

Section

Voice Evacuation

Category

PA8506-V System

Code

PA8506-V

Certificate



EN 54-16: 2008
n. 0068-CPR-082/2013



Description

Compact Voice Evacuation System

The **PA8506-V** is a compact Voice Evacuation System enabling background music and calls to be broadcast (All Call or to specific zones) without interfering with diagnostic routines. **This system was designed for ease of installation and for operating in a vast range of applications in which both voice emergency systems and sound-broadcasting systems are required, as well as in compliance with the applicable safety standards (EN54-16).**

The **PA8506-V** integrated Voice Evacuation System includes an emergency microphone, two Class D amplifiers, a message generator and a socket with an USB input for playing out background music. It also has 6 zone outputs with the function of continuous monitoring of the loudspeaker lines.

Functional features

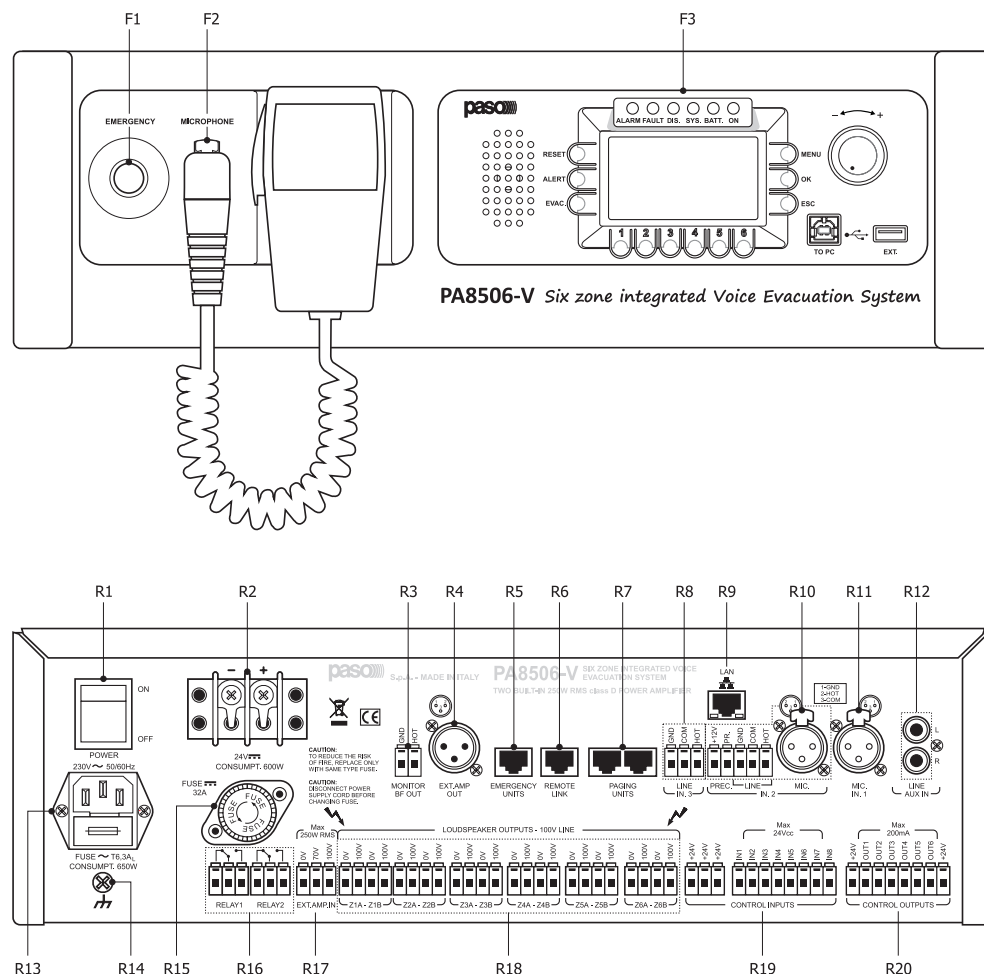
- Two-channel sound broadcasting system.
- Six broadcasting zones.
- Controlled double output line for each single (A and B).
- *.mp3 files read from USB flash memory as a source of background music.
- Downloading of *.WAV files from USB flash memory for emergency voice messages and chime.
- Independent 5-level volume control of the music for each zone.
- Sources for service paging announcements settable to 7 priority levels and 36 zone lists.
- System operating functions linked to different access levels, some of which protected by passwords
- Continuous control and monitoring of the integrity of the critical path (from the sources of the emergency signal to the loudspeaker lines) without interrupting the background music.
- Monitoring of the loudspeaker lines (integrity and dispersion to earth) by means of the two-channel amplification system, even in voice emergency conditions.
- Digital audio control (DSP).
- Easy and rapid configuration (large LCD display).
- Provisions for a web server.
- Emergency zone disabling function (Disabling).
- Do Not Disturb function for protecting the zones from accidental enabling of music or service calls.
- Acoustic signalling of failure status with automatic or manual muting.
- Manual resetting of visual failure signals and automatic resetting with storage of the last occurring failure.
- Direct procedure for starting up the system (start-up) and programming events, without using the management software.
- Possibility of adding a 250 W external amplifier to increase the output power of the system.
- Automatic management of the music amplifier as a stand-by for the operational amplifier (internal or external).
- With a second remote PA8506-V unit, the system can be expanded to cover up to 12 zones.
- Possibility of connecting up to 16 paging units.
- It is possible to connect up to 7 remote emergency units.

