



**BOSCH**  
Invented for life

# PLE-2MAxx0-EU Plena Mixer Amplifier



- ▶ **6 microphone/line inputs plus 3 music source inputs**
- ▶ **100 V, telephone and a call station input with priority & VOX**
- ▶ **2 zones and announcement only output**
- ▶ **Voice activated emergency override**
- ▶ **High output power 120 and 240 Watts**
- ▶ **2-tone chime built in (7 more chimes optional with call station)**
- ▶ **Outputs for line out, music only out and insert point**
- ▶ **24 V backup input with built in 24 V charger**
- ▶ **Separate tone controls for microphones and music sources**

These Plena mixer amplifiers are high performance, professional public address units with modern state of the art features. They are easy to use, taking the complexity away from the user and putting it where it belongs, inside the equipment. Providing a crisp call or clear music is as easy as turning on the radio.

The amplifier is also surprisingly affordable, without sacrificing features such as ducking, priority and flexibility.

## Functions

### Microphone and line inputs

All Mic/line inputs can be switched between microphone level and line level sensitivity. The inputs are balanced but can be used unbalanced. Phantom power can be switched on to provide power to condenser microphones.

Input channels 1 and 2 can take priority over all other microphone and music inputs:

- Input 1 can be activated by contact closure on the PTT (push to talk). A 2-tone chime can be configured to precede an announcement.
- Input 2 can be switched automatically if a signal is fed to the input i.e. if someone speaks into the microphone (VOX activation).

When one or both inputs are configured to have priority, the amount of attenuation (reduction) of the cinch inputs, can be set between -2 dB (little attenuation) or  $-\infty$  dB (mute). This provides a talk-over or voice-over function. Input channels 1 and 2 also feature selectable speech filters to enhance the clarity of announcements.

### Music inputs

Separate music inputs are available with their own input selector and volume control. The user can choose a music source like a CD player or radio (like the PLN-DVDT), and set the level of music.

You can set the desired sound for the music source separate from the mic/line inputs. So if the music needs boosted low frequencies, this does not lead to muddy sounding voices from the microphones. A truly unique feature in its class.

### Personalized settings

More unique features are available such as detachable labels where the user can write the names for inputs, music sources and zones. These labels can then be mounted on the front, protected by the clear window.

Another useful feature is to indicate preferred settings on the front panel by inserting colored pins at the preset levels of all knobs. You can then instruct a user to set all the controls to the silver pins to configure the system for their particular use. A second user can set all controls to the red pins for their configuration.

### Tone controls

The unique tone controls provide separate control for mic/line inputs and music inputs so that the voice on the microphones can be specifically optimized for excellent speech or singing. Correspondingly, the tone controls for background music provide the most appropriate music reproduction.

In addition, the tone controls are not standard bass and treble controls. Our experience has led us to develop a tone control that can be used as a traditional tone control with high and low control, but has a powerful contour that addresses the problems found in real situations.

The tone control for the microphone and line inputs boosts warmth in voices without boosting rumble and cuts rumble without losing warmth in the low frequencies. In the high frequencies, the tone control boosts sparkle without adding sharpness, but when cutting is first, cuts harshness and sharpness without reducing clarity.

The tone control for the music inputs boosts deep bass first without making the sound boomy, and cuts rumble without losing warmth in the low frequencies. In the high frequencies the tone control is similar to the microphone inputs, with slightly different frequencies to suit music reproduction.

For easy integration with another PA system or a telephone paging system, a telephone / 100 V emergency input with VOX activation is provided. It has its own preset volume control and overrides all other inputs, including call station and inputs 1 and 2. The unit also has a line output to add amplifiers for larger systems, with more output power, this output can be switched to music only so that for instance music on hold can be provided for the telephone system. Insert (loop through) input and output connections enable external sound processing equipment, such as an equalizer or the Plena feedback suppressor, to be connected between the preamplifier and the power amplifier stages.

### Power

These Plena mixer amplifiers come in 120 and 240 Watts output power. This power is directly available on 100 V constant voltage connections and on a low impedance connection for an 8 ohm load. Moreover, the amplifiers have a separate 100 V call-only output channel for addressing areas where only priority announcements are required. The call-only output can also be used for 3-wire remote, volume control override.

### Zones

The mixer amplifier has two zone outputs. The music can be switched on and off in the zones via the front panel and optional wall panel. Announcements from the PLE-2CS two-zone call station can be routed to zone 1 or zone 2, or both. Announcements from the tel/100 V input or inputs 1 & 2 are routed to both zones. Input 1 can be used for a PLE-1CS all-call call station or any other microphone or call station with a PTT contact.

