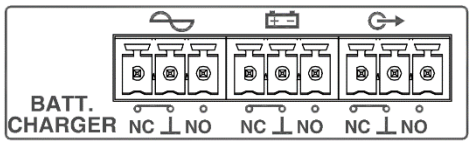

Illustration 7: Emergency Power Monitor Inputs

Each input has three terminals: Normally closed (NC), common and normally open (NO). To activate any of the fault signals, a contact closure at the NO input must occur, and an opening of a closure at the NC input simultaneously, otherwise it will be taken as a fault on the line.

The connection is made by a 9-pin female Euroblock connector with 3.81 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.14 → 1.5 mm^2 (30 → 14 AWG).

Brand	Description	Type	Signals	Activation
	Main Power Failure	Input	NC ⊥ NO	Dry contact close between ⊥ NO and Dry contact open between ⊥ NC
	Failure Batteries	Input	NC ⊥ NO	Dry contact close between ⊥ NO and Dry contact open between ⊥ NC
	Failure Emergency Power Outlet	Input	NC ⊥ NO	Dry contact close between ⊥ NO and Dry contact open between ⊥ NC

Table 1: Emergency source monitor inputs

NOTE: Some EN 54-4 battery chargers have the same monitoring interface, but with the meaning NC and NOT reversed. It is recommended to check the instructions in the user manual. Ex. SONAES model has to be reversed the NC and NO connections

The monitoring interface may be different depending on the manufacturer. Pay attention to the NO and NC meaning of each manufacturer. E.g. LDA devices indicate N.O. on the pins where the circuit is normally open (no failure). The SONAES charger used with NEO+ indicates otherwise, so you have to cross the pins NO and NC.

2.4.2 Emergency activation interface

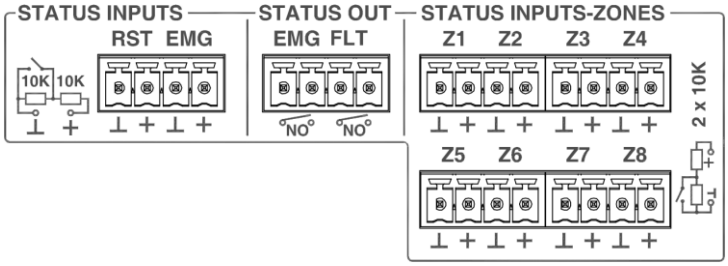

Illustration 8: Emergency interface

The emergency activation interface is suitable for interfacing with a fire control and indication (ECI) equipment. All input connections are monitored for failure on the transmission line. This interface is itself composed of three sections.

(a) GENERAL EMERGENCY ACTIVATION INPUT

Enables the activation and deactivation of the emergency operating mode for the entire system. Consists of two monitored inputs for voltage-free shutdown contact connection: Reset and Emergency. In order to monitor the link, the connection of the contacts to the equipment must be made by two external resistors of 10 kΩ (supplied with the equipment), placed at the exit of the ECI as shown in figure 9.

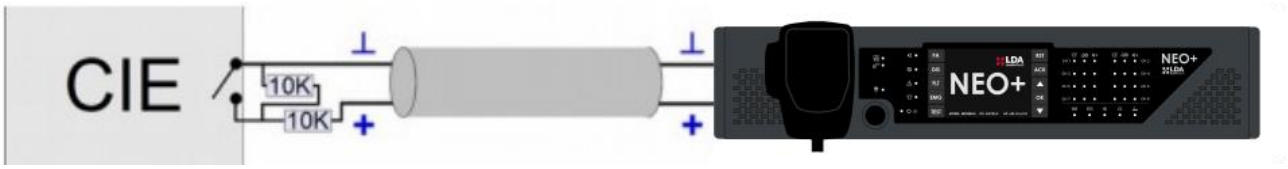

Illustration 9: Connection to Supervised ECI

When the emergency input (EMG) is activated, the equipment automatically enters an emergency state and issues the evacuation message by voice for all system areas (default). If the reset input (RST) is enabled, the equipment will exit the emergency mode and return to the sleep state.

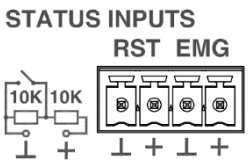

Illustration 10: General emergency activation input

Manual activation (by the front of the equipment, VAP-1 or VAP-FES panel 1) is priority over activation by STATE INPUTS, which can also be stopped manually, although if the signal is still active it will act again after 5 seconds. Manual activation cannot be stopped remotely.

If there is a failure on the transmission line between the ECI and the equipment, a fault indication shall be given at the front of the equipment. (see 2.1.3). On systems where these inputs are not used, connection monitoring should be disabled in the configuration application.

NOTE: To avoid unwanted activation problems the system does not allow alarm activation inputs to perform the sequence EMG, RST, EMG instantly. The second consecutive activation will leave a margin of about 5 seconds.

The connection is made by a female Euroblock connector with 4 contacts and 3.81 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.14 → 1.5 mm^2 (30 → 14 AWG).

Brand	Description	Type	Signals	Activation
RST	Emergency State Reset Input	Input	⊥ +	Dry contact close Supervised Input
EMG	Emergency State Activation Input	Input	⊥ +	Dry contact close Supervised Input

Table 2: General emergency entries

(b) OUTPUTS STATE MONITOR

The equipment has two indicator outputs by normally open (NO) voltage-free contact closure of the system's operating state. The EMG signal (emergency state). The FLT (fault state) signal, which appears when there is an intermittent signal with a 0.5 Hz cycle, will mean disengaged state (DIS) if the signal is fixed.

The connection is made by a female Euroblock connector with 4 contacts and 3.81 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.14 → 1.5 mm^2 (30 → 14 AWG).

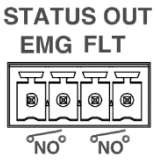

Illustration 11: System state outputs

Brand	Description	Type	Signals	Activation
EMG	Active emergency state output	Output	⊥ +	Dry contact closure (max. 150 mA/ 48 VDC)
FLT/ DIS	Active fault state output Disarmed state output	Output	⊥ +	Dry contact closure (max. 150 mA/ 48 VDC) Failure: intermittent Disarmed: continuous

Table 3: System State outputs

(c) ZONE EMERGENCY ACTIVATION INPUT

Allows to set up eight user defined evacuation sequences. By default, each input activates the emergency state in each area of the system. Consists of eight monitored inputs for voltage-free (NO) shut-off contact connection. In order to monitor the link, the connection of the contacts to the equipment must be made by two external resistors of 10 kΩ (supplied with the equipment), placed at the exit of the ECI as shown in figure 9.

Manual activation mode is priority over input activation mode, you can also stop the emergency manually but not remotely.

The connection is made by two female Euroblock connectors of 8 contacts and 3.81 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.14 → 1.5 mm2 (30 → 14 AWG).

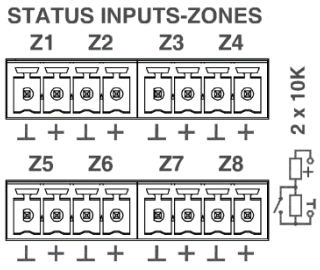

Illustration 12: Zone-based emergency activation

Brand	Description	Type	Signals	Activation
Zx	Emergency state activation input in zone x	Input	⊥ +	Dry contact closure Supervised Input

Table 4: Emergency Input by zone

2.4.3 Interface speaker line device

(a) ATTENUATOR OVERRIDE OUTPUT

The equipment has 8 attenuator override signal outputs for PA lines. In the idle state they have a voltage of 0V. In the active state, each output has a voltage of 24 VDC (*) and 30 mA maximum current. Each output is two-pole.

The connection is made by two female Euroblock connectors of 8 contacts and 3.81 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.14 → 1.5 mm² (30 → 14 AWG).

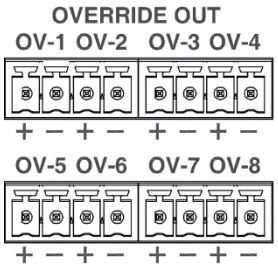

Illustration 13: Output override attenuators

Brand	Description	Type	Signals	Activation
OV-x	Attenuator override output	Output	**+ -**	24 VDC 40 mA

Table 5: Speaker line attenuator override output

NOTE: The typical override signal consumption of a PA line attenuator is 10 mA per unit.

(*): The output voltage may vary between 20 and 27 VDC. Depending on the battery State.

(b) INPUT SPEAKER LINE TERMINATORS

The equipment has 8 double inputs for connection of line terminators of loudspeakers with return cable: **TFL-1**. Each input has 3 terminals, one common, and two terminals for the lines, A and B, associated with the same amplification channel (CH-x). **These inputs are not used with TFL-2 terminators.**

The connection is made by eight female type Euroblock connectors of 3 contacts and 3.81 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0,14 → 1,5 mm² (30 → 14 AWG).

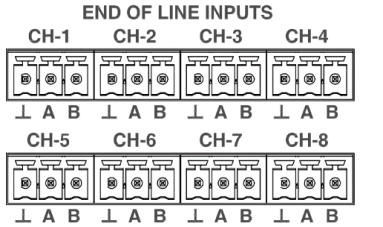

Illustration 14: Speaker line terminator inputs

Brand	Description	Type	Signals	Activation
CH-x	Signal input from speaker line terminators	Input	⊥ AB	Dry contact close between ⊥A Dry contact close between ⊥B

Table 6: Speaker line terminators input

2.4.4 System connection bay

The equipment has a connection bay where it integrates an ETX-3 module, which allows the connection to both public address systems and integrate third party systems. The ETX-3 module is supplied as standard equipment.

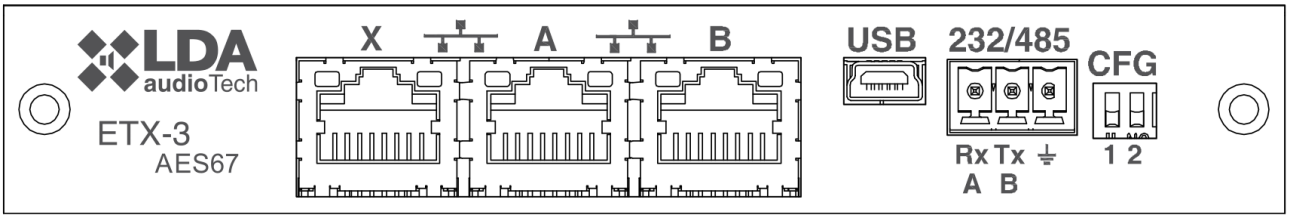

Illustration 15: System Connection Bay

(a) CONFIGURATION SWITCH FOR SYSTEM CONNECTION

The computer has a switch for configuring the behavior of the ports connecting to the system. According to their position

Brand	Description	Type	Signals	Activation	
CFG	X port: FlexNet* Port A: Control data only Port B: Audio data only	Config.	NA	Position 00	
	Port X: Control data only Port A: FlexNet* Port B: FlexNet*	Config.	NA	Position 01	
	X Port: Audio data only Port A: FlexNet* Port B: FlexNet*	Config.	NA	Position 10	
	X port: FlexNet* Port A: FlexNet* Port B: FlexNet*	Config.	NA	Position 11	

Table 7: System connection configuration

NOTE: For NEO+ devices, the B-mouth will usually remain inactive in modes 01, 10 and 11 to prevent *storm* effect on the FlexNet ring. This mouth will only be opened when any drop or disconnection of a NEO+ Extension device occurs.

(*): FlexNet mode will have Control data in VLAN1 + Audio data in VLAN2. For more information about FlexNet, see chapter 3.3.

(b) SYSTEM INTEGRATION PORT X

The X port allows connection of the system from an external Ethernet network that can be used for monitoring, management from external software, connection to other systems, add IP audio sources, etc. This port can be configured to deactivate when the system is in emergency, thus increasing the security of the internal network.

(c) SYSTEM CONNECTION PORT A, B

The computer has two ports for connection to the system. The behavior of these connection ports is configured according to paragraph (e) by configuration switches. The default mode should be at position 01, where port A is the primary connection and port B is the redundant connection. In case of failure of the first port (A), the computer will automatically switch the connection to the second port (B).

Connection is made by CAT5 or higher Ethernet network cable, standard RJ-45 T568B (a connection cable is supplied with the equipment).

Brand	Description	Type	Signals	Activation
X/A/B	System connection ports	Port	Ethernet CAT 5	Proprietary command protocol

Table 8: System connection ports

(d) USB port (reserved)

The USB port (mini-USB type AB) available on the computer is reserved.

Illustration 16: Mini-USB port

(e) INTEGRATION SERIAL PORT

The equipment has a two-wire RS-485 type serial port connection. Default configuration for events: 19200 bps 8 bits, parity pair, 1 bit stop for third party system integration. Commands that support this port trigger system events that can be configured by the configuration application.

Illustration 17: Integration serial port

Configuration for VCC. If the mode for use with VCC model wall controls is enabled, it can no longer be used with other devices.

The connection is made by 3-pin female Euroblock connector (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0,14 → 1,5 mm^2 (30 → 14 AWG). The use of braided cable is recommended for connecting serial signals.