Description

Technical specifications

- Two 250 W RMS Class D amplifiers.
- Built-in message generator for broadcasting voice alarms on two channels (EVAC and ALERT).
- Controlled emergency microphone on the front panel.
- LCD graphic display, 128x64 pixels.
- USB socket on front panel for connecting to storage devices.
- USB socket on front panel for connecting a PC.
- Auxiliary line input for an external source of music.
- Balanced microphone input (IN 1) with phantom power supply and precedence contact.
- Balanced microphone or line input (IN 2) with phantom power supply (MIC), precedence contact or automatic VOX precedence.
- Balanced line input (IN 3) with automatic VOX precedence function.
- 8 programmable and controlled input contacts.
- 6 open-collector outputs, programmable as system status or override outputs for by-passing the attenuators.
- 2 relay outputs for “emergency” and “failure” conditions.
- CAT5 socket for remote emergency consoles PMB132-V and PMB132/12-V (EMERGENCY UNITS).
- CAT5 socket for service call consoles PMB106-G / PMB112-G range (PAGING UNITS).
- CAT5 socket for connection to a remote PA8506-V unit (REMOTE LINK).
- 100-70V line input/output for connection to a 250 W external amplifier for expansion purposes.
- Built-in loudspeaker for channel monitoring and acoustic failure signalling (beep) function.
- Input 24 VDC secondary emergency power supply.

References



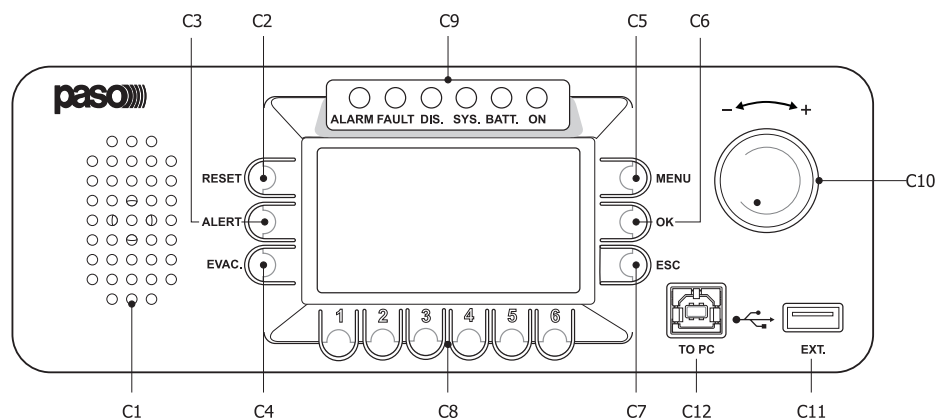
References

Front panel

- F1. Flush-mounted push-button for activating the Manual Emergency mode.
- F2. Hand-held microphone with a Push-to-Talk (PTT) key for live emergency announcements.
- F3. Backlit black-and-white graphic display, 128 x 64 pixels.