### Output status

An LED VU meter monitors the master output. A headphone socket, below the VU meter, provides the mixer output before zone selection so that it is possible to listen to the output before the signal is sent to the zone. For total reliability and ease of use, a limiter is integrated into the output stage to restrict output if the user applies too much signal.

### Controls and indicators

#### Front

- On/off switch
- Power on LED
- LED VU meter for master output (LEDs for -18, -12 -6, -3, 0 dB)
- Master volume knob
- Six volume knobs for microphone inputs
- Knob for treble level
- Knob for bass level
- Headphone socket
- Two zone selector buttons
- Background music button

#### Back

- Dip switches
- Chime level
- Ducking level
- Tel/100 V volume control

### Interconnections

See Technical Specifications.

### Certifications and Approvals

|              |                    |
|--------------|--------------------|
| Safety       | acc. to EN 60065   |
| EMC emission | acc. to EN 55103-1 |
| EMC immunity | acc. to EN 55103-2 |

## Installation/Configuration Notes



Rear view

## Parts Included

| Quantity | Components                                          |
|----------|-----------------------------------------------------|
| 1        | PLE-2MA120-EU / PLE-2MA240-EU Plena Mixer Amplifier |
| 1        | Power cord                                          |
| 1        | Manual                                              |
| 1        | Set of 19" mounting brackets                        |
| 1        | Plena Easy Line CD                                  |

## Technical Specifications

### Electrical

#### Mains power supply

|                              |                                        |
|------------------------------|----------------------------------------|
| Voltage                      | 115 - 230 VAC $\pm 10\%$ ,<br>50/60 Hz |
| Inrush Current PLE-2MA120-EU | 8/16 A (230/115 VAC)                   |
| Inrush Current PLE-2MA240-EU | 9/19 A (230/115 VAC)                   |

#### Battery power supply

|                       |                           |
|-----------------------|---------------------------|
| Voltage               | 24 VDC, $+10\%$ / $-15\%$ |
| Current PLE-2MA120-EU | 6 A                       |
| Current PLE-2MA240-EU | 12 A                      |
| Charge current        | 0.5 ADC                   |
| Charge float voltage  | 27.3 VDC                  |

#### Power consumption

|                       |        |
|-----------------------|--------|
| PLE-2MA120-EU (mains) | 400 VA |
| PLE-2MA240-EU (mains) | 800 VA |

### Performance

|                    |                                                             |
|--------------------|-------------------------------------------------------------|
| Frequency response | 50 Hz to 20 kHz ( $+1/-3$ dB @<br>-10 dB ref. rated output) |
| Distortion         | <1% @ rated output power,<br>1 kHz                          |
| Low Control        | Max -12/+12 dB (frequency is<br>setting dependent)          |
| Hi Control         | Max -12/+12 dB (frequency is<br>setting dependent)          |

#### RJ-45 input

**2 x**

|                    |                 |
|--------------------|-----------------|
| Call station input | For PLE-2CS(MM) |
| Wall panel input   | For PLE-WP3S2Z  |

#### Mic/line input

**6 x**

|                                                           |                                                                     |
|-----------------------------------------------------------|---------------------------------------------------------------------|
| Input 1 (Push-to-talk contact with ducking functionality) | 5-pin Euro style, balanced, phantom<br>3-pin XLR, balanced, phantom |
| Input 2-6 (VOX with ducking functionality on input 2)     | 3-pin XLR, balanced, phantom                                        |
| Sensitivity                                               | 1 mV (mic); 1 V (line)                                              |
| Impedance                                                 | >1 kohm (mic); >5 kohm (line)                                       |
| S/N (flat at max volume)                                  | 63 dB                                                               |
| S/N (flat at min volume/muted)                            | >5 dB                                                               |
| Dynamic range                                             | 93 dB                                                               |
| S/N (flat at max volume)                                  | >63 dB (mic); >70 dB (line)                                         |
| S/N (flat at min volume/muted)                            | >75 dB                                                              |
| CMRR (mic)                                                | >40 dB (50 Hz to 20 kHz)                                            |
| Headroom                                                  | >17 dB                                                              |
| Speech filter                                             | -3 dB @ 315 Hz, high-pass,<br>6 dB/oct                              |
| Phantom power supply                                      | 16 V via 1.2 kohm (mic)                                             |
| Speech filter                                             | -3 dB @ 315 Hz, high-pass,<br>6 dB/oct                              |
| VOX (input 1 & 2)                                         | attack time 150 ms; release<br>time 2 s                             |