Brand	Description	Type	Signals	Activation
485-AB	Serial port for RS-485 integration Terminal A and B	Port	AB	Standar RS-485 half duplex
485 ⊥	Chassis or cable shield	NA	NA	NA

Table 9: Serial port integration

NOTE: The 232 mark is for use in the future.

2.4.5 Power supply

The NEO+ series has a dual redundant power supply.

(a) SWITCHING POWER SUPPLY

The equipment has a 230 V/ 115 V mains power range selector, default set to 230 V. Refer to local mains voltage for setting the switch.

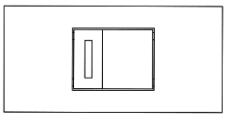

Illustration 18: Main power switch

Description	Type	Signals	Activation
Selector main supply voltage	Config.	NA	230 for range 220-240 V~50-60 Hz 115 for range 110-120 V~50-60 Hz

Table 10: Main power supply

(b) MAIN POWER SUPPLY INPUT

The equipment has an IEC 60320/C14 input connector for connection to the main power supply.

Connection is made by IEC 60320/C13 power cable to Type E+F male plug supplied with the equipment.

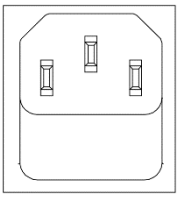
Illustration 19: Main power supply input

Description	Type	Signals	Activation
Connection for main power supply	Input	L N G	220-240 V/110-120 V ~ 50/60 Hz (according to selector)

Table 11: Main power input

(c) FUSE MAIN POWER

The equipment has a system of protection against overload in its main power input, implemented through a fuse holder that contains two fuses: one 230 V installed by default in the main compartment and a second 115 V fuse in the additional compartment.

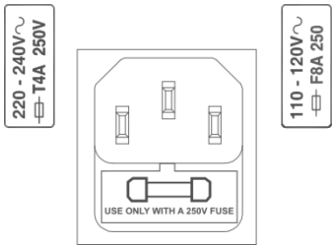

Illustration 20: Main power fuse

NOTE: To use the equipment on a 115 V power supply, you must replace the pre-installed 230 V fuse with the 115 V fuse.

To access the fuses, make a small lever movement in the top notch of the fuse holder using a flat-tip screwdriver.

The fuse shall be cylindrical, of 5x20 mm glass and with the maximum current specified in the technical characteristics of the equipment.

(d) EMERGENCY POWER SUPPLY INPUT

The equipment has an input for emergency power supply. The emergency voltage is continuous and rated at 24 VDC, which will be supplied externally to the equipment by a battery source system and charger according to EN 54-4. Consists of a two-pole + and - connector that will connect to the positive and negative poles of the battery system. For details on the connection mode of the emergency power system, see chapter 3.1.

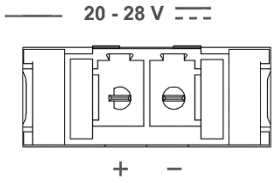

Illustration 21: Emergency power input

The connection is made by a female Euroblock connector with 2 contacts and 7.62 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.2 → 6 mm^2 (24 → 8 AWG).

Brand	Description	Type	Signals	Activation
20-28 V	Emergency power input	Input	**+ -**	20 - 28 VDC Max current: see model technical characteristics

Table 12: Emergency power input

(e) EMERGENCY POWER FUSE

The equipment has a housing for an emergency power supply overload protection fuse. The fuse shall be cylindrical, of glass 6x32 mm and of the maximum current specified in the technical characteristics of the equipment and/or marking on the rear.

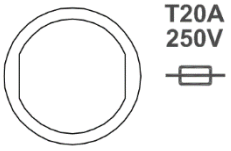

Illustration 22: Emergency power fuse

To access the fuse, rotate the fuse holder a quarter turn counterclockwise using a flat-tip screwdriver.

2.4.6 Speaker lines

(a) SPEAKER LINE OUTPUTS

The equipment has 4 to 8 amplification channels, each channel has 2 speaker line outputs marked as A and B. The nominal power of the amplifier channel is distributed between both line outputs. For details on connecting speaker lines see Chapter 3.4. Each line connection has two + and - terminals for connecting speakers on 100 V or low impedance PA lines depending on the model.

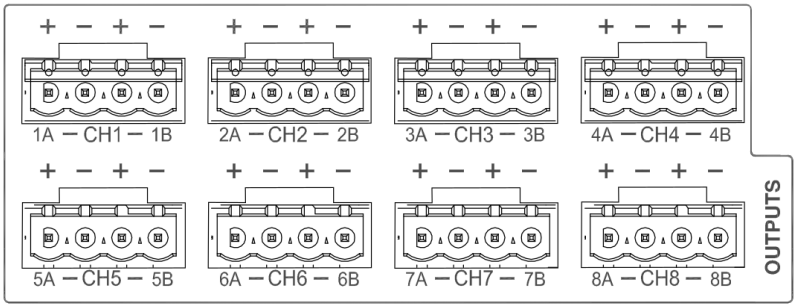

Illustration 23: Speaker line outputs

The connection is made by a female Euroblock connector with 2 contacts and 5.08 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.5 → 2.5 mm² (22 → 12 AWG).

Brand	Description	Type	Signals	Activation
xA-CHx-xB	CHx Amplification channel X	Output	+ -	NA
	xA Speaker line output A corresponding to the amp channel X			
	xB Line output of B speaker corresponding to the amplification channel X			

Table 13: Speaker line outputs

(b) INPUT BACKUP AMPLIFIERS

The equipment has a backup amplifier input for each internal amplifier channel. Each connection has two terminals, + and - where the output of the redundant amplifier will be connected, usually the last channel of each equipment. For details on connecting redundant amplifiers, see Chapter 3.5.

The connection is made by a female Euroblock connector with 2 contacts and 5.08 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.5 → 2.5 mm² (22 → 12 AWG).

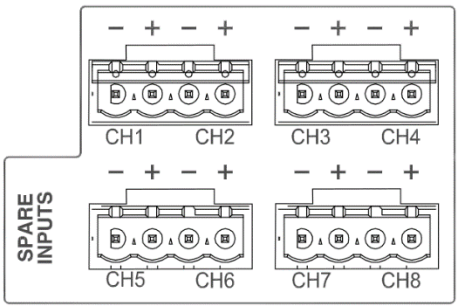

Illustration 24: Backup amplifier inputs

Brand	Description	Type	Signals	Activation
CHx	Backup amplifier channel input corresponding to the amplifier channel X	Input	+ -	NA

Table 14: Backup amplifier inputs

2.4.7 Audio source inputs and outputs

(a) RECORDING OUTPUT

The system controller has a line-level balanced audio output, which includes a low-level active signal (TTL). Allows monitoring and recording of messages emitted from emergency microphone. When a live voice (microphone) signal is emitted from one or more evacuation zones, the recording output shall be activated by replicating the signal being transmitted by the evacuation zone or zones. The exit maneuver shall be activated at low level at that time.

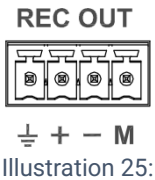

Illustration 25: Recording output

The connection is made by a 4-pin female Euroblock connector with 3.81 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.14 → 1.5 mm² (30 → 14 AWG).

Brand	Description	Type	Signals	Activation
REC OUT	Balanced line-level audio	Output	⊥ + -	Emergency microphone message on broadcast by any voice evacuation zone or prio input (b)
	Recording Output Activation - Maneuver	Output	⊥ M	0 VDC

Table 15: Recording output

(b) PRIORITY INPUT

The NEO+ Extension models have an audio priority input instead of the recording output. This priority input for PA mode is activated by a low-level maneuver on pin "M", the PA LED flashes indicating it. The audio of this input will be output on all output channels while the maneuver is active, unless the system enters into an emergency state.

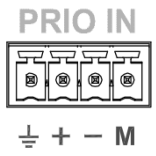

Illustration 26: Priority input

Brand	Description	Type	Signals	Activation
PRIO IN	Balanced line-level audio	Input	⊥ + -	The audio signal is sent to all channels
	Activation maneuver	Input	⊥ M	0 VDC

Table 16: Priority Input

(c) INPUT MICROPHONES AND ACSI DEVICES

The equipment has an input for microphones and distributed elements such as MPS-8Z, MPS-8Z+, VAP-1 and VAP1-FES.

Consists of a line-level audio, control signal and power input, for connecting up to 8 devices to the bus in ACSIv1 mode and up to 32 devices for ACSIv2.

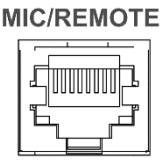

Illustration 27: ACSI bus input

NOTE: ACSIv1 and ACSIv2 devices cannot be mixed on the same bus. ACSIv1 devices will not work on buses configured as ACSIv2 or vice versa. These changes are made through the configuration application.

This line uses the audio input 5 of the available audio inputs, so if devices are connected to the "MIC/REMOTE" input, the line audio input 5 will be disconnected. For details on the connection of these devices, see Chapter 3.2.

Connection is made via Ethernet network cable, T568B Cat 5E standard or higher. Maximum connection distance for the whole bus: 1000 m.

Brand	Description	Type	Signals	Activation
MIC/REMOTE	Balanced line-level audio	Input	Protocol	NA

Table 17: Microphone PA input

NOTE: This connection is not compatible with standard Ethernet network electronics.

(d) LINE LEVEL AUDIO OUTPUTS

The equipment has 8 line level balanced audio outputs, one for each amplification channel, whose signal is identical to that delivered to the input of the amplifiers integrated in the equipment.

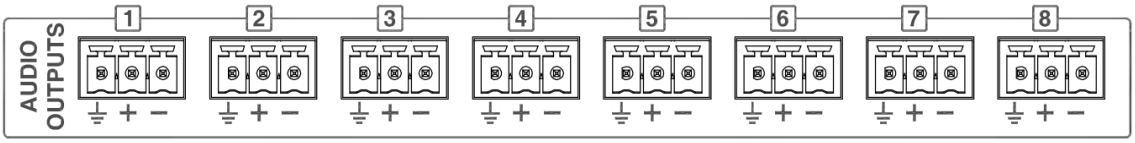

Illustration 28: Line level audio outputs

The connection is made by eight female type Euroblock connectors of 3 contacts and 3.81 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.14 → 1.5 mm^2 (30 → 14 AWG).

Brand	Description	Type	Signals	Activation
AUDIO OUTPUTS x	Balanced line-level audio output signal replica before integrated amplifiers	Output	⊥ + -	NA

Table 18: Line audio outputs

(e) AUDIO SOURCE INPUTS

The NEO+ has 5 line-level balanced audio inputs. Input 5 is shared with the ACSI Bus input. When the ACSI bus is being used, input 5 will be disabled. On the inputs, there is an indicator for the level of the input signal that will light up in green when the input signal exceeds -50 dB, and in red when it exceeds -10 dB.

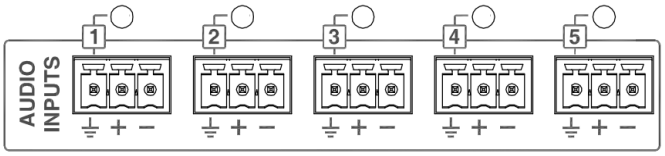

Illustration 29: Audio source input

The connection is made by five 3-pin female Euroblock connectors (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.14 → 1.5 mm^2 (30 → 14 AWG).

Brand	Description	Type	Signals	Activation
AUDIO INPUTS x	Line level balanced audio input and signal level indicator	Input	⊥ + -	Green: Level above -50 dB Red: Level above -10 dB

Table 19: Audio source inputs

(f) PA-LIVE AUDIO SOURCES

The NEO+ 4500LE has audio inputs for use in PA-LIVE mode. These inputs are activated by software configuration and are dedicated to those cases where PA mode inputs do not want to be controlled from the system. In this mode the inputs of the computer come directly to the output channels, configuring up to which priority level they will remain active. When the system wants to make use of for emergency it will take control of the exits.

Ex. In a theatre or stadium you can connect your control desk here and use the amplifiers of the NEO+ 4500LE for professional Live audio, with the advantage that in case of evacuation there will always be room for the emergency sources of the NEO+ system. This will also allow the sound reinforcement system to be used for evacuation.

2.4.8 System Integration Ports

(a) GENERAL PURPOSE OUTPUT INPUT (GPIO)

The computer has 14 programmable GPIO ports, through the configuration application, for system events. GPIO ports work with TTL level logic signals (0 - 5 VDC).

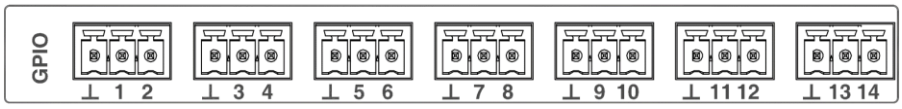

Illustration 30: General-purpose I/O (GPIO) ports

The connection is made by 7 female Euroblock connectors with 3 contacts and 3.81 mm pitch (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.14 → 1.5 mm^2 (30 → 14 AWG).