Rear panel

- R1. ON/OFF switch.
- R2. Terminals for 24 VDC external power supply.
- R3. Audio signal output for the monitoring / beep loudspeaker.
- R4. Audio signal output for external amplifier.
- R5. Input for connecting remote emergency microphone stations.
- R6. Output for connecting another remote PA8506-V unit.
- R7. Input for connecting paging microphone stations (PMB106-G, PMB112-G) for broadcasting service functions.
- R8. Balanced input for external line source.
- R9. Socket for connecting a Local Area Network with TCP/IP protocol for an Ethernet 10/100 network.
- R10. Balanced input for microphone or external source / Terminal strip for connecting the precedence contact.
- R11. Input for external microphone.
- R12. Input for connecting an external source of music.
- R13. Plug for 230 VAC mains power supply, with built-in fuse.
- R14. Frame earthing connection.
- R15. Fuse for 24 VDC external power supply.
- R16. 2 relay outputs for signalling towards external peripheral units.
- R17. Input socket for connecting the external amplifier.
- R18. Power outputs for loudspeaker lines.
- R19. 8 logical inputs with monitoring for control from external peripheral units.
- R20. 6 "open collector" outputs for driving external relays for generic peripheral units.



Control panel

- C1. Monitoring/buzzer loudspeaker.
- C2. Key for manually resetting of pre-recorded emergency messages in a Manual Emergency context.
- C3. Key for sending a pre-recorded Alert message by hand, operational in a Manual Emergency context.
- C4. Key for sending a pre-recorded Evacuation message by hand, operational in a Manual Emergency context.
- C5. Multi-purpose key for access to the main page, for navigating among the menus and for specific submenu functions indicated on the display.

References

- C6. Multi-purpose key for confirming selections, for navigating among the menus and for specific functions of the submenus indicated on the display.
- C7. Multi-purpose key for returning to the Music Menu, for navigating among the menus and for specific functions of the submenus indicated on the displays.
- C8. Multi-purpose numerical keys, operational in every system context.
- C9. Status indicators:
 - ALARM LED (red): for signalling an on-going emergency condition (VOICE ALARM).
 - FAULT LED (yellow): for signalling an on-going generic failure condition (FAULT).
 - DIS LED (yellow): for signalling activation of the condition of disabling of the emergency zones (DISABLING).
 - SYS LED (yellow): for signalling an on-going system fault condition (System CPU Fault).
 - BATT LED (green): for signalling the 24 VDC auxiliary power supply.
 - ON LED (green): for signalling that the PA8506-V system is switched on and operational.
- C10. Multipurpose rotary switch for selection and adjustment functions.
- C11. Type A powered USB socket for connecting external flash memories.
- C12. Type B USB socket for connecting the PC for managing the system, so as to use the system software.

Overview

The **PA8506-V**, with its entirely digital audio processing and sophisticated control system, has been carefully designed and built to comply with the most stringent safety standards and to guarantee high-quality sound and intelligibility. The input routing section is able to manage several sources of sound such as microphones, calling units and devices for background music, including USB storage units. The power stage has two 250 W Class D amplifiers serving the “voice” and “music” channels, and the speaker output section consists of six separate zones, with independent control of the music volume for each zone. The “Music” amplifier also has the function of a back-up unit, automatically replacing the “Voice” amplifier in the event of a failure. Furthermore, each zone output has two circuits for loudspeaker lines (A and B) to ensure full coverage of the area even in the event of a failure of the circuit of one of the two lines. The multi-purpose front-panel controls and the LCD display make programming and set-up easy. In addition to the normal broadcasting of announcements and music, the PA8506-V is capable of sending out alarm calls in emergency situations via the on-board hand-held microphone or via remote dedicated emergency units. Furthermore, in accordance with **EN54-16**, it is monitored constantly in order to signal any upsets promptly. It is possible to connect two PA8506-V units to one another so as to combine two 6-zone systems and configure a single system with a total of up to 12 zones. The line connecting them can be as long as one km and the remote emergency stations will ensure overall management of the whole system.