#### Music inputs

**3x**

|                                |                                    |
|--------------------------------|------------------------------------|
| Connector                      | Cinch, stereo converted to<br>mono |
| Sensitivity                    | 300 mV                             |
| Impedance                      | 22 kohm                            |
| S/N (flat at max volume)       | >70 dB                             |
| S/N (flat at min volume/muted) | >75 dB                             |
| Headroom                       | >25 dB                             |

#### Emergency / telephone

**1 x**

|                  |                                               |
|------------------|-----------------------------------------------|
| Connector        | 7-pin, Euro style pluggable<br>screw terminal |
| Sensitivity tel  | 1 V maximum                                   |
| Sensitivity 100V | 100 V maximum                                 |
| Impedance        | >10 kohm                                      |

|                              |                                                       |
|------------------------------|-------------------------------------------------------|
| <b>Emergency / telephone</b> | <b>1 x</b>                                            |
| S/N (flat at max volume)     | >65 dB                                                |
| VOX                          | threshold 50 mV; attack time 150 ms; release time 2 s |

|               |            |
|---------------|------------|
| <b>Insert</b> | <b>1 x</b> |
| Connector     | Cinch      |
| Nominal level | 1 V        |
| Impedance     | >10 kohm   |

|                            |                     |
|----------------------------|---------------------|
| <b>Master/music output</b> | <b>1 x</b>          |
| Connector                  | 3-pin XLR, balanced |
| Nominal level              | 1 V                 |
| Impedance                  | <100 ohm            |

**Loudspeaker outputs 100 V\***

|                           |                 |
|---------------------------|-----------------|
| Connector                 | Screw, floating |
| Max / rated PLE-2MA120-EU | 180 W / 120 W   |
| Max / rated PLE-2MA240-EU | 360 W / 240 W   |

**Loudspeaker output 8 ohm\***

|               |                                               |
|---------------|-----------------------------------------------|
| Connector     | Euro style pluggable screw terminal, floating |
| PLE-2MA120-EU | 31 V (120 W)                                  |
| PLE-2MA240-EU | 44 V (240 W)                                  |

\* Subtract 1 dB for 24 V battery operation.

**Mechanical**

|                        |                                           |
|------------------------|-------------------------------------------|
| Dimensions (H x W x D) | 100 x 430 x 270 mm<br>(19" wide, 2U high) |
| Mounting               | Stand-alone, 19" rack                     |
| Color                  | Charcoal                                  |
| Weight (PLE-2MA120-EU) | Approx. 10.5 kg                           |
| Weight (PLE-2MA240-EU) | Approx. 12.5 kg                           |

**Environmental**

|                             |                                            |
|-----------------------------|--------------------------------------------|
| Operating temperature       | -10 °C to +45 °C                           |
| Storage temperature         | -40 °C to +70 °C                           |
| Relative humidity           | <95%                                       |
| Acoustic noise level of fan | <33 dB SPL @ 1 m<br>temperature controlled |

**Ordering Information**

|                                                                               |                      |
|-------------------------------------------------------------------------------|----------------------|
| <b>PLE-2MA120-EU Plena Mixer Amplifier</b><br>120 W, 10 input mixer amplifier | <b>PLE-2MA120-EU</b> |
|-------------------------------------------------------------------------------|----------------------|

|                                                                               |                      |
|-------------------------------------------------------------------------------|----------------------|
| <b>PLE-2MA240-EU Plena Mixer Amplifier</b><br>240 W, 10 input mixer amplifier | <b>PLE-2MA240-EU</b> |
|-------------------------------------------------------------------------------|----------------------|

**Americas:**  
Bosch Communications Systems  
12000 Portland Avenue South  
Burnsville, Minnesota 55337, USA  
Phone: +1-800-392-3497  
Fax: +1-800-955-6831  
audiosupport@us.bosch.com  
www.boschsecurity.com

**Europe, Middle East, Africa:**  
Bosch Security Systems B.V.  
P.O. Box 80002  
5600 JB Eindhoven, The Netherlands  
Phone: +31 40 2577 284  
Fax: +31 40 2577 330  
emea.securitysystems@bosch.com  
www.boschsecurity.com

**Asia-Pacific:**  
Robert Bosch (SEA) Pte Ltd  
11 Bishan Street 21  
Singapore 573943  
Phone: +65 6571 2600  
Fax: +65 6571 2698  
apr.securitysystems@bosch.com  
www.boschsecurity.com

**Represented by**