Brand	Description	Type	Signals	Activation
GPIO x	General purpose I/O port configurable	Input Output	⊥ **x**	Input 0-5V DC Output 0-5V DC

Table 20: General-purpose I/O (GPIO) ports

(b) ADVANCED ECI INTEGRATION PORT

The equipment has a monitored serial communication port for connection to fire control and indication (ECI) equipment. To select the compatible system to which the computer will be connected, you must use the configuration application.

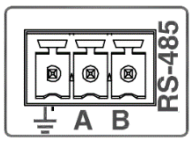

Illustration 31: ECI bus series

The connection is made by a 3-pin female Euroblock connector (supplied with the equipment). The cable cross-section range for each pole of this connector is: 0.14 → 1.5 mm^2 (30 → 14 AWG).

Brand	Description	Type	Signals	Activation
485-AB	Serial port for RS-485 integration Terminal A and B	Port	**AB**	Standard RS-485/9600/8/N/1*
485 ⊥	Chassis or cable shield	NA	NA	NA

Table 21: Advanced ECI integration port

3 CONNECTION AND START-UP

3.1 Emergency power supply

Equipment requires an external emergency power supply to function as voice evacuation equipment. This power equipment must manage the charge and monitor the State of external batteries that will provide power in case of main power failure. The equipment's emergency power requirements can be seen in the technical specification in chapter 7. The schematic of the emergency supply connection can be seen in the illustration

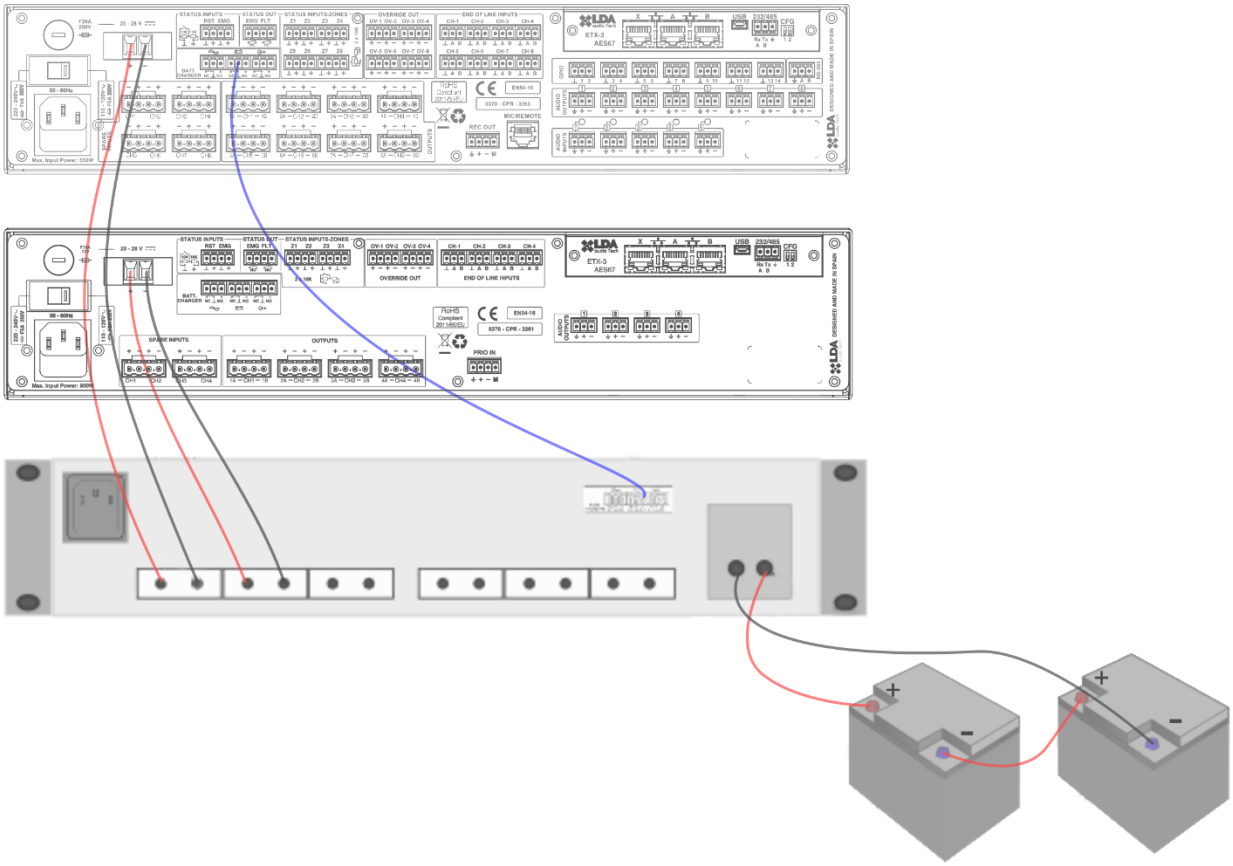

Illustration 32: Emergency power diagram

The emergency power supply system shall be capable of supplying emergency power to the system for 30 minutes in evacuation and 24 hours on standby, as recommended by EN 54-32.

Select approved batteries, follow the assembly and maintenance instructions specified by the manufacturer of the charger used.

NOTE: The monitoring interface may be different depending on the manufacturer. Pay attention to the NO and NC meaning of each manufacturer. E.g. LDA devices indicate N.O. on the pins where the circuit is normally open (no failure). The SONAES charger used with NEO+ indicates otherwise, so you have to cross the pins NO and NC.

3.2 Microphones and ACSI devices

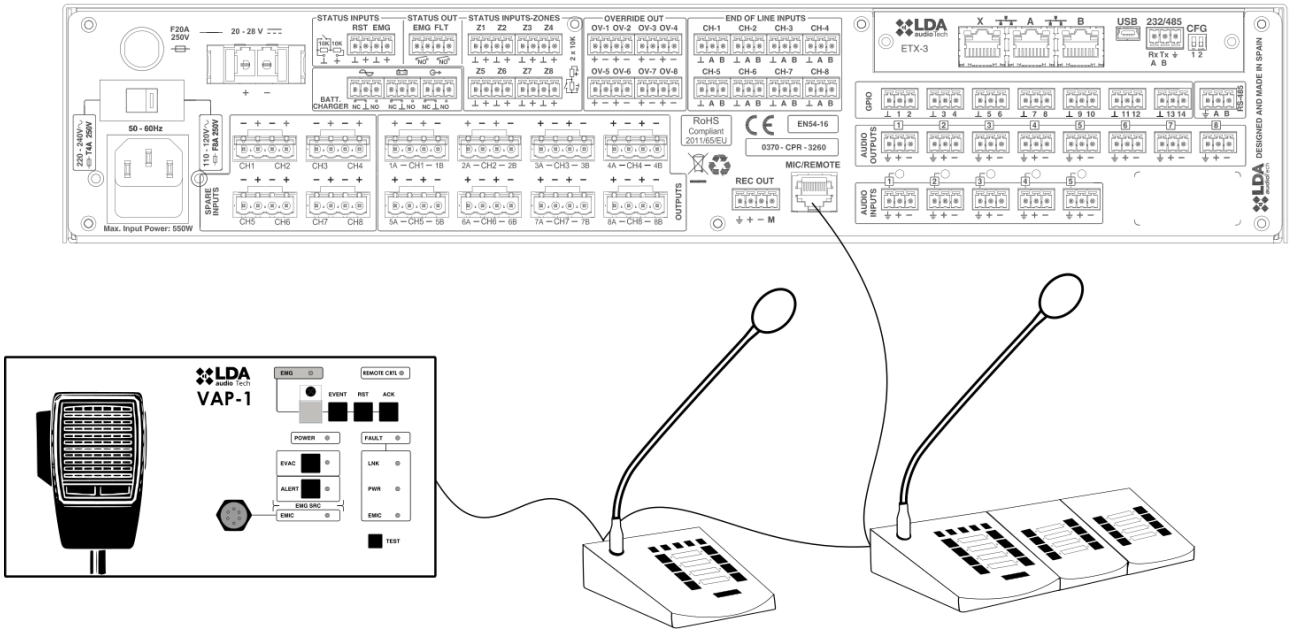

Illustration 33: Connection of microphones and ACSI devices

The equipment has a connection for PA system elements such as microphones, remote panels, etc. The connection for all elements is in bus mode. Each of the devices connects to the previous, up to a maximum of 32 devices, and a maximum total wiring distance of 1000 m. (see 2.4.7(c))

Each device has an address selector inside the bus. Depending on the priority set, you will be allowed to occupy the channel when it is occupied by another device. To configure the priority of each device on the bus, you must use the configuration application. If no priority has been set, the address within the bus will be used as the priority for each of the devices. When multizone microphones and remote panels coexist on an ACSI bus, the latter will be the priority within the bus, as they will operate in emergency, using the priority to establish the order between different panels, and between different microphones.

NOTE: When the ACSI bus is in use, audio source input 5 will be disabled in the sound source mapping (see 4.5.2).

3.3 FlexNet Connection

FlexNet is a communication protocol developed by LDA Audio Tech, designed to transmit digital audio and control data over standard Ethernet networks. This system offers high quality and reliability, the audio transmission is based on the open standard AES67 protocol and for the control of the system an IP-based protocol has been developed. With FlexNet, all compatible equipment can be interconnected without the need for an external network architecture. To provide greater robustness and simplicity, in case of failure of the link, the connection between computers will continue to maintain its integrity by automatic management of the main and redundant links of each computer.

Using FlexNet, from the system controller, we will have access to basic configuration, control and monitoring of connected equipment. For advanced configuration of FlexNet and elements interconnected by this system, the configuration application is required.

To make a FlexNet connection between compatible computers, connect the ports as shown in Figure 4, verify that all the computers belong to the same network (see chapter 4.5.9).

NOTE: The configuration shown is recommended by LDA. By default, equipment leaves the factory with the CFG switch at position 01. For other configurations, see paragraph 2.4.4(a).

Illustration 34: FlexNet

The maximum bandwidth that FlexNet takes up for a standard NEO+ system is 10 Mb/s, it needs a latency of less than 750 microseconds. It can work over 100 Mb/s Ethernet networks and supports routing via 2 IEEE 802.1q VLANS.

Operation of the redundant connection between NEO+ equipment:

The return connection to port B will normally be on standby. When connection loss is detected with any computer it will be activated automatically. If you are unable to recover the lost devices, it will return to its original state and mark LINK as failed until a manual reboot. In case the system works correctly, but with the redundant link it will mark the general fault with the text "Network backup link active".

3.4 Speaker lines

The system's equipment has up to eight independent amplification channels, each with two speaker line outputs. The amplification power of each channel is distributed between both lines, so that the impedance of both parallel lines cannot be lower than the nominal impedance of the amplifier. This feature allows great flexibility in the connection of speaker lines, allowing the connection of redundant speaker lines for the same voice evacuation area.

In Appendix IV: Cable section for speaker lines you can find a guide table for the calculation of the cable cross-section to be used in the installation according to the power and length of the cable.

3.4.1 Standard mode wiring

The lines following a classic PA scheme, allows to use a single cable to connect all the speakers to the same amplifier channel. In this mode, the power of the amplification channel is distributed by only one of the output lines of the equipment.

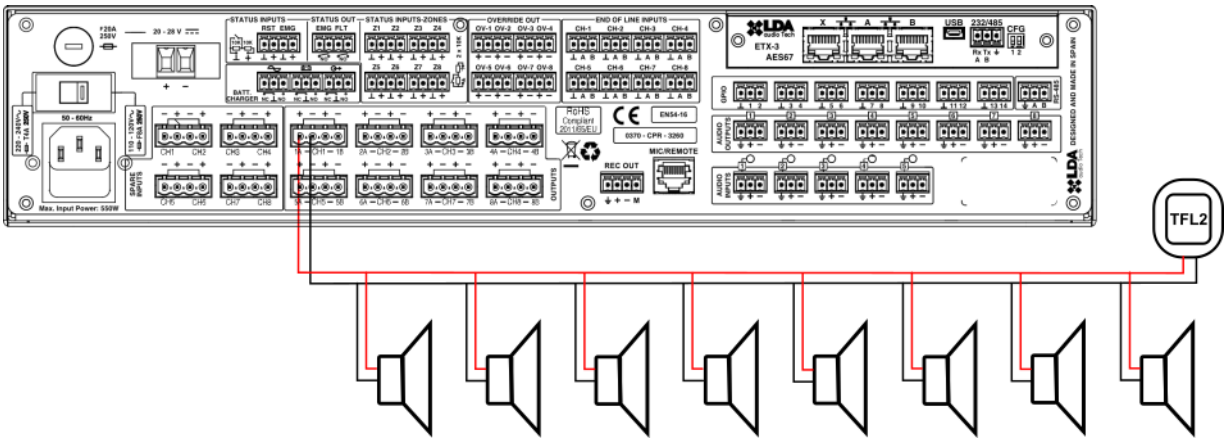

Illustration 35: Speaker lines. Standard mode

3.4.2 A+B mode wiring

The drawing of lines following a A+B mode scheme allows the wiring of the same voice evacuation line to be guided along two different routes. This reduces the risk of losing a complete voice evacuation zone in case of fire or breakdown on one of the lines. In this mode, the power of the amplification channel is distributed over both output lines of the equipment.