PAGING UNITS that can be connected to PA8506-V:

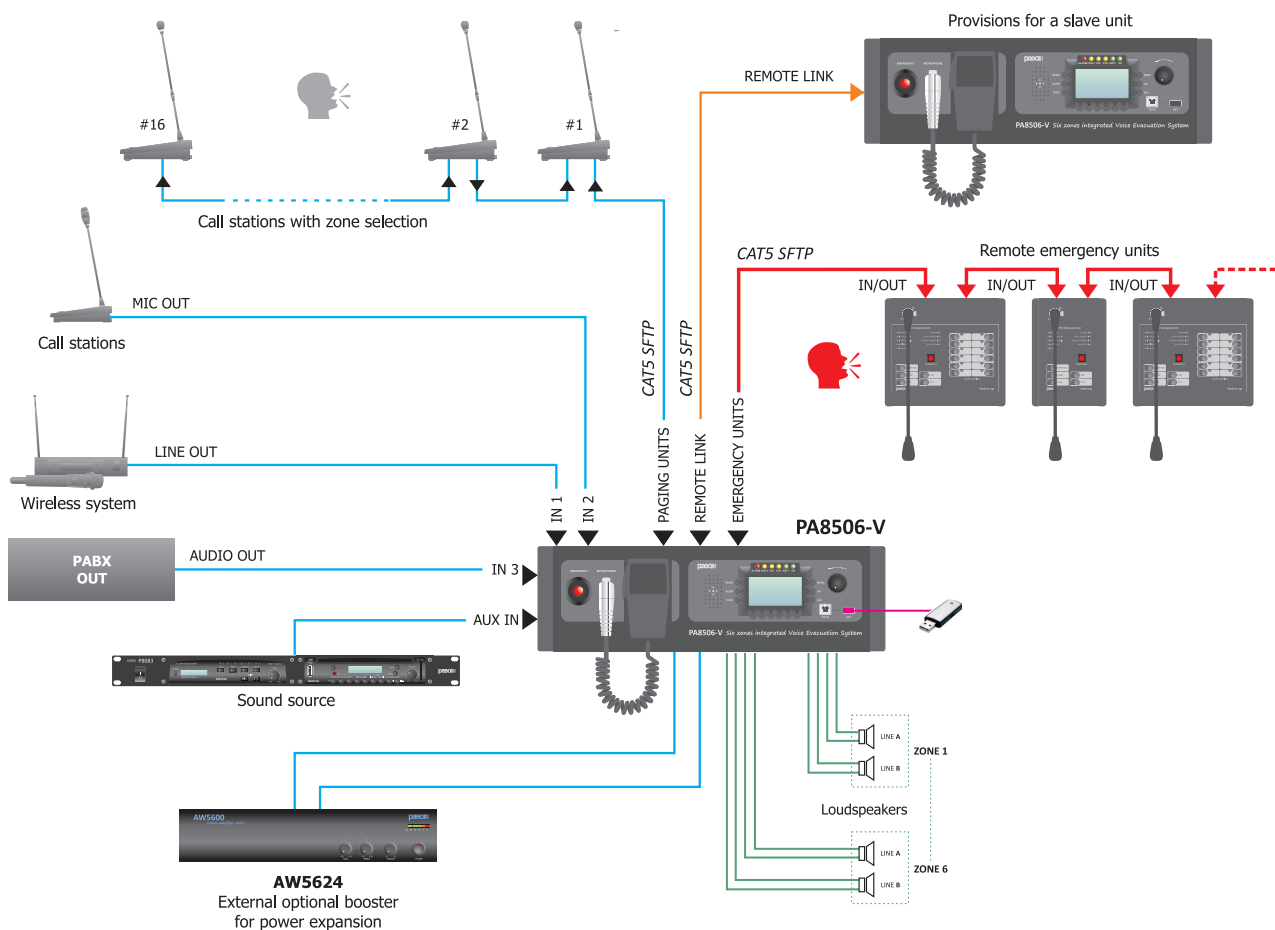
- **PMB106-G**: 6-zone paging unit.
- **PMB112-G**: 12-zone paging unit.
- **PMB112-EG**: expansion of the PMB112-G to 12 zones.