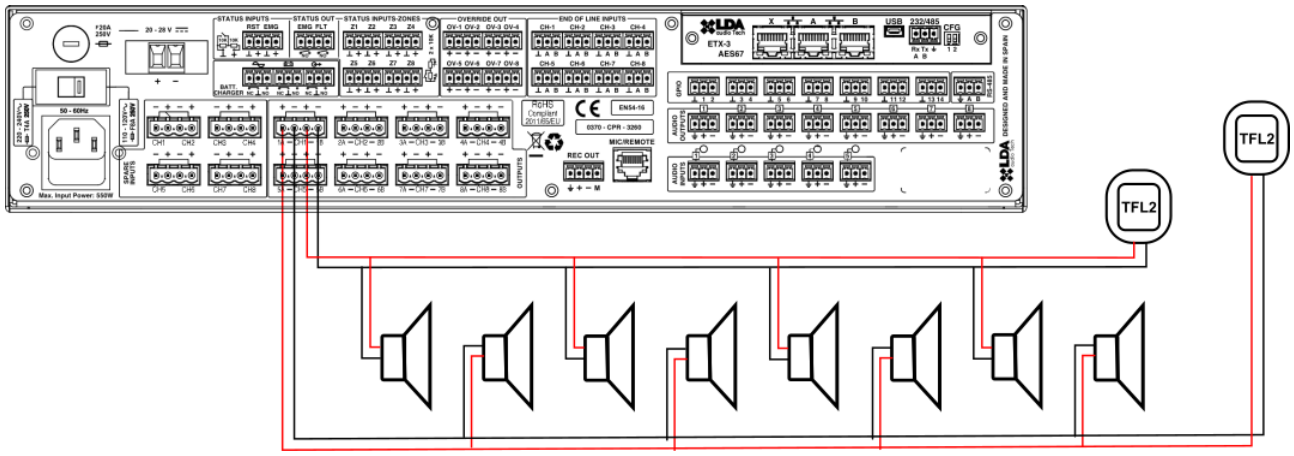

Illustration 36: Speaker lines. AB mode

3.4.3 Class-A mode wiring

The drawing of lines following a Class-A scheme, allows a "loop" connection of a line, recovering all or part of the speakers in case of break on the line.

In this mode, branch B acts as a backup branch and is only activated in case of failure on the main line. When an open circuit fault is detected, the backup line (branch B) is activated. If the failure persists, then one measurement per separate branch is performed.

It is recommended to locate the line terminator at the physical point of the line furthest from the equipment.

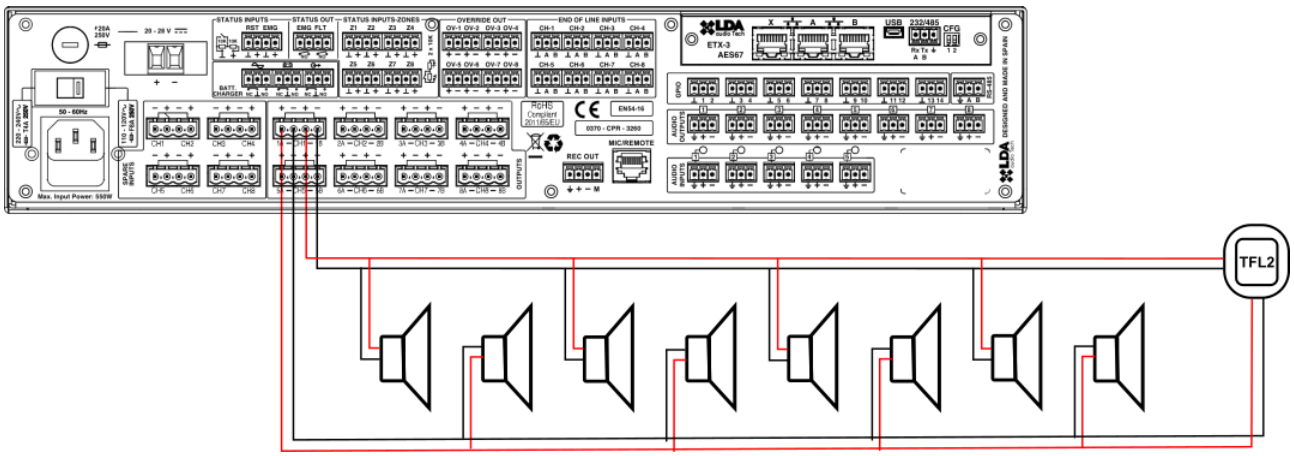

Illustration 37: Line of speakers. Class-A mode

3.4.4 Speaker lines supervisión

Each speaker line is independently monitored. Line monitoring is performed by two complementary methods: Line impedance measurement, and line terminators.

For line impedance measurement, the equipment periodically injects a signal every 30 seconds at a non-audible frequency.

In addition, line terminators (see 3.4.5) should be used, which improve the accuracy of measurement at the end of the speaker line.

For proper measurement of speaker lines, the system must be calibrated by the configuration application in the following cases:

- First time on. Make sure there are no short circuits or shunts on the speaker lines.
- There have been changes in the connected speakers:
  - Units have been added
  - The number of units has been reduced
  - Settings for one or more units have been changed
  - The model of one or more speakers has been changed

To configure speaker line measurement, or use line terminators, use the configuration application.

NOTE: Impedance measurement is not supported with attenuators installed on the line, as they modify impedance in a non-linear way.

The installation must ensure compliance with the corresponding regulation for low voltage since it works with 100V signals. Check that there are no earth leads in the wiring which could affect the operation of the system.

3.4.5 Line terminators

The line terminator allows for greater accuracy in monitoring speaker lines.

The installation of line terminators is carried out by connecting these devices directly to speaker lines, after connecting those speakers for which integrity checks are made. The system shall perform an initial impedance calibration using the line end device, and when deviating by a percentage of the calibration initially detected, it shall detect that change and display it.

This way, the line end terminal will be connected to the computer according to the following scheme:

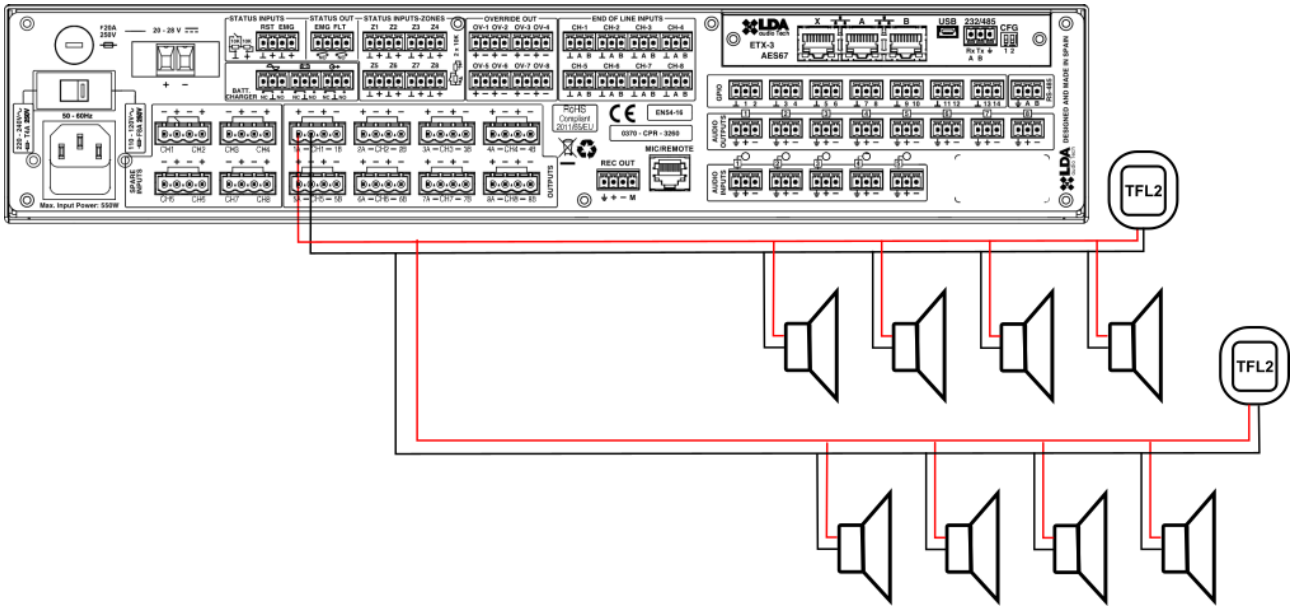

Illustration 38: Speaker line terminators connection

NOTE: For more information about the line terminator, TFL2, please consult our LDA Support website

3.4.6 Volume control - Attenuators

The equipment has 8 outputs for 24V volume controllers (4 wires). The maximum number of attenuators that each output can handle should be calculated from the technical characteristics (see chapter 7). The terminals shall be connected in parallel with the polarity indicated:

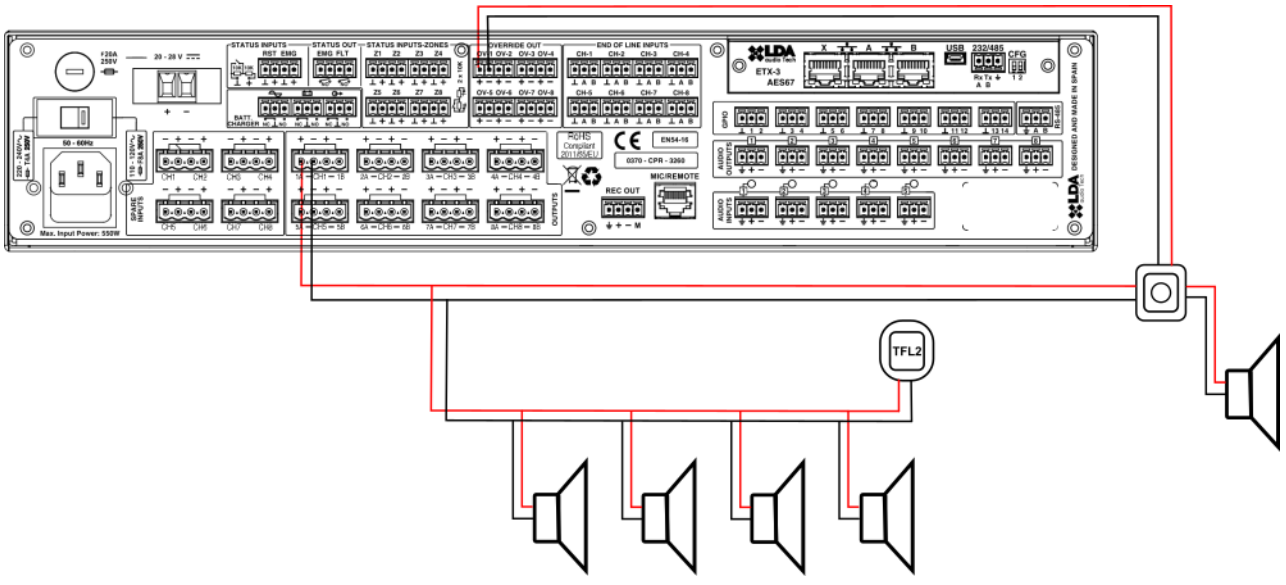

Illustration 39: Volume controller connection

NOTE: After a volume controller, no line terminator should be connected as this may cause failures in the speaker line fault detection system.

NOTE: For more information about the volume controller, AT Series, please consult LDA Support website.

3.5 Backup amplification

The equipment includes the option to work with backup amplifier. This option is selectable via the configuration application. By default, the last channel of the equipment will be used as a backup for the rest of the integrated amplifiers, therefore it cannot be used to service a voice alarm zone. If a malfunction is detected in any of the channels, switching to the backup channel will be done automatically in less than 10 seconds. Once the problem is solved in the main channel, it will automatically restore its operation, releasing the backup amplifier.

The configured backup channel is constantly monitored, as are all other integrated amplifiers. Remember to enable monitoring in the system settings. A voice evacuation zone is not allowed to be assigned to the backup channel, as it will automatically be assigned to the area of the replaced amplifier.

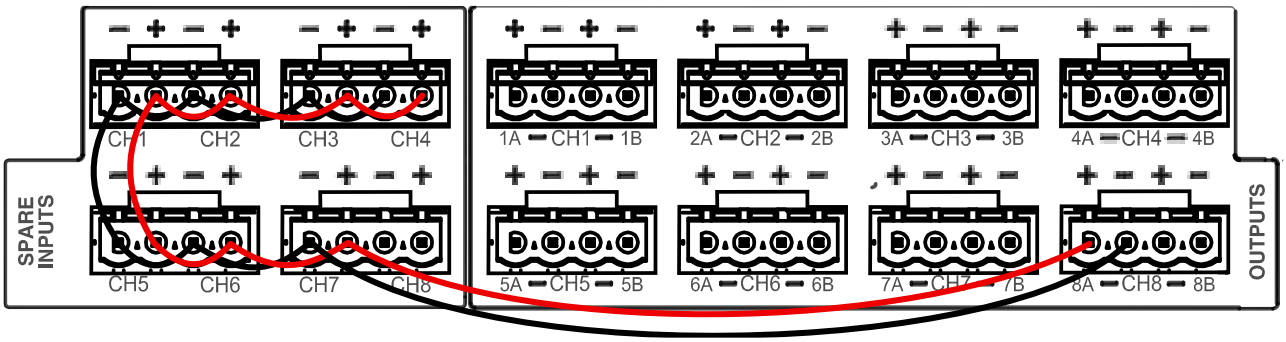

Illustration 40: Backup amplifier connection

The same cable section used for speaker lines in voice evacuation zones should be used to make the connection. The configuration application allows you to set other channels as backup amplifiers.

3.6 Voice evacuation zones

The voice evacuation zones are defined in EN 54:32 as those spaces which give the same voice evacuation warning. An evacuation zone may be formed by one or more amplification channels. To set up the voice evacuation zones, use the configuration application.

3.7 Main backup unit

NEO+ provides redundancy to the system with a second master controller that can automatically replace the main controller live. This feature is designed especially for large systems, where it is important to reduce the times when system controller is unavailable to zero.

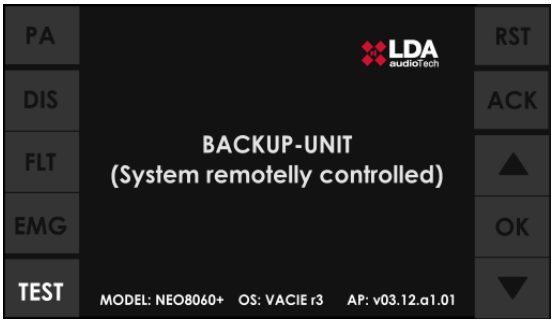

Illustration 41: Redundant controller window

This second backup NEO+ 8060 is installed in the same rack as the main controller, remaining on and wired to the rest of the system as shown in Illustration 34, the equipment is in hibernation state, so it is monitored.

During hibernation, any control function of the computer remains disabled. In case the main controller is disconnected or turned off, the backup equipment takes control of the system with the default configuration, being available for action in the event of an evacuation. In addition, the loss of the main controller is recorded, giving notice to intervene as soon as possible and proceed with its review.

4 SYSTEM OPERATION

4.1 First power-on

Before connecting the equipment to the mains, check that the rated voltage selector of the equipment, located at the rear, is in the position corresponding to the available power supply voltage in the 115/230V region, see chapter 2.4.5. Connect the power cable to the IEC connector on the back of the computer. On the front of the equipment, the "POWER" indicator will light up in green.

When you turn on the computer for the first time, you must make your own installation adjustments (see chapter 3)

4.2 Emergency control

4.2.1 Activate emergency state

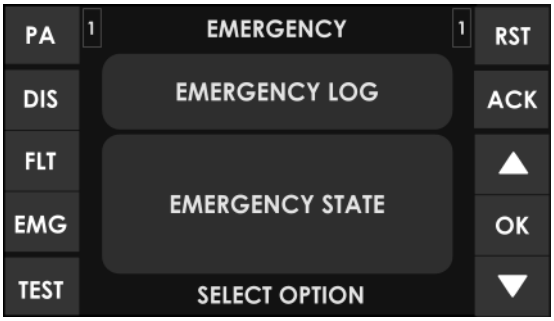

Illustration 42: Emergency window

To activate the emergency mode, proceed as follows:

Press the "EMG" shortcut button, in the menu, select "EMERGENCY STATE". Access control for level 2 users will appear (see 2.3). Only if authorized personnel, should continue with the operation. If you want to go back, press the "BACK" key. The access authorization level will change to "level 2", and the emergency state will be activated, the LED will light up. When activating, you will go directly to the emergency sources menu (see 4.2.2) If you want to remain in the emergency state but do not perform any action, press the "BACK" key. The access level will remain at "level 2", and the emergency state active. To exit "level 2 press the "BACK" key or do nothing for the next 90 seconds.

When the emergency state is activated, an audible warning signal will be activated. This signal will be muted automatically when using the emergency microphone, or manually by pressing the "ACK" key.

To issue an evacuation warning, the system must be in a state of emergency. The following types of warning may be issued from this mode of operation:

- Recorded alert message.
- Recorded evacuation message.
- Live message from emergency microphone.

4.2.2 Activate Voice Alarm

Pre-recorded messages and live messages can be broadcast simultaneously from emergency microphones in different areas. The priority of emergency sources from top to bottom is:

1. Live message from emergency microphone/s.
2. Recorded evacuation message.
3. Recorded alert message.

For example: if an evacuation message is issued over an area, the alert message shall cease immediately; otherwise, the alert message shall be reproduced only where a higher priority source is not being reproduced.

Once the emergency state is activated according to 4.2.1, you can select from the "EMERGENCY STATE" menu the following options for a voice alert:

Illustration 33: Emergency State window

(a) "PLAY ALERT MESSAGE", Issue recorded warning message or "PLAY EVAC MESSAGE", Issue recorded evacuation message

To activate the message playback, press on the desired option, "PLAY ALERT MESSAGE" or "PLAY EVAC MESSAGE". Then select the zone or zones for which the warning shall be issued, as described in chapter 2.2.7. Once the selection of zones is done you must press the "OK" key to confirm, the warning will start to be issued. Pressing OK directly, without manually selecting the zones, is equivalent to selecting all available zones.

The active message will be displayed with a selection band and the message indicators will be lit when evacuation or alert messages are active in any of the zones.

(b) "ENABLE EMG MIC" Zones selection for live message from emergency microphone.

Select the areas to give a voice message in "SELECT EMIC ZONES" and activate the emergency microphone button to speak. The LED indicator will light when ready to emit. If the warning sound is active, it shall be intermittent until the warning has been completed. The zone selection will remain until the alarm condition is cleared or reset. To make a new selection you will first be asked to deactivate the current selection, so the text "CLEAR EMIC ZONES" will appear in this option. Once pressed, the selection can be repeated by pressing "SELECT EMIC ZONES"

(c) "EMG SEQUENCES" Activate sequence or evacuation events

You can activate predefined evacuation sequences. This screen will display the VA event IDs created by the NEO+ configuration application. To activate/deactivate the sequence button must be pressed and then OK to confirm.

NOTE: The selection of areas for an evacuation message, whether pre-recorded or live, will be lost when a new selection is made.

4.2.3 Stop voice alarm

To stop the broadcast of the alert or evacuation message, re-access the "EMERGENCY STATE" option as indicated in chapter 4.2.2, the message will appear with a selection band. Tap the option to turn off to stop broadcasting. The button will change to normal state, without selection band.

For the emergency microphone, simply release the button and it will return to the sleep state while maintaining the last selection of zones.

You can also stop the broadcast by deactivating the emergency state (see 2.4)

4.2.4 Deactivate emergency state

If you want to deactivate the emergency state, press the "RST" key, an access control for level 2 users will appear on the screen (see 2.3). If you want to go back, press the "BACK" key. If you successfully complete the access control, the emergency state will be deactivated. All emergency call broadcasts will be stopped.

4.2.5 Emergency state log

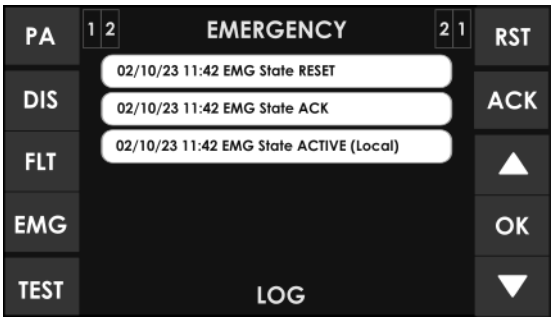

Illustration 43: Emergency state log window

The system has a record of operations and indications made on the state of emergency. This log will be displayed automatically on the screen for 5 minutes after the last Input occurred, when the computer/system remotely activates the emergency state.

To mute the audible warning of the computer without stopping the emergency, press the "ACK" key.

You can access the register again by pressing the "EMG" shortcut button, and then press the "EMERGENCY LOG" option, a list will appear in chronological order from most recent to oldest of the operations and indications that have occurred. To exit the emergency state register, press the "BACK" button.

To view all records, use the up and down scroll control to move through the window. The history record can be accessed through the configuration application. You can see a description of all the records in Appendix II.

4.2.6 Voice evacuation zone volume adjustment

The equipment/system has independent voice evacuation zone volume adjustment.

To configure these volumes, perform volume adjustment according to the instructions in chapter 4.5.1.

Once the settings are made, use the setup app to store the volumes as the emergency state volume.

If this setting has not been defined, the volume in this state shall be the same as that set in the PA mode (see 4.5.1).

4.3 Fault

4.3.1 Fault state log

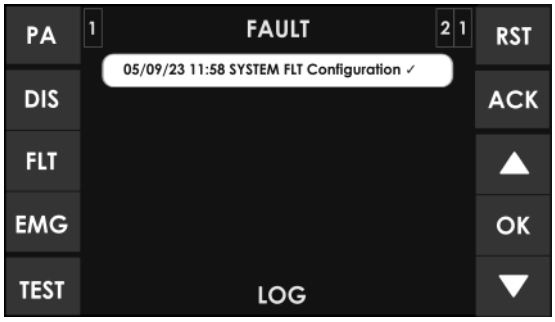

Illustration 44: Failure state log window

The system has a record of detected faults. This log will automatically be displayed on the screen when the computer/system is in this state and will be displayed for five minutes since the last log Input occurred.

To mute the audible warning of the computer without stopping the emergency, press the "ACK" key.

You can redisplay it by pressing the shortcut button to the fault state "FLT", a list will appear, ordered chronologically from most recent to oldest of operations, and indications that have occurred. To exit the fault state log, press the "BACK" button.

To view all records, use the up and down scroll control to move through the window. The history record can be accessed through the configuration application. You can see a description of all the records in Appendix II.

4.3.2 Reset failure state

If you want to reset the fault state, press the "RST" key, an access control for level 2 users will appear on the screen (see 2.3). If you want to go back, press the "BACK" key. If you successfully complete the access control, all failures will be reset.

4.4 Disarm

The equipment/system has features to disable voice alarm zones that are not going to be used. Once disabled, they will be displayed in the menus as described in chapter 2.2.7(e). No operation shall be possible on a disabled area. Indications of emergency or fault states shall not be displayed.

4.4.1 Disable/ enable zone

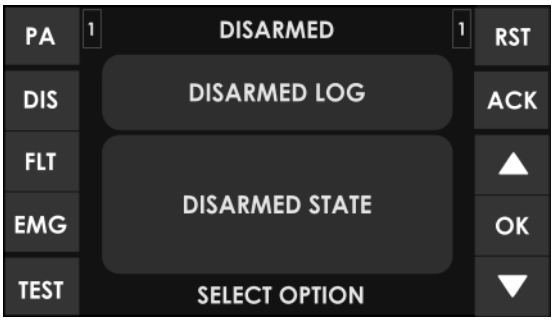

Illustration 45: Disarmed Window

To access the deactivation menu, press the "DIS" shortcut button. From the deactivation menu press "DISARMED STATE" option, an access control for level 2 users will appear on the screen (see 2.3). If you want to go back, press the "BACK" key. If you successfully complete the access control, all zones will be displayed on the screen, deselect or select the zones to deactivate/ activate, and press "OK" to confirm.

When a zone is disabled, the amplification channels for that zone shall indicate the disabled state. (see 2.1.2)

4.4.2 Disarmed state log

Illustration 46: Log Disarm window

The system has a log of disabled areas, where operations that have been performed during the last hour in the disabled state will be displayed. A record of the last year will be accessible through the configuration application.

To display it, press the "DIS" shortcut button and then the "DISARMED LOG" button. A list of transactions, in chronological order from most recent to oldest, and any indications that they have occurred will appear. To exit the deactivation state log, press the "BACK" button.

To view all records, use the up and down scroll control to move through the window. You can see a description of all the records in Appendix II.

4.5 Public address

The NEO+ equipment/system, in addition to acting as a voice evacuation system, can function as a high performance PA and ambient music system, while a voice evacuation is not required.

To access the PA menu, proceed as follows:

Press the "PA" shortcut button, access control for level 2 users will appear (see 2.3). If you want to go back, press the "BACK" key. After the access control has been passed, the access authorization

level will change to "level 2", and you will go to the menu, which contains the options: Zone volume adjustment, sound source routing and advanced.