REMOTE EMERGENCY UNITS that can be connected:

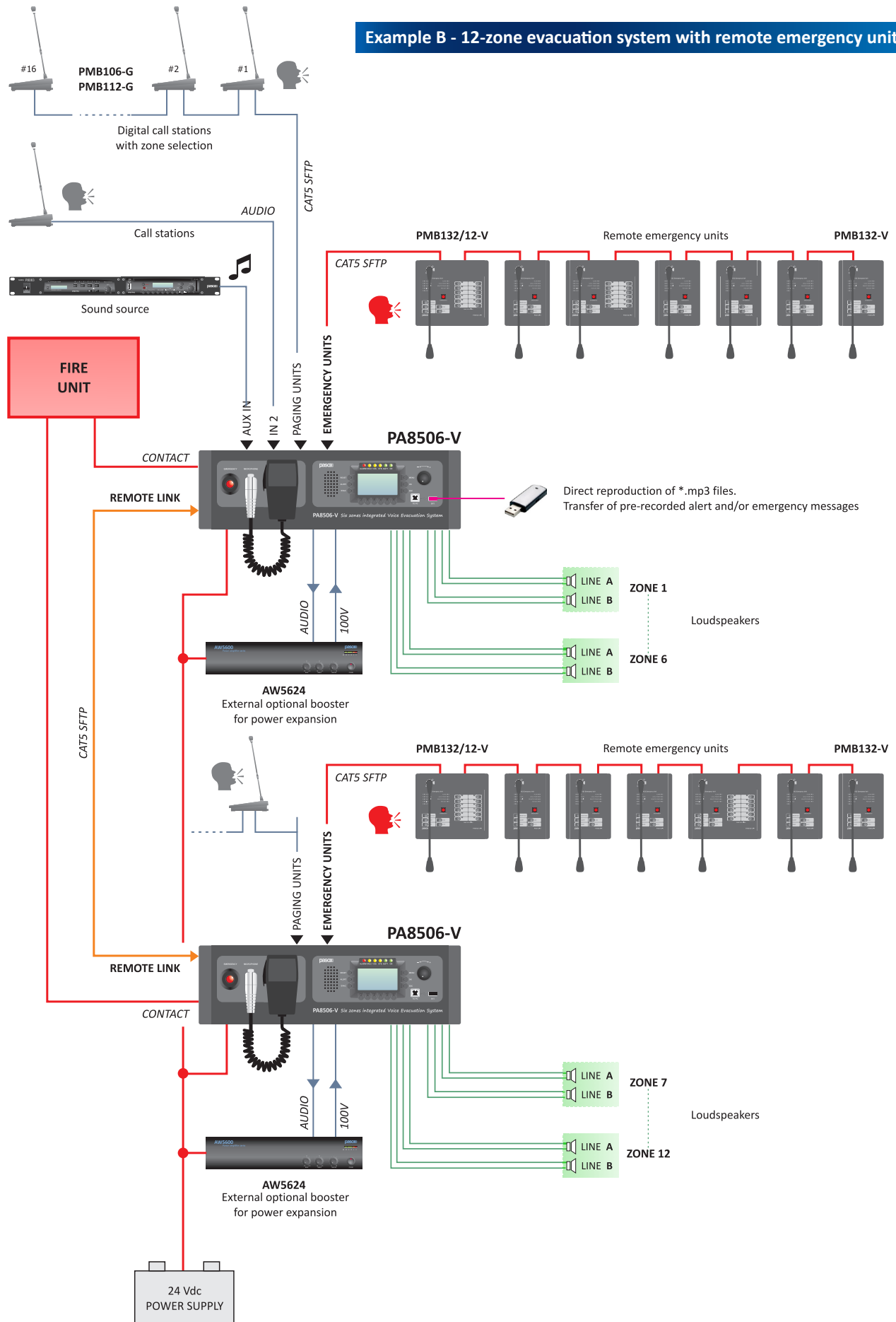
- **PMB132-V**: All Call emergency unit.
- **PMB132/12-V**: Emergency unit for calling up to 12 zones.

The connections between the PA8506-V and the microphone stations must be made solely with Cat. 5 SF/UTP cables.