Illustration 47: PA menu window

4.5.1 Zone volume setting

The equipment/ system allows the adjustment of volumes of each zone. This setting may be independent of the zone volume setting made for voice alarm, in emergency state, if it has been set (see 4.2.6). The zone volume setting is relative to the gain setting of the output or audio outputs grouped within the zone (see chapter 4.5.5)

To make the adjustment, from the PA menu window, press on the zone volume setting button "ZONES VOLUME", you will access the following window:

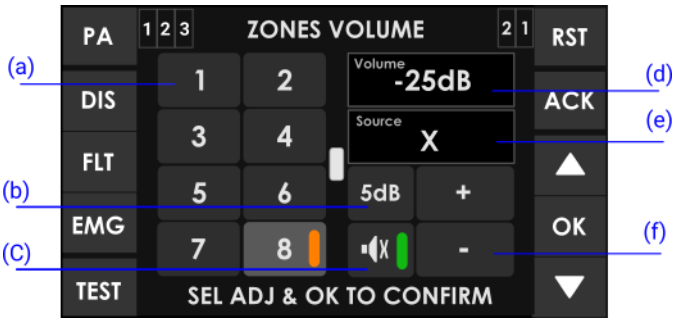

Illustration 48: Zone volume adjustment window

(a) ZONE BUTTONS

In the left half of the screen, you will find the zones. Press on the/ the areas where you want to make volume adjustment. If the progress indicator (see 2.2.6) appears, use the offset control to display the other areas. If no selection is made, the adjustment shall be made on all system zones.

(b) GAIN STEP SETTING BUTTON

The adjustment step button allows you to select the increase/decrease step that will be performed when you press the adjustment buttons. You can select from the following values by pressing consecutively: 1 dB, 5 dB, 10 dB.

(c) MUTE BUTTON

The mute button allows you to directly lower the volume of the zone/zones to a minimum. When turned off, the zones will recover to the volume they had before being muted.

(d) VOLUME INDICATOR

The volume indicator ranges from -100dB to 0dB, minimum and maximum zone volume respectively. If a zone is selected, the current volume level will be displayed and updated as the adjustment is

made. If a multiple selection has been made, no value will be displayed until an adjustment is made. In this case, only the adjustment made will be displayed.

(e) SOURCE RUTED

This box will show the currently assigned source in the selected area.

(f) VOLUME ADJUSTMENT BUTTONS

The volume adjustment window has two buttons to make the adjustment: "+" and "-", each time you press one of them will increase or decrease, as many decibels as the "Adjustment Step" button is showing. To make the adjustment, select the area/areas on which you want to make the adjustment, modify the volume value, and confirm by pressing "OK".

If you wish to cancel the operation, press the "BACK" key. If no zone/zones selection is made, the adjustments will apply to all zones.

NOTE: If you select multiple zones, it is possible to apply a relative increase or decrease in volume. The maximum value that the selected group can reach will be determined by the area with the highest volume of the group, so that when it reaches 0dB (maximum), or the rise step is greater than the difference between 0dB and the current value, the volume may not be increased further. The same applies to minimum volume.

4.5.2 Route sources

To assign a sound source to one or more system zones, from the PA menu, press the "ROUTE SOURCES" button and you will be taken to the following window:

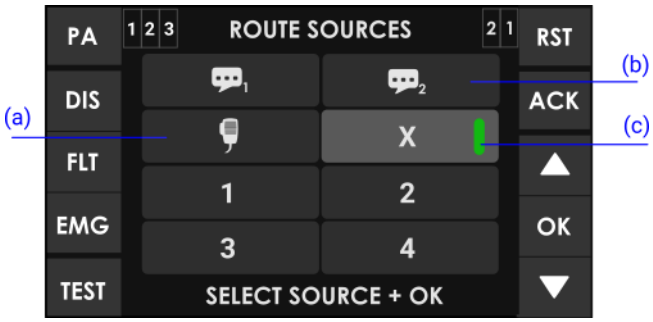

Illustration 49: Sound source selection window

(a) EMERGENCY MICROPHONE

On special occasions, you can use the emergency microphone to give warnings in one or more areas in PA mode. After the source assignment is completed, use the PTT microphone button to prompt.

(b) PRE-RECORDED MESSAGES

From this menu you can select the sources of pre-recorded messages integrated in your computer. To play the message, once you have selected the sound source from pre-recorded audio files, you must go to the messages window in the advanced menu (see 4.5.7) and start playing the corresponding message.

(c) SELECTION INDICATOR

When the font has been selected, a selection strip will appear inside the font button.

(d) UNASSIGN AUDIO SOURCE

To remove the current sound source assignment to a zone, select the source marked "X". The unallocation will be done automatically if a new source is assigned to a zone with previously selected source.

Once the source selection is complete, if you wish to cancel the operation, press the "BACK" key. To confirm the selection, press the "OK" key, it will go to the zone selection menu where you can assign the zones to which the sound source will be assigned (see 2.2.7).

NOTE: When the ACSI bus input is being used (see 3.2), audio source input 5 will be automatically disabled. When this happens, it will be shown in the font selection as disabled.

NOTE: The selection of zones for a voice message, either pre-recorded or live, will be lost when you make a new selection. When it is an audio source assignment to zone, the selection will be cumulative, this means that the zones that are not affected by the action will remain with the source they had.

4.5.3 Advanced options

The computer/system has advanced adjustment options. To access these options, from the PA (Public Address) menu, press the "ADVANCED" button; clicking on some of the functions in this menu will bring up the level 3 access control (see 2.3). If you want to go back, press the "BACK" key. After the access control has been passed, the access authorization level will change to "level 3", and you will go to the menu, which contains the options:

Illustration 50: Advanced menu window

(a) AUDIO INPUT

Access to the settings window for audio inputs. For details see 4.5.4.

(b) AUDIO OUTPUT

Access to the settings window for audio outputs. For details see 4.5.5.

(c) MONITOR

Access to audio monitor window. The equipment/ system has an integrated speaker that allows you to listen both to sources that are available, and to the audio that is playing in a given area.

(d) MESSAGES

Access to the prerecorded messages playback window

(e) LOAD PRESET

Access to the system memory selection window. To configure the system's operating memory, you must use the configuration application.

(f) SYSTEM

Access to the system information window and identifier settings.

4.5.4 Advanced options. Audio input

Illustration 51: Audio input adjustment window

(a) AUDIO INPUT SELECTION BUTTONS

In the left half of the screen, you will find the audio inputs. Press on the desired input. If the advance indicator appears (see 2.2.6), use the scroll control to display the other available inputs.

(b) SOUND ENHANCEMENT BUTTON LDA "LDA SOUND ENHANCER"

Press to activate LDA sound enhancement. The LDA sound enhancement, processes the input signal in digital mode, to achieve optimal levels for its emission, eliminating loss of intelligibility due to distortion by saturation, or due to low levels of input signal.

(c) VUMETER INDICATOR

Shows the signal level being detected at the input. Between -100 dB and 0 dB.

(d) EQUALIZER BUTTON

Press to activate the equalization memory set by the configuration application.

(e) GAIN INDICATOR

Shows the adjusted gain for the selected input channel.

(f) ADJUSTMENT STEP BUTTON

The adjustment step button allows you to select the increase/decrease step that will be performed when you press the adjustment buttons. You can select from the following values by pressing consecutively: 1 dB, 5 dB, 10 dB.

(g) ADJUSTMENT BUTTONS

The window has two buttons for adjusting the gain: "+" and "-", each time you press one of them will increase or decrease, as many decibels as the "Adjustment Step" button is showing.

(h) MUTE BUTTON

The mute button allows you to directly lower the input volume to a minimum. When disabled, the input will recover the gain it had before being muted. To make the adjustment, select the sound source input on which you want to make the adjustment, modify the gain value, activate and deactivate the desired options, and confirm by pressing "OK". If you wish to cancel the operation, press the "BACK" key.

4.5.5 Advanced options. Audio output

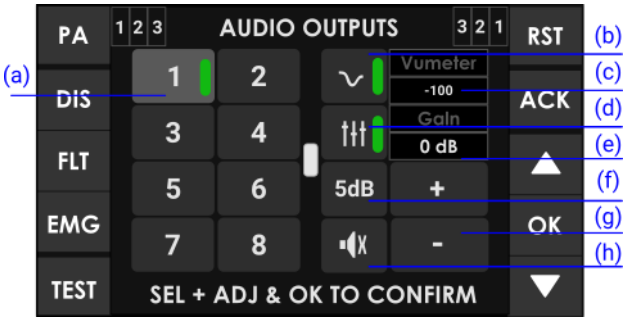

Illustration 52: Audio output adjustment window

(a) AUDIO OUTPUT SELECTION BUTTONS

In the left half of the screen, you will find the audio outputs (amplifier output channel). Press on the desired output. If the advance indicator (see 2.2.6) appears, use the offset control to display the other available outputs.

(b) LOUDNESS BUTTON

Press to activate loudness compensation. Loudness compensation introduces a dynamic equalization that is applied based on the gain applied in the output channel. If the gain is at maximum, it will not produce any effect. If the level is different from the maximum, it introduces compensation in the bass and treble levels, so that an excellent perception of the sound being played is obtained.

(c) VUMETER INDICATOR

Shows the signal level being detected at the output. Between -100 dB and 0 dB.

(d) EQUALIZER BUTTON

Press to activate the equalization memory set by the configuration application.

(e) GAIN INDICATOR

Displays the adjusted gain for the selected output relative to the zone volume.

(f) ADJUSTMENT STEP BUTTON

The adjustment step button allows you to select the increase/decrease step that will be performed when you press the adjustment buttons. You can select from the following values by pressing consecutively: 1 dB, 5 dB, 10 dB.

(g) GAIN ADJUSTMENT BUTTONS

The window has two buttons for adjusting the gain: "+" and "-", each time you press one of them will increase or decrease, as many decibels as the "Adjustment Step" button is showing. This setting is relative to the zone volume, so if several outputs form a single zone, in this window we can adjust how many dB above or below the zone volume will be the selected channel.

To make the adjustment, select the output on which you want to make the adjustment. The gain value shown is absolute, that is, the gain resulting from the sum of the volume of zone to which it belongs, and the gain applied to the selected output. Change the gain value, activate and deactivate the desired options, and confirm by pressing "OK".

If you wish to cancel the operation, press the "BACK" key. When the gain to be applied to the output reaches its lower or upper limit of output adjustment (-100 - 0dB), it will lock. Thus, an output with a

theoretical gain of -5dB belonging to a zone with an adjusted volume of -10dB, will show a gain of -15dB. When increasing the output gain, it will lock to -10dB, which corresponds to an output gain of 0dB (maximum value)

(h) MUTE BUTTON

The mute button allows you to directly lower the output volume to a minimum. When deactivated, the output will recover the gain it had before being muted.

4.5.6 Advanced options. Monitor

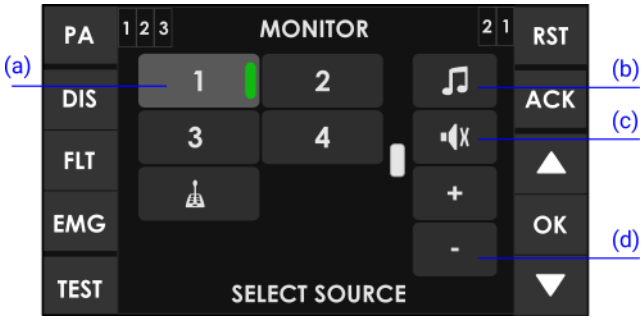

Illustration 53: Monitor window

(a) SELECTION BUTTONS

On the left side of the screen, you will find the selection buttons for the item to be monitored. Press on the desired item. If the advance indicator (see 2.2.6) appears, use the offset control to display the other available outputs.

(b) MONITORING SOURCE BUTTON

The monitoring source button allows you to select the element to be monitored. Press until you find the desired item type. These are repeated cyclically between:

- Musical fountain.
- Zone of voice alarm.
- Message Pre-recorded 1 or 2.
- Emergency microphone.

(c) MUTE BUTTON

The mute button allows you to directly lower the monitor volume to a minimum. When the monitor is turned off, it will recover the volume that it had before being muted.

(d) ADJUSTMENT BUTTONS

The window has two buttons for volume adjustment: "+" and "-", each time you press one of them will increase or decrease by 1 dB.

To monitor, select the element type by pressing the "monitoring type" button, and then press on the element to be monitored. Adjust the monitor volume. To finish press the "BACK" key.

NOTE: If the music source input 5 is being used as a multi-zone microphone input, it will also be monitored when any of the microphones press to speak for any of the system zones.

NOTE: If the type to be monitored is a pre-recorded message, press the desired player button to access directly to the messages window (see 4.5.7). It will start or stop the playback of the desired message. From the message window, press "BACK" to return to the monitor window

4.5.7 Advanced options. Messages

Illustration 54: Message window

(a) MESSAGE SELECTION BUTTONS

In the left column of the screen, you will find the pre-recorded messages. If the advance indicator appears (see 2.2.6), use the scroll control to display the other available messages. To select one, tap the one you want to act on.

(b) DURATION INDICATOR

Displays the message duration in minutes and seconds when the message is selected. When the message is playing, a countdown timer will be displayed for the duration of the message.

(c) STOP BUTTON

The stop button allows you to stop playback completely. The duration indicator will show the duration of the selected message. Once the action has been stopped, playback should start from the beginning of the message. A selection band will appear when the message is on stop.

(d) PLAY/PAUSE BUTTON

The play button starts playing the message. When playing, it will pause the playback.

(e) PLAYER SELECTION

Select the player to use. There are 2 message players in the system.

(f) MUTE BUTTON

The mute button allows you to directly lower the volume of the built-in monitor speaker to a minimum. When it is turned off, it will restore the volume that you had before being muted.

(g) RECORD BUTTON

The record button starts recording on the selected pre-recorded message. It will be grayed out if the system does not allow this function or has not implemented it.

(h) ADJUSTMENT BUTTONS

The window has two buttons for adjusting the volume of the built-in monitor speaker: "+" and "-", each time you press one of them will increase or decrease 1 decibel.

(i) LOOP BUTTON

Allows to activate the loop playback (loop), you can select 1, 2 or 3 replays of the message or loop so that it will be played indefinitely.

NOTE: If the emergency system needs to use the player, this command will be invalidated.

USE OF THE PRE-RECORDED MESSAGE PLAYER

To play a message, select it in the left column and press the play button. To pause or stop playback press the pause button, or stop, respectively. If you want to hear the message being played back simultaneously, act on the monitor controls located in the right column of the screen.

4.5.8 Advanced options. Load preset

The system allows the use of presets that modify parameters of volume, routing etc. The creation of presets is done from the configuration application and can be saved on the computer, in this way being able to perform multiple recurring adjustments in a quick operation.

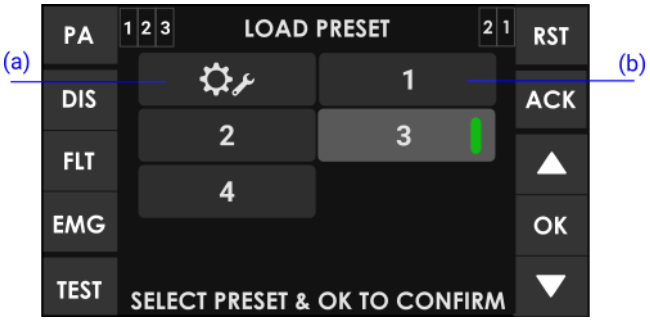

Illustration 55: Window load preset

(a) FACTORY PRESET BUTTON

The factory preset button loads the default settings of the computer. All information that has been set by the user will be reset, except for pre-recorded messages.

(b) BOTÓNES DE PRESET

Press the preset button that you want to load. If the advance indicator appears (see 2.2.6) use the scroll control to display the rest of available presets.

To load a preset, select it by clicking on it. To confirm press the "OK" key.

NOTE: You can use the configuration application to create, edit and delete presets for your computer.

4.5.9 Advanced options. System

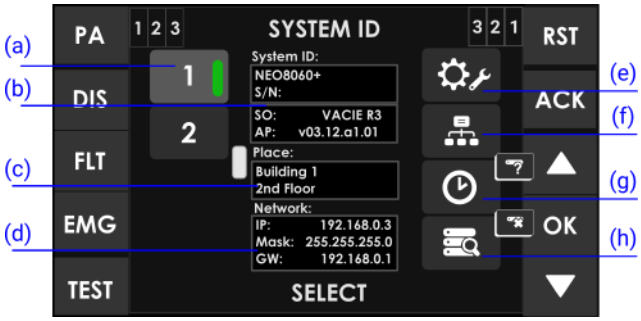

Illustration 56: System window

(a) BUTTONS SYSTEM EQUIPMENT

The left column shows the equipment present in the system. If the advance indicator appears (see 2.2.6), use the offset control to display the other available equipment. To select a computer and display the associated information, press the button, a selection bar will be displayed on it.

(b) IDENTIFICATION OF SYSTEM AND EQUIPMENT

In this section, you will find information about the selected equipment related to the system it is integrated into. You will first find the model of the selected equipment, followed by the associated serial number. You can then view the operating system version of your computer, followed by the installed application version. To perform a firmware update, you must use the configuration application.

(c) SITE IDENTIFIER

In this area, you will find the information, which through the configuration application has been entered about the physical location of the equipment.

(d) NETWORK ADDRESS

Displays the current network configuration of the selected computer.

(e) FACTORY RESET

ATTENTION: This button allows you to delete all the configuration data of your computer.

For more information on the default network configuration see Appendix III

(f) NETWORK SETTINGS BUTTON

The network settings button, allows access to the configuration of the computer's network parameters, as shown in the following image.

NOTE: You must press **OK** (green) on the image keyboard to save changes.

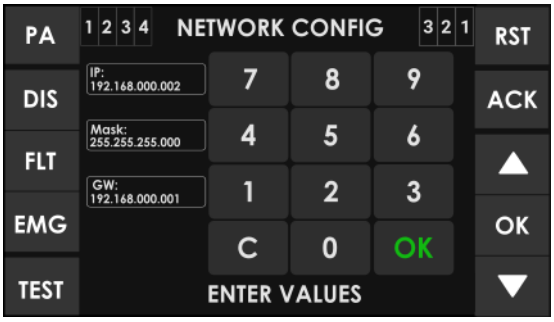

Illustration 57: Network Configuration Window

(g) DATE AND TIME CONFIGURATION/ IDENTIFY

Allows you to adjust the date and time manually.

NOTE: Remember that when connecting to the configuration application, the system can automatically synchronize it from the PC.

When the selected device is not number 1 (NEO+ Master), this button changes shape allowing to identify the selected NEO+ Extension device. When you press it, the LEDs on the front of the selected equipment flash for a few seconds.

(h) SYSTEM UPDATE/ REMOVE EQUIPMENT FROM SYSTEM BUTTON

The system update button will perform a search for computers each time it is pressed. Found computers will be automatically linked to the system and will be displayed in the left column of "System Computers".

For more information on network configuration see Appendix III

NOTE: The computers in the same system must be configured under the same IP range. Otherwise, the Extensions will not be recognized by the Master during the search.

When the selection is on a computer other than number 1 (NEO+ Master), this button changes, allowing to remove the selected NEO+ Extension from the system.

5 RESOLUTION OF FAULT INDICATIONS

5.1 Speaker lines

The system will indicate a failure in the speaker line if a short circuit or open circuit has been detected or the impedance has changed by more than 14%.

If this failure occurs, follow the steps in the error log line to fix it:

1. Disconnect the line.
2. Measure the line impedance, between the positive and negative terminals of the cable, using an impedance measuring equipment.
3. Check that the measured values match the expected values, based on the number and power of speakers in the line.
4. Measure the line shunt between the positive and ground terminals, and negative and ground.
5. Check that the measured values are not less than 6kΩ.

If any of the measured values are not as expected:

1. Leave the line disconnected.
2. Check the state of the line and speakers until you find and fix the problem.

For more details see LINE SUPERVISION LOG.

5.2 Transmission line with ECI (CIE)

The system shall indicate a transmission failure with the ECI when it is detected that the transmission path is short-circuited, open circuit or disconnected.

If this failure occurs, follow the steps below on the contact listed in the bug log to fix it:

1. Verify that the connection between the system and the ECI has been made correctly according to 2.4.2.
2. To debug the fault, disconnect both ends of the cable connected between the ECI and the equipment.
3. Measure between the terminals of the cable with a meter on the kΩ scale:
   - If the measurement result is 0, the line is short-circuited.
   - If the result is 1, it means that it is open.
   - If the result is 20 kΩ or higher, the line is correct.

In either of the first two cases, replace or repair the transmission line. It is recommended to check the state of the terminating resistor.

For more details see CIE/ECI LOG.

5.3 Protection devices

The system shall indicate a protection failure when any of the internal protective devices of the equipment are active.

This failure may occur due to overheating of the amplifiers. Follow the steps below on amp channels with the protection indicator on:

1. Check that the equipment is properly ventilated.
2. Check that the air inlets and outlets are not blocked.
3. Turn off the computer and wait several minutes before turning it back on.

If the equipment is restarted, avoid this mode of operation as it may cause severe failure.

To avoid damaging the computer while the failure remains active, follow these additional steps:

1. Disable the voice alarm zones where the failure occurred.
2. Notify the support service for a review and final resolution of the problem.

For more details see AMPLIFIER SUPERVISION LOG.

5.4 Power supply

The system shall indicate a power failure in either of these two situations:

(a) Main power supply

The main power supply has failed.

If this failure has occurred, follow the steps below:

1. Check that the power supply reaches the computer.
2. Disconnect the equipment from the mains.
3. Check the fuse on the network base of the back of the computer (2.4.5(c)).
4. If the fuse is broken, replace it.
5. If the fuse breaks again when you turn it on, please notify the support service

(b) Redundant power supply

The redundant power supply has failed.

If this failure has occurred, follow the steps below:

1. Check the redundant power supply for correct operation, following the manufacturer's instructions.
2. If it is working correctly, check that the transmission lines between the equipment and the redundant power supply are correct according to section 3.1.

If in addition to indicating a power failure, one of the amplifier channels is also indicated as failing, it may be that one of them has failed. To avoid damaging your computer, follow these additional steps:

1. Disable the voice alarm zones where the failure occurred.
2. Notify the support or repair service.

For more details see POWER SUPERVISION LOG.

5.5 Network Link

The system will indicate a network failure when there is a problem in the communication path between distributed devices.

If this failure occurs, follow these steps to fix it:

1. See which computers are connected to the controller in the "System" window of the "Advanced options" menu (see 4.5.9).
2. Restart the computer that appears down.
3. If the problem persists, check that the connection between the two is correct according to paragraph 3.2.

For more details see NETWORK LOG.

5.6 System

The system will indicate a system failure when there is a firmware or memory execution problem.

If this failure occurs, follow these steps to fix it:

1. After several reboots, if the problem persists, connect your computer to the configuration application.
2. Restore the firmware version of your computer.
3. Do not forget to restore the backup with the location data after you have done the restore.

After this operation, the equipment should be running normally.

If not, please contact the support or repair service for additional assistance.

For more details see SYSTEM LOG.

6 MAINTENANCE INSTRUCTIONS

The equipment requires reduced regular maintenance.

The frequency of maintenance should be adjusted to the installation conditions of the equipment. At least a maximum of one year is recommended.

Operations:

- Clean the equipment's air inlets and outlets with a vacuum cleaner.
- Check the equipment connections and ground connection.

Warnings:

- Use only a soft, lint-free cloth.
- Disconnect the computer from any external power supply.
- Disconnect all external devices.
- Keep the product away from any liquid.
- Do not use aerosols, solvents or abrasive substances.
- Do not spray any cleaner directly on the appliance