Example A - 6-zone evacuation system with remote emergency units



Example B - 12-zone evacuation system with remote emergency units



Technical data

Rated output power @230VAC	250 W RMS – with two 250W amplifiers for a dual <i>voice</i> and <i>music</i> channel
Rated output power @24VDC	160 W RMS – with two 160W amplifiers for a dual <i>voice</i> and <i>music</i> channel
N° of output zones	6 zones with a redundant double line (A + B)
Display	3" backlit display, 128x64 pixels
Inputs	
USB-EXT.	USB input powered via the front panel –Type A socket
Emergency microphone • Sensitivity / Impedance • Frequency response / S/N ratio	Balanced XLR-F on front panel Signal level 20 mV / 10 k Ω 60 ÷ 20.000 Hz / 72 dB
IN.1 Socket (MIC.) • Sensitivity / Impedance • Frequency response / S/N ratio	Programmable modes: ON / OFF / Precedence / Mix con IN.2 Balanced XLR-F (with activatable 21 V phantom power supply) Signal level Min. 3 mV - Max 100 mV / 1.8 k Ω 240 ÷ 20.000 Hz / 63 dB
IN.2 Socket (MIC.) • Sensitivity / Impedance • Frequency response / S/N ratio Socket (LINE) • Sensitivity / Impedance • Frequency response / S/N ratio	Programmable modes: ON/ OFF / Precedence / VOX con A.P.T. Balanced XLR-F (with activatable 21 V phantom power supply) Signal level Min. 3 mV - Max 100 mV / 1,8 k Ω 240 ÷ 20.000 Hz / 63 dB Balanced with terminals (HOT-COM-GND) Signal level Max 1800 mV / 31 k Ω 60 ÷ 20.000 Hz / 84 dB
IN.3 Socket (LINE-VOX) • Sensitivity / Impedance • Frequency response / S/N ratio	Programmable modes: ON/ OFF / VOX con A.P.T. Balanced with terminals (HOT-COM-GND) Signal level Max 3600 mV / 3 k Ω 90 ÷ 20.000 Hz / 86 dB
AUX • Sensitivity / Impedance • Frequency response / S/N ratio	RCA stereo socket for source of sound (BGM) - Conversion to mono Signal level Max 1800 mV / 31 k Ω 60 ÷ 20.000 Hz / 84 dB
Paging units • Sensitivity / Impedance • Frequency response / S/N ratio	2 RJ45 sockets per unit (PA) - PMB106/PMB112 and ACIO8136 ranges Signal level Max 1400 mV / 85 k Ω 60 ÷ 20.000 Hz / 83 dB
EMERGENCY UNITS	RJ45 for connection and dedicated emergency microphone station.
EXT. AMP.IN	External amplifier input with terminals 0 - 70 - 100V (max. 250W RMS).
Outputs	
Constant voltage outputs • Load impedance (PA8506-V only) • Load impedance (with 250 W ext. amplifier)	6 zones for dual-line (A/B) 100 V lines - Tot. 12 pairs of terminals, 2.5 mm² Min. 40 Ω for total group of zones 1 to 6 Min. 40 Ω for total group of zones 1 to 3 / Min. 40 Ω for total group of zones 4 to 6
External amplifier • Sensitivity / Impedance • Frequency response / S/N ratio	Output for external amplifier with balanced XLR-M socket and level 0 dBV 1 V / 500 Ω 40 ÷ 20.000 Hz / 84 dB
Monitor BF OUT • Output / Impedance	Loudspeaker built into front panel 1 W / 8 Ω Rear output with terminals (HOT-GND) - 1 V / 400 Ω
Connections to external peripheral units	
Remote links • Sensitivity / Impedance of <i>voice</i> – <i>music</i> channels • Output / Impedance of <i>voice</i> – <i>music</i> channels	RJ45 for connection to secondary PA8506-V unit (slave). Signal level Max 3600 mV / 3 k Ω 1 V / 400 Ω
Emergency controls • CONTROL INPUTS • CONTROL OUTPUTS	Programmable to normally open or normally closed states. 8 inputs with diagnostics. Terminals and service power supply: 24 VDC. 6 open-drain outputs, max 200mA. Terminals and service power supply: 24 VDC., 2 relays for signalling emergencies and failures, N.O-N.C. terminals - Exchange
Precedence IN 1 - IN 2	Precedence input and terminals with common +12 VDC power supply.
LAN	LAN RJ45 socket for TCP/IP connection to web server.
General information	
Mains power supply Power consumption at rated output	230 V _{ac} 50/60 Hz P = 370W/480 VA
Secondary power supply 24V _{dc} / Consumption	24 V _{cc} (min 22V _{dc} ÷ max 28V _{dc}) / 9 A
Operating environmental conditions	Temperature: +5°C to +40°C Relative humidity: 25%-75% non-condensing
Mounting	Optional AC8506 brackets for mounting in 19" rack (height: 3U).
Size (W x H x D)	439 x 132 x 387 mm
Size, packaged (W x H x D)	535 x 225 x 470 mm
Net weight / Gross weight	20,5 kg / 22 kg