7 TECHNICAL FEATURES

Feeding	110-120 V/ 220-240 V~ 50/60 Hz
Typical consumption	
NEO+ 8060	550 W max./ 145 W Evacuation/ 43W standby
NEO+ 8250E	900 W max./ 250 W evacuation/ 42 W standby
NEO+ 4250E	900 W max./ 183 W evacuation/ 51 W standby
NEO+ 4500E	900 W max./ 310W evacuation/ 52W standby
NEO+ 4500LE	900 W max./ 310W evacuation/ 52W standby
Frequency response	
NEO+ 8060	20 - 20,000 Hz +/-2 dB (70 - 20,000 Hz with 70Hz filter)
NEO+ 8250E	20 - 20000 Hz +/-3 dB (70 - 20000 Hz with 70Hz high pass filter)
NEO+ 4250E	20 - 20000 Hz +/-3 dB (70 - 20000 Hz with 70Hz high pass filter)
NEO+ 4500E	20 - 20000 Hz +/-3 dB (70 - 20000 Hz with 70Hz high pass filter)
NEO+ 4500LE	20 - 20000 Hz +/-3 dB (40 - 20000 Hz with 40Hz high pass filter)
Signal to noise ratio	
NEO+ 8060	> 96 dB TYP, A-weighting
NEO+ 8250E	> 96 dB TYP, A-weighting
NEO+ 4250E	> 100 dB, TYP, A-weighting
NEO+ 4500E	> 100 dB, TYP, A-weighting
NEO+ 4500LE	> 100 dB, TYP, A-weighting
Distortion	
NEO+ 8060	<0,5% TYP -10 dBv
NEO+ 8250E	<0,5% TYP -10 dBv
NEO+ 4250E	<0,1% TYP -10dBV
NEO+ 4500E	<0,1% TYP -10dBV
NEO+ 4500LE	<0,1% TYP -10dBV
Gain adjustment per channel	-100 dB -0 dB, steps of 1 dB
DSP	Integrated. 48 kHz, 24 bits - 344 MIPS
FlexNet/ AES67	3 x FlexNet redundante (modo loop), Ethernet 100 Mbits. RJ 45 female
Audio inputs	
NEO+ 8060	5 x Balanced Audio 1 Vrms. 10 KΩ, 3 Pin, Euroblock type
NEO+ 4500LE	4 x Balanced Audio 1 Vrms. 10 KΩ, 3 Pin, Euroblock Type
Prio and control input	
NEO+ Extension	1 x Audio Balanceado 1Vrms. 10 KΩ, 3Pin, Tipo Euroblock
LDA bus ACSI	1 x Audio balanceado 1 Vrms. 10 KΩ, RJ-45 hembra, distancia máx. 1000 m. / 3280,8 ft, 20~28 VDC
NEO+ 8060	<400 mA
Pre-amplified audio outputs	8 x Balanced Audio 1 Vrms. 100 Ω, 3 Pin, Euroblock type
Recording output/ ctrl.	
NEO+ 8060	1 x balanced audio, 1 Vrms. 100 Ω/ 0 - 5 VDC output 100 Ω, 4 pin, Euroblock type
Attenuators control	
NEO+ 8060	8 x Override 24 VDC, 8 x 40 mA, 2 Pin, Euroblock type (4-pin connector)
NEO+ 8250E	8 x Override 24 VDC, 8 x 40 mA, 2 Pin, Euroblock type (4-pin connector)
NEO+ 4250E	4 x Override 24 VDC, 4 x 40 mA, 2 Pin, Type Euroblock (4-pin connector)
NEO+ 4500E	4 x Override 24 VDC, 4 x 40 mA, 2 Pin, Type Euroblock (4-pin connector)
NEO+ 4500LE	4 x Override 24 VDC, 4 x 40 mA, 2 Pin, Type Euroblock (4-pin connector)
Emergency control inputs	
NEO+ 8060	10 x 0 - 5 VDC, Monitored inputs, 2 Pin, Type Euroblock (4-pin connector)
NEO+ 8250E	10 x 0 - 5 VDC, Monitored inputs, 2 Pin, Type Euroblock (4-pin connector)
NEO+ 4250E	6 x 0 - 5 VDC, Monitored inputs, 2 Pin, Type Euroblock (4-pin connector)
NEO+ 4500E	6 x 0 - 5 VDC, Monitored inputs, 2 Pin, Euroblock type (4-pin connector)
NEO+ 4500LE	6 x 0 - 5 VDC, Monitored inputs, 2 Pin, Euroblock type (4-pin connector)
Emergency control outputs	2 x Contact Closure Output, NO, max. 60 VDC 130mA, 2 Pin, Type Euroblock (connector of 4 pins)
General control (GPIO)	
NEO+ 8060	14 x I/O control, 0 - 5 V, 100 Ω, 3 Pin, Euroblock type
Virtual matrix	
NEO+ 8060	128 devices x 1024 zones
Amplifier	
NEO+ 8060	Class D. 8 channels up to 120W. Min charge. 83Ω@100/70V. Max total charge. 480W Flexible power distribution. 8 x 60W; 4 x 120W. Potencia EN54-16: 60Wrms
NEO+ 8250E	Class D. 8 channels up to 250W. Min charge. 20Ω@100V/70V. Max total charge 1500W Flexible power distribution: 8 x 120W; 6 x 250W. Potencia EN54-16: 112Wrms
NEO+ 4250E	Class D. 4 channels up to 500W. Min charge. 20Ω@100V/70V. Max total charge. 1000W Flexible power distribution. 4 x 250W; 2 x 500W. Power EN54-16: 500Wrms

NEO+ 4500E	Class D. 4 channels up to 800W. Min charge. 12,5Ω@100V/70V. Max total load. 2000W Flexible power distribution. 4 x 500W; 2 x 1000W. Potencia EN54-16: 500Wrms
NEO+ 4500LE	Class D. 4 channels up to 500W. Min charge. 4Ω. Max total charge. 1000W 4 channels up to 250Wrms @8Ω (Total max. 1000Wrms)
Outputs for speakers	16 (8 lines configurable A+B class A) x 100/70V. 2 Pin, Type Euroblock (4-pin connector) 16 (8 double managed lines) x 70/100V. 2 Pin, Euroblock type (2-pin connector)
Loop inputs for speakers	16 (8 double) x Contact Lock Inputs, 3 Pin, Euroblock Type
Inputs of backup amplifiers	8 x 120W at 70 or 100 V, 2 Pin, Euroblock type (4-pin connector)
Protection	Overheating, infrasound, short circuit, slow start, overload. Start up test.
Emergency power input NEO+ 8060 NEO+ Extension	 1 x 20 - 28 VDC, 20 A, Fused, 2 Pin, Euroblock type 1 x 20 - 28 VDC, 32 A, Fused, 2 Pin, Euroblock type
Input state emergency power	3 x Voltage-free contact closing inputs, NO - NC, 3 Pin, Euroblock type
Screen NEO+ 8060	 TFT touch 480x272 4.3'
Operating conditions	-5 oC to +45 oC/ 23 oF to 113 oF 5% to 95% relative humidity (non-condensing)
Finish	Front: Fe, RAL 7016 grey Rear: Fe, Black RAL 9005 Box: Al, Black RAL 9005
Weight NEO+ 8060 NEO+ 8250E NEO+ 4250E NEO+ 4500E NEO+ 4500LE	 13,5 kg / 29.76 lb 15 kg / 33,07 lb 9,8 kg / 21,61lb 9,8 kg / 21,61lb 9,8 kg / 21,61lb
Dimensions (w x h x d)	483 mm x 88 mm x 455mm/ 19" x 3.46" x 18" (2U rack)
Accessories	2 x Rack mount, Euroblock male type connectors, Installation screws, 4 x rubber feet, 1x Power cable 2m/ 6.56 ft (EU type), 1x Ethernet cable 2m/ 6.56ft

Appendix I. EN54-16 functions

The NEO+ controller implements all functions required for compliance with EN54-16:2008. It also includes the following certified optional features:

1 Audible warning
2 Phased evacuation
3 Manual mute of voice alarm condition
4 Manual reboot of the voice alarm condition
5 Output of the alarm condition by voice
6 Indication of faults in the transmission path with the ECI
7 Indication of failure in the voice alarm zones
8 Disabled condition
9 Manual voice alarm control
10 Interface to external control devices
11 Emergency microphone
12 Redundant power amplifiers

ADDITIONAL FUNCTIONS

1 Ambient music program distribution
2 Management of calls from zone microphones
3 Independent audio signal processing per I/O channel
4 Pre-recorded message player
5 Realzador de sonido LDA (“LDA Sound Enhancer”)
6 Output of recording
7 Control output for dimmers
8 7-band input parametric equalizer per channel
9 7-band output parametric equalizer per channel
10 Loudness compensation

Appendix II. Log content

LINE SUPERVISION LOG

LOG	Description
Line X fault open circuit	Impedance measurement above the calibrated upper limit
Line X fault short circuit	Measurement of impedance below the calibrated upper limit
Line X invalid measurements	Impedance measurement outside of valid monitoring ranges
Line XY failure	Line A or B speaker failure. Line distinction A/B is achieved by the installation of line terminators
Line X invalid calibration	Incorrect calibration of line impedance
Line X undetermined error	Inconsistency between the separate branch impedance measurements. Line configuration mode A+B and Class-A
Class A backup active	Line monitoring failure in Class A mode. Branch B backup is enabled

Table 22: Line monitoring log

For troubleshooting see paragraph 5.1

CIE/ECI LOG

LOG	Description
CIE path fault EMG:	Failure of the link with the fire-fighting system in contact EMG.
CIE path fault RST:	Failure of the link with the fire-fighting system in contact RST.
CIE path fault Zx:	Failure of the link with the fire-fighting system in contact Zx.
CIE path fault on device X:	Failure in CIE connection of system device with id "X"
Remote CIE path fault:	Failure of CIE connection of any device in the system

Table 23: ECI/CIE log

For troubleshooting see paragraph 5.2

AMPLIFIER SUPERVISION LOG

LOG	Description
Protect fault Amp Ch X	Failure of the "X" channel amplifier
Protect fault fuse X	Internal protection failure related to the "X" channel amplifier

Table 24: Amplifier supervision log

For troubleshooting see paragraph 5.3

POWER SUPERVISION LOG

LOG	Description
EMG power fault	Failure of the EN-54 power supply system. Failure of the charger or battery. (contact closure coming from the charger)
Main power fault	Failure of the EN-54 power supply system. Failure of the charger or battery. (contact closure coming from the charger)

Table 25: Power supervision log

For troubleshooting see paragraph 5.4.

NETWORK LOG

LOG	Description
Network link fault	Network connection failure (for example, FlexNet network failure)
Network backup link active	Indicates that the master has opened the switch's B-port (backup connection)
Link fault with device X	Indicates that there is no connection to the device with id "X"

Table 26: Network log

For troubleshooting see paragraph 5.5.

SYSTEM LOG

LOG	Description
System fault safe mode	The system enters safe mode due to a critical failure.
System fault Configuration	System failure, internal equipment errors. Unexpected reboot, ETX-FR communication error, etc. Review internal bug log for more detail.
System fault Hardware	Critical hardware element failure: DSP, CM2, MCU, extenders, etc. Review internal error log for more detail.
System fault Config Lost	Loss of configuration in memory: ACSI configuration, events, FlexNet, date/time, zone-manager, etc.
System fault VA message error	Failure in VA messages: allocation, checksum, etc.
System fault Memory HW error	Failure in a physical memory component: EEPROM_ETX, SD_ETX or SD_FR.
Remote system fault on device X	Indicates a critical hardware or system failure in an extension.

Table 27: System log

For troubleshooting see paragraph 5.6

EMERGENCY MICROPHONE LOG

LOG	Description
EMIC fault	Local emergency microphone failure (front PTT)
Remote EMIC fault	Remote emergency microphone failure (PTT VAP)

Table 28: Emergency microphone log

ACSI DEVICES LOG

LOG	Description
ACSI Device X EMIC error	Emic failure in ACSI device
ACSI Device X link error	Link failures.
ACSI Device X local error	Another ACSI device failure.

Table 29: ACSI device log

CRITICAL SYSTEM ERRORS

LOG	Description
2001 I2C FAILURE	Failure I2C communication between front and ETX
2002 INTERNAL MEMORY FAILURE	Front SD memory failure
2003 INTERNAL MEMORY FAILURE	SD ETX memory failure
2004 INTERNAL MEMORY FAILURE	Fallo memoria sistema

Table 30: Critical system errors

Appendix III. Network configuration on NEO+ systems

FACTORY NETWORK CONFIGURATION

The NEO+ series has the following default network configuration:

- IP: 192.168.000.007
- Mask: 255.255.255.000
- Gateway: 192.168.000.001
- VLAN Data: 1
- VLAN Audio: 2

When connecting an Extension to the system Master using the Update System button (see 4.5.9(h)), it will be assigned a consecutive IP address to that of the controller, as long as they are not configured previously.

For example, the first extension will receive the IP address 192.167.0.8, the next one 192.167.0.9, and so on.

MULTICAST IP ADDRESSING

Service	IP address	MAC address
LDA Discovery Service	224.0.2.11	01:00:5E:00:02:0B
PTPv2	224.0.1.129	01:00:5E:00:01:81
FlexNet+ Control	232.0.1.21	01:00:5E:00:01:15
FlexNet+ Loop Supervision	232.1.1.21	01:00:5E:01:01:15
FlexNet+ Loop Supervision (backup)	232.1.1.84	01:00:5E:01:01:54
Multicast IGMP	224.0.0.1	01:00:5E:00:00:01
LDA AES Streams (NEO+ y NEXOs02)	[232.1.1.100-232.255.1.100]	-
Default streams of NEXOs01 (IPBOX)	[239.3.208.1-239.3.208.16]	-

Table 31: IP addressing

Appendix IV. Cable section for speaker lines

The table below shows the maximum recommended distances for 100V speaker lines. The type of cable used for calculations is bifilar with copper conductor. The values shown can be used as a planning guide, and it is the installer's responsibility to make final calculations appropriate to each case.

The table gives typical amplifier channel outputs of constant voltage 100V in effective wattage (rms). The maximum length for 70V lines is half of what is reflected in the table.

Section			Maximum length with 5% power loss				
AWG	Ø mm	mm^2	60Wrms	120Wrms	240Wrms	480Wrms	960Wrms
6	4,11	13,3	3260	1630	810	405	200
7	3,67	10,6	2600	1300	645	320	160
8	3,26	8,35	2050	1025	510	255	130
9	2,91	6,62	1625	810	405	200	100
10	2,59	5,27	1300	645	320	160	80
11	2,3	4,15	1020	510	255	130	65
12	2,05	3,31	810	405	200	100	50
13	1,83	2,63	645	320	160	80	40
14	1,63	2,08	510	255	130	65	35
15	1,45	1,65	405	200	100	50	25
16	1,29	1,31	320	160	80	40	20
17	1,15	1,04	255	130	65	35	15
18	1,02	0,82	200	100	50	25	13

Table 32: Cable section for 100V lines

Legend:

- AWG (American Wire Gauge): American Cable Gauge. Diameter classification according to USA standard.
- Ø mm: Cable diameter in millimetres.
- mm^2: Area of the cable cross-section in square millimetres.

ILLUSTRATIONS INDEX

TABLE INDEX